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SUMMARY OF TARIFF INFORMATION

1921

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RELATIVE TO THE BILL

H. R. 7456



PREPARED BY
THE UNITED STATES TARIFF COMMISSION
FOR THE USE OF
THE SENATE COMMITTEE ON FINANCE



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UNITED STATES TARIFF COMMISSION,
Washington, D. C., January 31, 1922.

SIRS: In accordance with the request of the chairman of the Committee on Finance by letter of November 1, 1921, the Tariff Commission submits the accompanying Summary of Tariff Information, relative to the bill H. R. 7456 as passed by the House of Representatives on July 21, 1921.

Very truly yours,

THOMAS O. MARVIN, *Chairman.*

The COMMITTEE ON FINANCE,
United States Senate, Washington, D. C.

INTRODUCTION.

The following compilation has been prepared by the United States Tariff Commission pursuant to a request by the Committee on Finance of the Senate for a summary of pertinent information upon the bill H. R. 7456 (the Fordney bill) as passed by the House of Representatives and now pending in the Senate.

Treatment naturally falls into two main divisions, as follows:

1. Descriptive and economic data on commodities mentioned in the bill, covering description and uses of the articles, and information concerning their production, importation, and exportation.
2. Discussion of the form of the bill, including mention of important changes in classification made by the Committee on Ways and Means and the reasons therefor, notation of some provisions which appear to be inconsistent, and the suggestion of certain textual changes.

The principal sources of information have been the commodity surveys and reports of the Tariff Commission, especially the "Summary of Tariff Information, 1920." The material in the latter has been amplified and brought up to date.

General statistics were obtained for the most part from official publications or directly from Government departments, as follows: Statistics of manufactures from the United States Census; of minerals and earth products from the Geological Survey; of agricultural products from the Department of Agriculture; of imports and exports from the Department of Commerce.

The special commodity surveys to which reference has been made above should be consulted for more extended discussion of the subjects appearing in this volume. Under the various subtitles will be found references to these surveys, as, for example:

BLEACHING POWDER.

(See Survey A-5.)

This means that bleaching powder is treated at length in the commission's Tariff Information Survey A-5. The reports cited in this manner may be obtained in most cases from the Superintendent of Documents at the Government Printing Office or directly from the commission to a limited extent.

In a few cases other abbreviations have been used. "T. I. S." refers to "Tariff Information Series," "M. S." refers to "Miscellaneous Series" (unnumbered), and "W. M." to "Reports to Committee on Ways and Means" (unnumbered).

The tabulated import and export statistics cover calendar years, those in the text fiscal years, unless otherwise indicated. "Imports" are "imports for consumption," except in some instances where "general imports" are specifically mentioned. The term "tons" used in relation to imports and exports means "long tons." Statistics of production, without definite reference to country, relate to the United States.

Statistics of imports and exports, classified in "Commerce and Navigation" according to the paragraphs of the tariff act of 1913, have been brought as far as possible under the new classification of the bill H. R. 7456, but in a number of cases the figures could not be made to apply exactly to the items in the new bill. Statistics of duties for 1921 were not available and were therefore necessarily omitted from the tables and elsewhere.

Under the heading "Suggested changes" obvious reasons for such suggested changes are omitted.

At the end of the free list on page 1485 is a tabulation of articles transferred from the free list of the act of 1913 (as modified) to the dutiable schedules of the bill H. R. 7456, and of articles transferred from the dutiable schedules of the act of 1913 to the free list of the bill H. R. 7456.

SUMMARY OF TARIFF INFORMATION, 1921.

H. B. 7456.

SENATE AMENDMENTS.

AN ACT To provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I.—DUTIABLE LIST.

SECTION 1. That on and after the day following the passage of this Act, except as otherwise specially provided for in this Act, there shall be levied, collected, and paid upon all articles when imported from any foreign country into the United States or into any of its possessions (except the Philippine Islands, the Virgin Islands, and the islands of Guam and Tutulla) the rates of duty which are prescribed by the schedules and paragraphs of the dutiable list of this title, namely:

ACT OF 1909.

An Act To provide revenue, equalize duties and encourage the industries of the United States, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That on and after the day following the passage of this Act, except as otherwise specially provided for in the second section of this Act, there shall be levied, collected, and paid upon all articles when imported from any foreign country into the United States or into any of its possessions (except the Philippine Islands and the islands of Guam and Tutulla) the rates of duty which are by the schedules and paragraphs of the dutiable list of this section prescribed, namely:

Suggested changes.—Importations into the Philippine Islands from foreign countries are subject to the rates of duty prescribed in the Philippine tariff act of August 5, 1909 (ch. 8, 36 Stat., 130). The act of March 3, 1917 (ch. 171, sec. 4, 39 Stat., 1133), made im-

ACT OF 1913.

An Act To reduce tariff duties and to provide revenue for the Government, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That on and after the day following the passage of this Act, except as otherwise specially provided for in this Act, there shall be levied, collected, and paid upon all articles when imported from any foreign country into the United States or into any of its possessions (except the Philippine Islands and the islands of Guam and Tutulla) the rates of duty which are by the schedules and paragraphs of the dutiable list of this section prescribed, namely:

portations into the Virgin Islands subject to the laws in force there at the time of cession to the United States by Denmark. Products of the United States are admitted free into both of those possessions. Duties are collected upon importations into Guam and Tutuila under a tariff administered by the Navy Department, there having been no legislation governing imports into those islands. Products of the United States shipped to Tutuila are subject to duty or exempt from duty the same as like importations from foreign countries. Products of the United States going into Guam are exempt from duty. Under existing laws merchandise can not be shipped to Tutuila or to Guam for drawback of duties nor be withdrawn from bonded warehouses in the United States for shipment thereto without payment of duties. (Art. 200, Cust. Regs. of 1915.)

The Panama Canal Zone is not a possession of the United States but is a place subject to its jurisdiction for maintenance of the canal. (27 Op. Atty. Gen., 594, of 1909.) Shipments between the United States and the Canal Zone are treated in all respects as shipments to and from foreign countries. (Act of Mar. 2, 1905; *Kaufman v. Smith*, 216 U. S., 610, of 1910.) The customs administration of said Zone is under the jurisdiction of the War Department. (Art. 201, Cust. Regs. of 1915.)

Section 401 (p) of Title IV of H. R. 7456 defines the term "United States" for the purposes of the whole act, and therefore applies to Title I, the dutiable list, and Title II, the free list, of H. R. 7456. The purpose of the definition, as suggested by the Tariff Commission in its report of August 26, 1918, upon the customs administrative laws, was to give the President authority in the absence of legislation to treat the insular possessions and the Panama Canal Zone as foreign or domestic, according to the needs for administrative purposes. Unless, therefore, the word "act" in section 401 (p) of Title IV of H. R. 7456 shall be changed to "title" there will be a conflict with the above provision in section 1 of Title I of H. R. 7456, and also with the first part of section 201 of Title II of H. R. 7456.

DUTIABLE LIST.

SCHEDULE 1.—CHEMICALS, OILS, AND PAINTS.

[NOTE.—The United States Tariff Commission, in response to a request from the Committee on Ways and Means of the House of Representatives, transmitted on March 28, 1921, to that committee a report entitled "Suggested reclassification of chemicals, oils, and paints." This document, referred to in the following pages as the "Reclassification Report," was confined to matters of wording, arrangement, and classification of the provisions dealing with chemicals, oils, and paints of the acts of 1913 and 1916. No attempt was made to transfer articles from the dutiable to the free list, or the reverse, nor to recommend rates of duty. The suggested reclassification was adopted by the committee as a basis of schedule 1 of H. R. 7456.]

PARAGRAPH 1.

H. R. 7456.

SENATE AMENDMENTS.

PARAGRAPH 1. Acids and acid anhydrides: Acetic acid containing not more than 65 per centum of acetic acid, three-fourths of 1 cent per pound; containing more than 65 per centum, 2 cents per pound; acetic anhydride, 8 cents per pound; boric acid, 2 cents per pound; chloroacetic acid, 5 cents per pound; citric acid, 12 cents per pound; lactic acid, containing by weight of lactic acid less than 80 per centum, 1½ cents per pound; 30 per centum or more and less than 55 per centum, 3 cents per pound; and 55 per centum or more, 5 cents per pound: *Provided*, That any lactic-acid anhydride present shall be determined as lactic acid and included as such: *And provided further*, That the duty on lactic acid shall not be less than 25 per centum ad valorem; tannic acid, tannin, and extracts or decoctions of nutgalls, containing by weight of tannic acid less than 50 per centum, 4 cents per pound; 50 per centum or more and less than 80 per centum, 10 cents per pound; and 80 per centum or more, 20 cents per pound; tartaric acid, 6 cents per pound; arsenic acid, arsenious acid or white arsenic, formic acid, gallic acid, oleic acid or red oil, oxalic acid, phosphoric acid, pyrogallie acid, stearic acid, and all other acids and acid anhydrides not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

SCHEDULE A.—CHEMICALS, OILS, AND PAINTS.

SCHEDULE A—CHEMICALS, OILS, AND PAINTS.

PAR. 1. Acids: Acetic or pyroligneous acid, not exceeding the specific gravity of one and forty-seven one-

PAR. 1. Acids: Boracic acid, ¼ cent per pound; citric acid, 5 cents per pound; formic acid, 1½ cents per

thousandths, three-fourths of one cent per pound; exceeding the specific gravity of one and forty-seven one-thousandths, two cents per pound; acetic anhydrid, two and one-half cents per pound; boracic acid, three cents per pound; * * * citric acid, seven cents per pound; lactic acid, containing not over forty per centum by weight of actual lactic acid, two cents per pound; containing over forty per centum by weight of actual lactic acid, three cents per pound; oxalic acid, two cents per pound; * * * tannic acid or tannin, thirty-five cents per pound; gallic acid, eight cents per pound; tartaric acid, five cents per pound; all other acids not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 482. Acids: Arsenic or arsenious, * * * phosphoric, * * * prussic, sillicic, * * * [Free].

PAR. 22. * * * extract of nutgalls, aqueous, one-fourth of one cent per pound and ten per centum ad valorem; * * *

pound; gallic acid, 6 cents per pound; lactic acid, 1½ cents per pound; oxalic acid, 1½ cents per pound; pyrogallic acid, 12 cents per pound; * * * tannic acid and tannin, 5 cents per pound; tartaric acid, 3½ cents per pound; all other acids and acid anhydrides not specially provided for in this section, 15 per centum ad valorem.

PAR. 2. Acetic anhydrid, 2½ cents per pound.

PAR. 387. Acids: Acetic or pyroligneous, arsenic or arsenious, * * * phosphoric, * * * prussic, sillicic, * * * [Free].

PAR. 30. Extracts and decoctions of nutgalls, * * * not containing alcohol and not medicinal, ½ of 1 cent per pound.

ACETIC ACID.

(See Survey A-2.)

Description and uses.—Acetic acid is that chemical constituent which gives vinegar its sour taste. The common grades of the commercial acid contain 28, 56, and 80 per cent of acetic acid. The most concentrated form, which contains over 99 per cent, is known as glacial acetic acid. The largest use is in manufacturing the pigments, white lead, and verdigris. Other uses are in printing and dyeing textiles; in the leather industry; in the manufacture of insecticides, inks, dyes, and drugs; and for laundry purposes. Pyroligneous acid is the crude acetic-acid solution obtained in the destructive distillation of wood. It does not enter commerce to any great extent, but is usually refined by conversion into calcium acetate. (See par. 1540.)

Production of acetic acid in 1914 was 75,303,375 pounds, valued at \$1,272,294, and in 1919 (proliminary figures) 46,821,000 pounds, valued at \$2,816,300. In 1919 the output of glacial acetic acid was 5,050,000 pounds, valued at \$869,200. Acetic acid is usually made from acetate of lime or of soda, and its manufacture is rather widespread. As a result of large war demands for acetone a process has been developed in Canada which gives acetic acid as an intermediate product and uses the raw material, calcium carbide. Productive capacity of the Canadian plant is about 650 tons per month of 100 per cent acetic acid.

Imports of acetic acid increased after the act of 1913, but from 1910 to 1917 were never more than 1 per cent of domestic production. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|-----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918 | 297,323 | \$83,907 | \$0.28 |
| 1919 | 1,850,427 | 219,826 | .13 |
| 1920 | 2,862,068 | 365,741 | .13 |
| 1921 (9 months) | 28,042 | 2,315 | .08 |

In 1919 over 90 per cent of imports came from Canada. The 1920 import was about 5 per cent by quantity and by value 10 per cent of the 1919 domestic output.

Exports of acetic acid are not shown. It is usually exported in the form of calcium acetate. (See par. 1540, p. 1267.)

Important changes in classification.—"Acid anhydrides" added to the heading of this paragraph. Acetic or pyroligneous acid is exempt from duty under paragraph 387 of the act of 1913.

Suggested changes.—Page 2, line 3, of H. R. 7456: Insert the words "by weight" after the word "containing."

ACETIC ANHYDRIDE.

(See Survey A-2.)

Description and uses.—Acetic anhydride, a colorless liquid with a strong acetic odor, is derived from acetic acid by the removal of water. It is used in the manufacture of acetyl salicylic acid (aspirin) and cellulose acetate. (See par. 28.)

Production.—Acetic anhydride is made by treating anhydrous sodium acetate with phosphorus chloride or sulphur chloride. Prior to the war little, if any, was made in this country. The war demand for airplane "dopes" and the expiration of the patents on "aspirin" caused a great stimulus to the industry. The production in 1919 (preliminary figures) was 1,213,200 pounds, valued at \$578,600.

Imports prior to 1915 were from Germany, and amounted to about 1,200,000 pounds in 1910 and 1911. They declined to about 300,000 pounds in 1913, and during the war were negligible. There have been no imports from 1919 to September 30, 1921, inclusive.

Exports.—Statistics not available.

Important changes in classification.—Acetic anhydride has been transferred to this paragraph from paragraph 2, act of 1913, so as to bring all acids and acid anhydrides together.

BORIC ACID.

(See Survey A-1.)

Description.—Boric acid is a white crystalline substance which has very weak acid properties and is a mild antiseptic. Borax refined, or borate of soda, closely allied to boric acid, is assessed a duty of one-eighth cent per pound under paragraph 78 of H. R. 7456. Crude borax and crude borate minerals from which boric acid and refined borax are made are on the free list, paragraph 1533.

Uses.—The principal uses of boric acid and borax are: (a) In making enamels for iron and steel (kitchen ware, sanitary ware, equipment for chemical factories, watch dials, etc.). (b) As an ingredient for glazes on earthenware and pottery. (c) In the manu-

facture of some varieties of glass, especially lamp chimneys and chemical laboratory ware. (d) As a flux for welding and brazing metals. (e) As an ingredient for some varieties of soap, principally laundry soap for use with hard water. (f) In the tanning of some varieties of leather. (g) As an antiseptic in eye lotions, cosmetics, and washes for wounds. (h) In Europe as a food preservative, especially in dairy products, dried and smoked meat, and sausages. In the United States this use is prohibited by the food and drugs act, except in products intended for export.

Production.—Boric acid and borax are made from crude borate minerals which are mined commercially in California and Nevada, and Chile, Italy, Turkey, and Germany. The United States produces about one-half of the world's total supply and Chile about one-third. The domestic production of these minerals has grown from 50,609 tons in 1914 to 108,875 tons in 1917. Refined boric acid and borax is manufactured in California, New York, New Jersey, Pennsylvania, and Illinois. Production in the United States in 1914 was 4,295 tons, valued at \$588,981, and in 1917 was 5,888 tons, valued at \$1,383,783. The production for 1919 (preliminary figures) was 7,227 tons, valued at \$1,754,600.

Imports have been less than 5 per cent of the American production since 1908. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent of valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 269,096 | \$26,430 | \$6.10 | \$1,943 | 7.35 |
| 1919..... | 276,795 | 20,716 | .07 | 2,076 | 10.02 |
| 1920..... | 189,667 | 9,733 | .05 | 1,422 | 14.63 |
| 1921 (9 months)..... | 248,233 | 18,392 | .07 | | |

Exports.—Statistics are not available, but were probably negligible before the war. An important export trade has developed since 1914.¹

CHLOROACETIC ACID.

Description and uses.—Of the various chloroacetic acids, the most important is monochloroacetic acid (obtained by treating glacial acetic acid with chlorine), an important intermediate in the manufacture of the coal-tar dye indigo.

Production.—Little or no chloroacetic acid was produced in the United States prior to the war, because of the absence of a synthetic dye industry. The necessary raw materials—acetic acid and chlorine—are available in large quantities and the manufacture of the acid on a commercial scale was coincident with that of coal-tar dyes. Statistics of production are not available but the output is known to be large.

Imports are recorded for 1914 (fiscal year) only, when commercial grades of monochloroacetic acid amounted to 12,834 pounds, valued at \$2,756.

Exports.—Statistics not available.

Important change in classification.—New specific provision.

¹ See Tariff Commission report, "Acids of paragraph 1 and related materials in the tariff act of 1913," for detailed import and export information.

CITRIC ACID.

(See Survey A-1.)

Description and uses.—Citric acid is a white crystalline substance obtained as a by-product of the lemon industry. Its principal use is in the manufacture of beverages and pharmaceutical preparations. Citrate of lime (dutiable at 7 cents per pound, par. 46) is the intermediary chemical in the manufacture of citric acid from lemon juice. Citrate of lime is used exclusively for the manufacture of citric acid.

Domestic production.—The greater part of the citric acid manufactured in the United States is from the citrate of lime imported from Sicily; a small amount is made from lemon and lime juice imported (free under par. 1604) from the West Indies; the remainder is obtained as a by-product of the lemon industry in California.

Citric acid is made from "cull" (inferior or damaged) lemons, not salable as fresh fruit. A by-product obtained at the same time is essential oil of lemon, which is dutiable at 20 per cent under paragraph 54. The cultural methods in California are so superior to those commonly used in Sicily that a smaller proportion of the crop is converted into by-products. There is a large acreage of young, nonbearing lemon trees in California, and a substantial increase in the crop may be expected in the near future. In spite of this expansion in total output of lemons, the American demand for citric acid can not be met from domestic sources unless overproduction forces lemons of good grade into by-products.

Besides the California producers, a group of manufacturers located near Atlantic ports are engaged in making citric acid, principally from imported citrate of lime. These firms are concerned chiefly with the margin of duty between citrate of lime and citric acid. The production of citric acid in the United States grew from 2,729,943 pounds in 1914 to 4,032,897 pounds in 1917, but decreased in 1919 (preliminary figures) to 3,163,700 pounds, valued at \$3,047,400.

Imports of citric acid in 1913 were only 8,677 pounds, valued at \$2,916, on which a revenue of \$607 was collected. After the passage of the act of 1913 they increased greatly, although they remained small in comparison with imports of citrate of lime. The imports of 1915 amounted to 722,434 pounds, valued at \$447,131, and yielded a revenue of \$36,121. This increase was not due entirely to the change in the tariff, but in part to the erection of citric-acid factories in Italy. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 332,269 | \$217,027 | \$0.65 | \$16,613 | 7.66 |
| 1919..... | 1,224,691 | 1,187,267 | .97 | 61,229 | 5.16 |
| 1920..... | 1,317,467 | 1,142,842 | .87 | 65,673 | 5.76 |
| 1921 (9 months)..... | 610,249 | 378,495 | .62 | | |

Imports of 1919 and 1920 were from six to ten times imports from 1908 to 1913, and about double the 1915 imports.

Exports.—Statistics not available.

Suggested changes.—See paragraph 46, page 133.

LACTIC ACID.

(See Survey A-1.)

Description.—Lactic acid is the acid formed in souring milk, although commercial supplies are obtained from other sources. Pure lactic acid is a colorless, odorless liquid which mixes with water in all proportions. It attacks iron, and must therefore be shipped in wood or glass containers. It comes on the market in three grades of purity and in several degrees of strength. Technical lactic acid contains impurities which give it a dark color and an unpleasant odor. It is customarily sold either in 22, 44, or 66 per cent strength, and is graded according to whether it is "light" or "dark" in color. Edible lactic acid is free from impurities which give an objectionable odor and flavor, is nearly colorless, and is usually about 50 per cent in strength. Medicinal lactic acid (United States Pharmacopœia) is a refined article of not less than 85 per cent of acid and with only traces of impurities.

Uses.—Technical lactic acid is used principally in tanning for the "bating" and "plumping" of hides and also in the dyeing and printing of textiles. Edible lactic acid has been on the market in considerable amounts only since the summer of 1918. A large market will probably develop for it in beverages, especially in nonalcoholic imitation beers and soft drinks. A use which may develop is that of bread making. It has been found that the addition of this acid to dough improves the quality of bread. Lactic acid and several of its salts are used in medicine.

Production.—The acid is made from corn or other starchy material and from vegetable-ivory scrap obtained from button factories. The raw material is heated with sulphuric acid to make glucose, fermented to lactic acid, then concentrated and refined. The industry began to develop in the United States in 1881 and has steadily grown. There were five manufacturers in 1917, with an output of over 1,900,000 pounds, calculated as 100 per cent lactic acid. The output of American factories increased rapidly during the war. The production in 1919 (preliminary figures) was 5,054,500 pounds (strength not stated), valued at \$781,500. In 1896 manufacture was begun in Germany, where the industry grew more rapidly than in the United States. No figures on production in Germany are available, but German exports before the war were about equal to the 1919 domestic output. The German acid is made from potatoes.

Imports.—The largest during any one year (1912) were 335,335 pounds, valued at \$25,267, yielding a revenue of \$9,732. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 200 | \$461 | \$2.30 | \$3 | 0.65 |
| 1919..... | 11,023 | 3,927 | .36 | 165 | 4.21 |
| 1920..... | 133,756 | 65,354 | .49 | 2,006 | 3.07 |
| 1921 (9 months)..... | 853,545 | 29,212 | .08 | | |

Exports.—Export statistics are not given, but it is known that at least one American firm exported lactic acid before the war, and that exports have increased substantially.

Important changes in classification.—Since lactic acid appears on the market in many grades varying in strength, quality, or purity, and in price, a single specific duty, as imposed by the act of 1913, bears unevenly on the different grades. Distinction between the various grades aside from strength could not be stated in language simple enough for incorporation in the tariff law. Suggestion of the commission to divide lactic acid into three grades by percentage content of lactic acid for tariff purposes was adopted by the Ways and Means Committee.

The fact that lactic acid always contains lactic acid anhydride in varying amounts made necessary the provision that any lactic acid anhydride present shall be determined as lactic acid and included as such. (Reclassification Report, p. 9.)

TANNIC ACID, TANNIN, AND EXTRACT OF NUTGALLS.

(See Survey A-1.)

Description and uses.—The term "tannin" in scientific usage is a class name covering a large number of similar substances. As used in commerce and in the tariff the term applies to only one member of this class, namely, that known to chemists as gallotannic acid. A highly purified grade conforming to the specifications of the United States Pharmacopœia, is known as "tannic acid, U. S. P.," and a less pure grade as "technical tannic acid."

The technical grades of tannic acid and extracts of nutgalls are used as a mordant in the dyeing and printing of textiles, in the manufacture of color lakes, in ink making, and for the manufacture of gallic acid. Other materials are both cheaper and better for tanning leather. Tannic acid, U. S. P., is used for medicinal purposes and for the clarification of wines and fruit juices.

Production.—Tannic acid is made from nutgalls, obtained almost entirely from China, Japan, and Asia Minor. In 1914 the domestic production by five firms was 853,830 pounds, valued at \$287,142. Foreign statistics are not available, but before the war Germany was the largest producer, German exports exceeding the total American production.

Imports under the tariff act of 1909, which imposed a duty of 35 cents per pound, were negligible, the maximum during any fiscal year being 8,071 pounds, valued at \$3,864. The act of 1913, reducing the duty to 5 cents per pound, was followed by an increase in imports in 1915 to 49,493 pounds, valued at \$17,047, or about 6 per cent of the American production during 1914. Imports from 1915 to 1918 (fiscal years) were negligible, probably because of the blockade of Germany. Recent statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------------|---------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 48,256 | \$21,139 | \$0.44 | \$2,413 | 11.41 |
| 1919..... | 68,336 | 31,470 | .46 | 3,417 | 10.86 |
| 1920..... | 28,669 | 15,489 | .54 | 1,433 | 9.25 |
| 1921 (9 months)..... | 45,384 | 10,150 | .22 | | |

Postwar imports have been from three to eight times the prewar imports.

Important changes in classification.—The act of 1913, in paragraph 1, provides for “tannic acid and tannin, 5 cents per pound;” while paragraph 30 provides for “extracts and decoctions of nutgalls * * * three-eighths of 1 cent per pound.” There is no clear and sharp distinction between a solid extract of nutgalls and tannic acid, technical. These provisions have caused litigation. An importation of nutgall extract in solid form, which on analysis was found to contain 78.34 per cent tannic acid, was held without evidence of the process of manufacture to be dutiable as tannic acid. (*East Asiatic Co. v. United States*, 10 Ct. Cust. Appls., 207, of 1920.)

The suggestion of the commission that tannic acid and tannin be combined with the provision for extract of nutgalls and that the duties be levied according to percentage content of tannic acid or tannin was adopted by the Committee on Ways and Means. (Reclassification Report, p. 10.)

Suggested changes.—After the indorsement of manufacturers and importers had been secured as to the percentage limitations suggested by the Tariff Commission, and after the passage of the bill H. R. 7456 by the House of Representatives, a representative of one of the manufacturers who had previously agreed to the commission's classification stated to the Finance Committee of the Senate that the limit of 80 per cent would not include U. S. P. tannic acid, intended to be included. His statement was based upon analyses made in the manufacturer's laboratory. Upon receipt of these analyses, the commission had additional samples of tannic acid analyzed, and its conclusion was that much of the U. S. P. tannic acid would fall below the 80 per cent limit and that higher grades of technical tannic acid have a tannin content approaching that of the U. S. P. tannic acid. It is therefore evident that it would be extremely difficult to distinguish the two grades for tariff purposes by tannic-acid content but that other tests specified in detail in the United States Pharmacopœia must be used. It is now believed that if the following classification be substituted for the present provision for tannin or tannic acid in paragraph 1 of Title I of H. R. 7456 the two grades will be easily distinguishable:

tannic acid, tannin, and extracts or decoctions of nutgalls containing by weight of tannic acid less than 50 per cent, [rate]; 50 per cent or more and not medicinal, [rate]; 50 per cent or more and medicinal, [rate].

This classification would divide the various grades of tannic acid above 50 per cent into medicinal and nonmedicinal, according to specifications of the United States Pharmacopœia, regarded by customs officials and the trade as authoritatively distinguishing between medicinal and nonmedicinal grades of chemicals.

TARTARIC ACID.

(See Survey A-1.)

Description and uses.—Tartaric acid is present in grapes and is obtained commercially from wine lees, argols, or crude tartar, by-products of the wine and grape-juice industries. It is closely allied

in origin, manufacture, and use to cream of tartar or potassium acid tartrate (par. 9). It is used in the manufacture of baking powder, in beverages, jellies and preserves, in pharmaceutical products, in the dyeing and printing of textiles, and in the manufacture of various salts of tartaric acid used in photography, medicine, silver plating, and chemical laboratories.

Domestic production of crude tartar materials is very small. Either the crude tartar materials or the refined tartaric acid and cream of tartar are imported to supply the demands. Production in 1919 (preliminary figures) of tartaric acid, chiefly from imported raw materials, was 5,313,000 pounds, valued at \$4,262,400.

Imports of tartaric acid have varied greatly. They decreased prior to the war from 331,538 pounds, valued at \$72,204, in 1911 to 78,942 pounds in 1913. In 1914 and 1915 imports exceeded 800,000 pounds, and from 1916 to 1918, inclusive, they were between 200,000 and 400,000 pounds annually. Recent statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 316,818 | \$200,145 | \$0.63 | \$11,080 | 5.54 |
| 1919..... | 654,736 | 447,571 | .70 | 22,916 | 5.12 |
| 1920..... | 1,367,103 | 850,369 | .62 | 47,849 | 5.63 |
| 1921 (9 months)..... | 1,615,203 | 531,914 | .33 | | |

Exports.—Statistics for tartaric acid or cream of tartar are not available, but probably were not large. However, exports of baking powder containing these materials have been extensive.

ARSENIC ACID AND ARSENIOUS ACID OR WHITE ARSENIC.

(See Survey FL-6.)

Description and uses.—Arsenious acid or white arsenic, the most important and the commonest form of arsenic in commerce, is an acid anhydride rather than a true acid. It is also known simply as "arsenic" or as arsenic trioxide. Arsenious acid is a white insoluble powder with a slightly metallic taste and vaporizes without melting when heated in the open. Arsenic acid is chemically different and is obtained by oxidation of white arsenic. It occurs in commerce as a true acid, a thick sirupy liquid packed in steel drums, and in the form of the acid anhydride—arsenic pentoxide, which by the addition of water forms arsenic acid. Both of these acids, as well as all soluble salts of arsenic, are extremely poisonous.

Arsenious acid is used in the manufacture of insecticides, chiefly lead and calcium arsenates, in plate-glass manufacture, as a preservative for green hides, and in the manufacture of arsenic acid and arsenic salts. Arsenic acid is used in the preparation of organic medicinal chemicals containing arsenic, and its salts have medicinal uses.

Production.—The domestic production of white arsenic has increased from 1,497 short tons in 1910 to 6,323 short tons, valued at

\$1,213,000, in 1918. The 1919 output was 6,029 tons. White arsenic is obtained chiefly in the United States as a by-product of smelting copper and lead ores. Arsenic acid is manufactured by oxidizing white arsenic by means of either nitric acid or chlorine.

Imports of arsenic and arsenious acids from 1908 to 1918 have averaged 2,725,575 pounds, valued at \$126,828, and have come chiefly from Germany, Canada, England, and Belgium. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|----------------------|----------------|-----------|-------------|-------|
| | <i>Pounds.</i> | | | |
| 1918..... | 3,694,084 | \$441,212 | \$0.12 | ..... |
| 1919..... | 8,778,218 | 624,494 | .07 | ..... |
| 1920..... | 7,479,485 | 532,635 | .07 | ..... |
| 1921 (9 months)..... | 2,705,625 | 216,276 | .08 | ..... |

Exports.—Statistics not available.

Important changes in classification.—The act of 1913 provides for arsenious acid in paragraph 387 and for arsenic in paragraph 403. Information furnished the commission by the collector of customs at New York indicates that importations of "white arsenic," which is the same as "arsenious acid," were included in the statistics for "arsenic and sulphide of arsenic, or orpiment" under paragraph 403.

As both of these chemicals were then on the free list, the confusion of the one product with the other had little tariff significance. By including the term "white arsenic" with "arsenious acid" the possibility of this confusion under H. R. 7456 is obviated.

FORMIC ACID.

(See Survey A-1.)

Description and uses.—Concentrated formic acid is a corrosive, fuming, colorless liquid with a characteristic and irritating odor. It mixes with water in all proportions and appears in commerce in strength varying from 50 per cent to almost 100 per cent. It is serviceable in the dyeing and tanning industries, but other competing acids have, as a rule, been cheaper, and its use has therefore been restricted to a few cases for which it has peculiar advantages. Formic acid forms esters with various alcohols which are used in perfumes and as solvents. Recent technical advances in its domestic manufacture and commercial development indicate that under normal conditions it may be put on the market at a lower price. These new discoveries will probably have indirectly a marked influence on the manufacture of oxalic acid.

Production.—Formic acid is made by two processes, one of which—developed in Germany and controlled before the war by German patents, but since developed in the United States—depends on heating caustic soda with carbon monoxide under pressure, yielding sodium formate, from which either formic acid or oxalic acid may be made by subsequent treatment. This process has attained commercial production. By the other process, an American invention developed during the war, the first stage is to make cyanide of soda from soda, coke, and air. The cyanide of soda is then decomposed by steam, yielding

ammonia and sodium formate. This latter process has not been a commercial success up to the present time (December, 1921).

Imports.—The largest were in 1914 when 1,119,745 pounds of formic acid and 1,843,245 pounds of sodium formate were imported, almost entirely from Germany. Later statistics of formic acid follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | | | | |
| 1919..... | 132,333 | \$29,604 | \$0.22 | \$1,985 | 6.70 |
| 1920..... | 173,019 | 41,426 | .24 | 2,595 | 6.26 |
| 1921 (9 months)..... | 415,617 | 51,212 | .12 | | |

Exports.—Statistics not available.

GALLIC ACID.

(See Survey A-1.)

Description and uses.—Gallic acid is found in many plants and commercially is made directly from nutgalls by boiling tannic-acid solutions with sulphuric or hydrochloric acid, the yield being only about two-thirds of the tannic acid used. This acid, appearing in commerce in two grades—refined, conforming to the specifications of the United States Pharmacopœia, and less pure or technical—is an intermediate for making several dyes, including Gallocyanine Blue, formerly much used for dyeing wool for Navy uniforms; also in making ink, and in medicine, and as a raw material for the manufacture of pyrogallic acid. The output increased greatly during the war, principally on account of the enlarged demand for dye making. It is made by four firms in the United States.

Imports before the war (chiefly from Germany) averaged about 50,000 pounds per year. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,242 | \$2,748 | \$1.22 | \$135 | 4.90 |
| 1919..... | 22 | 26 | 1.18 | 1 | 5.08 |
| 1920..... | | | | | |
| 1921 (9 months)..... | 20 | 9 | .45 | | |

Exports.—Statistics not available.

OLEIC ACID OR RED OIL.

Description and uses.—Oleic acid, commercially known as "red oil," is a clear, dark-red, fatty acid. It is obtained from fats and oils in the manufacture of soap. There are three grades of oleic acid, one a medicinal grade, conforming to specifications of the United

States Pharmacopœia, and the other two, commercial grades, known as "saponified" and "distilled" red oil. The principal consumption of oleic acid is in the manufacture of textile soaps, which are usually made at the textile mills by neutralizing the oleic acid with soda ash. Other important uses include the manufacture of oil-soluble colors, certain kinds of patent leather, polishing preparations, and lubricating and screw-cutting compounds.

Production of the larger part of oleic acid or "red oil" is at soap and candle factories, although numerous small factories make this product only. The domestic output of 1912 was 27,494,000 pounds, but from 1914 to 1920, inclusive, it ranged between 38,000,000 and 43,000,000 pounds annually. Production for the first nine months of 1921 (preliminary figures) was about 22,000,000 pounds.

Import figures are available for the fiscal year 1914 only, and were 367,070 pounds, valued at \$24,662. This is approximately 1 per cent of the domestic production.

Exports.—Statistics not available.

Important changes in classification.—New specific provision.

OXALIC ACID.

(See Survey A-1.)

Description and uses.—Oxalic acid is a white crystalline solid which occurs naturally in many plants, especially *Oxalis acetosella* (wood sorrel), but commercial supplies are obtained by chemical processes rather than by extraction from natural sources. Oxalic acid has a great variety of uses, the largest probably in commercial laundries for rinsing out the last traces of alkali or soap and for removing iron stains. It is also employed in textile dyeing and printing, for bleaching leather, cork, wood, straw, and shellac, and as an ingredient in metal polishes. It serves as a reagent in chemical laboratories. Some of its salts are used in medicine and in photography.

Production.—Before the war there was only one producer in the United States who used a process dependent on heating sawdust with caustic potash, followed by elaborate chemical treatment. This firm had severe competition from German producers, who have developed a newer and apparently cheaper process by heating caustic soda with carbon monoxide under pressure, forming sodium formate, which on further heating yields sodium oxalate, and this in turn is converted into oxalic acid. During the war several firms in the United States undertook its manufacture by the new method, but they are still in the infant-industry stage of development. In 1919 (preliminary figures) the output of oxalic acid was 2,103,500 pounds, valued at \$545,600.

Imports.—Prewar imports of oxalic acid, chiefly from Germany, but partly from Norway and Great Britain, varied from about seven to eight million pounds per year, despite a duty of 2 cents per pound. It is estimated that the imports were several times greater than American production. Imports declined during the war, averaging less than 1,000,000 pounds per year. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 576,000 | \$218,336 | \$0.38 | \$8,640 | 3.96 |
| 1919..... | 651,690 | 183,968 | .28 | 9,775 | 5.31 |
| 1920..... | 1,789,452 | 604,922 | .34 | 26,842 | 4.44 |
| 1921 (9 months)..... | 1,016,471 | 151,497 | .15 | | |

Exports.—Statistics are not available.

PHOSPHORIC ACID.

(See Survey FL-1.)

Description and uses.—The pure acid is a white solid, which absorbs moisture rapidly. It is usually sold as a sirupy liquid containing 85 per cent or less of the acid, produced technically by treating calcium phosphate with sulphuric acid. The pure acid is made by treating pure phosphorus with nitric acid or by burning phosphorus to phosphoric anhydride, followed by treatment with water. The principal uses of phosphoric acid are in medicine, dental cements, and beverages.

Production of phosphoric acid in 1914 was 12,420,191 pounds, valued at \$680,239, and in 1919 (preliminary figures) increased slightly to 13,379,500 pounds, valued at \$1,711,100.

Imports have been quite small and decreased from 528,826 pounds in 1914 to 17,711 pounds in 1918 (fiscal year). Of the 1914 import, 65 per cent was from England. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 4,501 | \$4,101 | \$0.91 |
| 1919..... | 10,925 | 4,068 | .37 |
| 1920..... | 308,974 | 89,280 | .29 |
| 1921 (9 months)..... | 50,338 | 18,487 | .37 |

The maximum postwar import (1920) was less than 3 per cent of the 1919 domestic production.

Exports.—Statistics not available.

Important changes in classification.—Phosphoric acid is exempt from duty under paragraph 387 of the act of 1913.

PYROGALLIC ACID.

(See Survey A-1.)

Description and uses.—Pyrogallol acid, or pyrogallol, is a white crystalline solid made by heating gallic acid. It is the oldest photographic developer and is probably used more than any other. Pyrogallol acid and several products made therefrom are employed in medicine. Another use is in the dyeing of fur and hair; also in the manufacture of some dyes. It is an important reagent in the chemical laboratory as an absorbent for oxygen gas in gas analysis.

Production.—It is made by three firms in the United States, whose output has shown a substantial increase during the war.

Imports have been larger in proportion to American production than have the closely allied substances, tannic acid and gallic acid. Prewar imports with the exception of 1913 ranged between 22,000 and 37,000 pounds. During and since the war imports have been negligible. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|---------|-------------|-------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1920..... | 888 | \$2,069 | \$2.33 | \$107 | 5.15 |
| 1921 (9 months)..... | 22 | 45 | 2.05 | | |

NOTE.—No imports during the calendar years 1918 and 1919.

Exports.—Statistics not available.

STEARIC ACID.

Description and uses.—Stearic acid, a hard white waxlike substance, is a fatty acid obtained from the same sources as oleic acid (see *supra*). The latter may be converted into stearic acid by treatment with hydrogen in the presence of a nickel catalyzer. Commercial stearic acid is usually slightly yellow or gray in color and the grades include the medicinal (U. S. P.) and technical; the latter is further divided into single, double, and triple pressed.

Stearic acid is sometimes erroneously confused with "stearin" in commerce, whereas, correctly, stearin applies to certain solid fats which have not been split into their constituent fatty acids and glycerin. The chief use of stearic acid is for making candles, with or without the addition of paraffin. Considerable amounts are used in the manufacture of wax matches and in the production of metallic stearates, which serve as paint driers, waterproofing compounds and, in the case of zinc stearate, in the manufacture of cosmetics.

Production.—Stearic acid is obtained simultaneously with oleic acid or "red oil" from various oils and fats. The domestic production has not been so constant as that of oleic acid, but has ranged from 3,773,000 pounds in 1912 to 18,571,000 pounds in 1918. The output increased to 24,372,395 pounds in 1920, but during the first nine months of 1921 amounted to only about 12,000,000 pounds.

Imports of stearic acid increased from 36,610 pounds, valued at \$3,451, in 1911, to 119,519 pounds, valued at \$12,160, in 1913. Only 538 pounds were imported in 1917. Statistics for later years follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | | | | |
| 1919..... | 3,737 | \$799 | \$0.21 | \$120 | 15 |
| 1920..... | 2,350 | 466 | .20 | 70 | 15 |
| 1921 (9 months)..... | 27,678 | 2,452 | .89 | | 15 |

Exports.—Statistics not available.

Important changes in classification.—New specific provision.

ALL OTHER ACIDS AND ACID ANHYDRIDES.

Description.—Other acids and acid anhydrides mentioned elsewhere, and therefore not dutiable under this provision, include: Glycerophosphoric acid, dutiable under paragraph 24; acids of coal-tar origin, dutiable under paragraph 25 or 26; and chromic acid, hydrofluoric acid, hydrochloric or muriatic acid, nitric acid, sulphuric acid or oil of vitriol, and mixtures of nitric and sulphuric acids, valerianic acid, and all anhydrides of the foregoing, exempt from duty under paragraph 1501.

Imports under this provision prior to the war ranged between \$50,000 and \$90,000. They decreased to \$36,430 in 1916, and then increased to \$500,091 in 1918 (fiscal year). Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$110,755 | | \$10,613 | 15 |
| 1919..... | 45,324 | 31,759 | \$0.70 | 4,784 | 15 |
| 1920..... | 63,822 | 16,202 | .25 | 2,430 | 15 |
| 1921 (9 months)..... | 147,355 | 41,099 | .28 | 0,165 | 15 |

Exports.—Statistics not available.

Important changes in classification.—The more important acids dutiable under this provision in the act of 1913 (par. 1) have been mentioned specifically in H. R. 7456. These include chloroacetic acid, oleic acid or red oil, and stearic acid. Prussic (hydrocyanic) acid and silicic acid are exempt from duty under paragraph 387, act of 1913; specific mention of these acids is omitted from H. R. 7456, and they therefore come within the provision in this paragraph for "all other acids and acid anhydrides" n. s. p. f.

PARAGRAPH 2.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 2. Acetaldehyde, aldol or acetal-dol, aldehyde ammonia, butyraldehyde, crotonaldehyde, paracetaldehyde, ethylene chlorohydrin, ethylene dichloride, ethylene glycol, ethylene oxide, glycol monoacetate, propylene chlorohydrin, propylene dichloride, and propylene glycol, 6 cents per pound and 30 per centum ad valorem.

ACT OF 1909.

PAR. 3. * * * chemical compounds, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

ACT OF 1913.

PAR. 5. * * * chemical * * * compounds, * * * not specially provided for in this section, 15 per centum ad valorem.

ACETALDEHYDE, ALDOL OR ACETALDOL, ALDEHYDE AMMONIA, BUTYRALDEHYDE, CROTONALDEHYDE, PARACETALDEHYDE.

Description and uses.—Acetaldehyde is a colorless liquid boiling at about 21° C. Its largest use is as an intermediate product in manufacturing acetic acid (par. 1). On account of the low boiling point of acetaldehyde, it is usually polymerized to form paracetaldehyde, which has promising use in the manufacture of synthetic resins, and when combined with amines (a group of coal-tar products), as an accelerator in vulcanizing rubber. Aldehyde ammonia is acetaldehyde combined with ammonia; it has been employed chiefly as a rubber accelerator. Aldol or acetaldol, formed by condensing 2 molecules of acetaldehyde, has promising future uses in the flotation process of ore concentration, particularly of copper ores.

Production.—The manufacture of these various compounds depends upon acetaldehyde, which prior to the war, was obtained by oxidizing ethyl alcohol or by fractional distillation from the first runnings of alcohol stills. During the war a process was developed for the production of acetaldehyde from acetylene gas, which is produced from calcium carbide. In America this process was developed commercially at Shawinigan Falls, Canada, where a plant was erected with a capacity of 25 tons of acetaldehyde daily—the larger portion of this output is converted to acetic acid.

Import statistics are not available, with the exception of those for paraldehyde in 1914, 10,339 pounds, valued at \$3,003, all from Germany.

Exports.—None recorded.

Important changes in classification.—None of these chemical compounds was specially provided for in the act of 1909 or 1913.

ETHYLENE CHLOROXYDRIN, ETHYLENE DICHLORIDE, ETHYLENE GLYCOL, ETHYLENE OXIDE, GLYCOL MONOACETATE, PROPYLENE CHLOROXYDRIN, PROPYLENE DICHLORIDE, AND PROPYLENE GLYCOL.

Description and uses.—The products listed above are derived from ethylene or propylene gas. Until very lately they were not used commercially to any extent, and were of scientific interest only. Recent development of these products has been due to the commercial availability of the gases—ethylene and propylene—either from the waste gases given off in certain petroleum cracking processes or from other hydrocarbon gases, or in the case of ethylene, from alcohol. Of these products, probably ethylene dichloride will be the first to assume commercial importance. This is a colorless liquid, with a chloroform-like odor, boiling at 83.5° C. It dissolves oils, fats, and greases, and has the advantage over similar volatile solvents in that it does not hydrolyze with water to form hydrochloric acid. Ethylene chloroxydrin may be used as a solvent, and its great chemical activity makes it valuable in the synthesis of other organic chemicals. Ethylene glycol can be used to replace glycerine for many purposes.

Production of these commodities is being developed on the semi-commercial scale at the present time (December, 1921) by at least two firms in this country. Ethylene dichloride is produced by com-

binning ethylene and chlorine gas. Ethylene chlorohydrin is formed by treating ethylene with hypochlorous acid, and in turn is converted into ethylene glycol by treatment with a mild alkali. Ethylene oxide is made by treating a solution of ethylene chlorohydrin with strong caustic alkali.

Imports are not recorded except for dichlorohydrin in 1914—782 pounds, valued at \$500.

Exports.—None recorded.

Important changes in classification.—None of these chemical compounds was specially provided for in the act of 1909 or 1913.

PARAGRAPH 3.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 3. Acetone, acetone oil, and ethyl methyl ketone, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 3. * * * chemical compounds, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

PAR. 3. Acetone, 1 cent per pound.

ACETONE, ACETONE OIL, AND ETHYL METHYL KETONE.

(See Survey A-2.)

Description and uses.—Acetone (dimethyl ketone) is a clear, colorless, and highly inflammable liquid. It is used primarily as a solvent for fats, resins, rubber, and other gums, nitrocellulose (cordite, gun-cotton, pyroxylin plastics), tannins, and acetylene, and in the manufacture of chloroform, but for the last-named purpose has a strong competitor in carbon tetrachloride.

Acetone oil (crude ethyl methyl ketone) is a residue obtained in the purification of acetone produced from acetate of lime. It possesses the same solvent properties as acetone and on account of its higher boiling point is preferred in some cases. It is also purified by distillation to obtain ethyl methyl ketone, which is sold also as ketone.

Methyl acetone is the first portion of the distillate in refining crude wood alcohol. It is a mixture of acetone, wood alcohol, and methyl acetate.

Production of acetone by eight firms in 1914 was 10,425,817 pounds, valued at \$1,099,585, but decreased in 1919 (preliminary figures) to 6,045,900 pounds, valued at \$767,000. Prior to the war acetone was made exclusively from acetate of lime, a product of the hardwood distillation industry. During the war the large demand for the manufacture of the British explosive, cordite, led to the development of several new processes, one of which is by the fermentation of various substances—corn, molasses, and kelp. Plants employing these fermentation processes, except the fermentation of corn, have closed

since the signing of the armistice. The plant at Terre Haute, Ind., built by the United States and British Governments to produce acetone by fermentation of corn, was purchased by the Commercial Solvents Corporation and reopened in March, 1920. The productive capacity by this process in the latter part of 1920 was about 300,000 pounds per month.

Another process, developed solely by the Canadian Electro Products Co., at Shawinigan Falls, Canada, produced acetone from calcium carbide. This process was abandoned for acetone, but for the manufacture of acetic acid it is still used. A third method in process of development during the war produced acetone from a by-product of the Burton method of cracking petroleum oils. This process, still largely in experimental stages, has promising commercial features.

The domestic production of ethyl methyl ketone in 1919 (preliminary figures) was 1,158,000 pounds, valued at \$167,700.

Imports of acetone have been sporadic and negligible when compared with domestic production. In 1918 the former were 148,082 pounds. In 1914 the imports of acetone oil were 155,210 pounds, valued at \$14,609, chiefly from Canada. Later statistics showing the importation of acetone follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 351,366 | \$66,460 | \$0.19 | \$3,514 | 5.29 |
| 1919..... | 240,223 | 41,442 | .17 | 2,402 | 5.80 |
| 1920..... | 6,600 | 303 | .17 | 66 | 21.78 |
| 1921 (9 months)..... | 54 | 8 | .15 | | |

Exports.—Statistics not available.

Important changes in classification.—Acetone oil, obtained in the purification of acetone, was declared dutiable under the *eo nomine* provision for acetone in paragraph 3. (*McEnany v. United States*, 8 Ct. Cust. Appls., 329, of 1918.) Ethyl methyl ketone is the chief chemical compound contained in acetone oil and is obtained from acetone oil by fractional distillation. Like acetone oil, it is used for solvent purposes. Because of its commercial importance it has been mentioned specifically. Close chemical relation between acetone oil and ethyl methyl ketone and administrative difficulties in distinguishing them, render advisable a single rate of duty. (Reclassification Report, pp. 11, 12.)

PARAGRAPH 4.

H. R. 7456.

SENATE AMENDMENTS.

PAB. 4. Alcohol: Amyl, butyl, isopropyl, and fusel oil, 6 cents per pound; methyl or wood (or methanol), 15 cents per gallon; and ethyl for nonbeverage purposes only, 15 cents per proof gallon.

ACT OF 1909.

PAB. 36. Fusel oil, or amylic alcohol, one-fourth of one cent per pound.

PAB. 300. * * * spirits manufactured or distilled from grain or other materials, and not specially provided for in this section, two dollars and sixty cents per proof gallon.

PAB. 480. * * * articles manufactured, in whole or in part, not provided for in this section, * * * twenty per centum ad valorem.

ACT OF 1913.

PAB. 33. Fusel oil, or amylic alcohol, $\frac{1}{2}$ cent per pound.

PAB. 237. * * * spirits manufactured or distilled from grain or other materials, not specially provided for in this section, \$2.60 per proof gallon.

PAB. 393. Alcohol, methyl or wood [Free].

AMYL ALCOHOL AND FUSEL OIL.

(See Survey A-9.)

Description and uses.—Commercial fusel oil consists chiefly of two different forms of amyl alcohol, and varying amounts of other alcohols, traces of acids, and considerable water. There is a crude grade which is light amber to straw colored, having a persistent, disagreeable odor, and a refined grade which is nearly colorless and free from water, made by redistilling crude fusel oil. The chief use of fusel oil is in the manufacture of amyl acetate, largely used as a solvent in the nitrocellulose industry. Pure amyl alcohol is obtained by refining and purifying fusel oil. It is converted into amyl esters, which are used as flavors and perfume materials, and as a solvent in the arts.

Production.—Fusel oil is obtained as a by-product of fermentation processes, chiefly from distilled liquors and industrial alcohol or cologne spirits. The output as a by-product of distilleries in 1918, about 830,000 pounds, supplied but an inconsiderable portion of the domestic requirements for this oil. The production decreased to about 500,000 pounds in 1919 and 1920 (fiscal years).

Imports from 1910 to 1914, inclusive, averaged about 5,300,000 pounds per year, 75 per cent coming from Russia, the United Kingdom, and Germany in about equal proportions. Imports declined to about 1,600,000 pounds in 1917, accounted for in part by the cessation of those from Russia. In 1918, Canada, which furnished only a small quantity in the past, supplied over 50 per cent of the total. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,155,923 | \$603,974 | \$0.28 | \$5,390 | 0.88 |
| 1919..... | 3,481,965 | 820,260 | 4.24 | 8,705 | 1.06 |
| 1920..... | 3,887,303 | 879,206 | .23 | 9,718 | 1.11 |
| 1921 (9 months)..... | 713,210 | 159,931 | .22 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—Amyl rather than amylic is the term now generally used.

BUTYL ALCOHOL.

(See Survey A-9.)

Description and uses.—Butyl alcohol ($C_4H_{10}O$) occurs in four isomeric forms. Of these only normal butyl alcohol is of any great commercial importance. The principal use of butyl alcohol is as a solvent in the manufacture of pyroxylin plastics, such as celluloid. It is also used to prevent "blushing" and precipitation of pyroxylin in photographic films and pyroxylin varnishes and lacquers. It may also be employed for other solvent purposes, such as in the manufacture of paint and varnish removers, imitation leather, and as solvent for gum resins, fats, oils, and waxes. Butyl alcohol is competitive with fusel oil or amyl alcohol, which has been largely imported, chiefly from Russia (see Fusel oil, p. 27).

Production.—Prior to the war butyl alcohol was of scientific interest only and had no commercial use. The large war demand for acetone led to the development of a process of fermenting corn which produced both acetone and butyl alcohol in the ratio of two parts butyl alcohol to one part acetone. A large plant was erected at Terre Haute, Ind., by the United States and British Governments, and following the war it was purchased by the Commercial Solvents Corporation and reopened in March, 1920. The ability of this process to operate in peace time was due to the development of the use of butyl alcohol in pyroxylin plastics. The process is patented and controlled by the Commercial Solvents Corporation. The output of butyl alcohol during the latter part of 1920 approximated 600,000 pounds per month.

Imports since 1919 are reported in combination with those for fusel oil or amyl alcohol. In 1914, the only year for which figures are available, imports of butyl alcohol were only 482 pounds, valued at \$287, all of which came from Germany.

Exports.—Statistics not available.

Important changes in classification.—Butyl alcohol is mentioned specifically for the first time because of its commercial importance.

ISOPROPYL ALCOHOL.

Description and uses.—Isopropyl alcohol occurs in fusel oil, the latter being a by-product of alcoholic fermentation. Isopropyl alcohol is made from propylene by absorption in sulphuric acid and subsequent hydrolysis with water. This method is of recent development and is now operated on a semicommercial scale. It is a colorless liquid used as a solvent and in the preparation of organic compounds. Its properties resemble those of ethyl alcohol, but it is nonpotable, and its use for denaturing alcohol has recently been legalized, for which purpose it is extremely valuable, owing to its lack of odor and possibility of industrial use where wood alcohol and pyridine can not be employed as denaturants.

Production figures are not available, but it is known that at least two firms are making it.

Imports and exports.—Statistics not available.

Important changes in classification.—First specific mention of isopropyl alcohol.

Suggested changes.—There are two forms of propyl alcohol, one discussed above—*isopropyl alcohol*—and the other normal propyl alcohol. The latter is separated from fusel oil by distillation and is used as a solvent and for the preparation of esters and other organic compounds. It is suggested that the term “propyl alcohol” be substituted for “*isopropyl alcohol*,” as it includes both forms.

FUSEL OIL.

(See Amyl alcohol, p. 27.)

METHYL OR WOOD ALCOHOL (METHANOL).

(See Survey A-2.)

Description and uses.—Methyl or wood alcohol, or methanol, is one of the primary products of the hardwood-distillation industry. The commercial grades vary from 82 per cent to pure methyl alcohol, acetone being the chief impurity. The largest uses of wood alcohol are in the manufacture of formaldehyde and of dimethylaniline, an important intermediate for coal-tar dyes, both uses requiring pure methanol. Next in importance is its use as a solvent in manufacturing pyroxylin plastics. It has many other uses as a solvent and is used for denaturing grain alcohol.

Production.—The distillation of wood produces a raw liquor containing acetic acid and alcohol; the acid is neutralized with lime and the alcohol distilled from the solution, and then purified by redistillation. The output of crude wood alcohol in 1909 and 1914 was slightly in excess of 9,000,000 gallons with a marketed output in 1914 of 7,197,000 gallons valued at \$1,605,900. The marketed production of refined wood alcohol in 1914 was 6,235,113 gallons, valued at \$2,709,369. Production increased during the war because of the demands by the dye industry and a larger production of formaldehyde. Preliminary figures for 1919 indicate a marketed output practically equal to that of 1914; the value in 1919 however was about 3½ times that in 1914. Michigan, Pennsylvania, and New York have been the principal producers of wood-distillation products. During the war large plants were erected in the Southern Appalachian Mountains.

Imports in 1914 and since the war have been less than 1 per cent of domestic production.

Exports of wood alcohol in 1909 were 11.8 per cent of domestic production and 16.6 per cent in 1914. Prior to the war, exports were about 1,500,000 gallons, chiefly to Germany, the United Kingdom, and the Netherlands. Between 1914 and 1918 they decreased somewhat, due to the blockade of Germany. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-----------|-------------|---------------------|
| Quantity (gallons)..... | 2,624,312 | 718,427 | 703,064 | 308,287 |
| Value..... | \$2,035,950 | \$750,167 | \$1,244,197 | \$368,670 |

In postwar years exports were chiefly to England, Switzerland, Japan, and the Netherlands.

Important changes in classification.—Methyl or wood alcohol is now exempt from duty under paragraph 393, act of 1913.

ETHYL ALCOHOL FOR NONBEVERAGE PURPOSES.

Description and uses.—Industrial alcohol includes the various grades of ethyl alcohol, both pure and denatured, used in the arts and industries. The commercial grades of ethyl alcohol include: "Absolute alcohol," which is free from water; "cologne spirit," a high-purity ethyl alcohol; "grain alcohol," which contains about 95 per cent alcohol by volume. Completely denatured and specially denatured alcohol is ethyl alcohol which has been rendered unfit for beverage purposes under formulæ allowed by the Commissioner of Internal Revenue. Both of these varieties when of domestic origin are exempt from internal revenue taxes, but the "specially denatured" can be used only under heavy bond. Pure alcohol for non-beverage purposes (not denatured) is subject to an internal revenue tax of \$2.20 per proof gallon (a proof gallon contains 50 per cent alcohol by volume).

The largest use of industrial alcohol is as a solvent, as in lacquers, shellac, essences, tinctures, etc., while other important applications are in "solid alcohol" for domestic purposes, pharmaceutical preparations, the manufacture of certain dyes, chemicals, and other products. It has limited use as a fuel in internal combustion engines and for illuminating.

Production.—Alcohol is prepared by fermentation from materials containing sugar or starch. In the case of starchy materials the starch is first converted to sugars by malt or acid before fermentation. The alcohol is separated after fermentation and concentrated by distillation. The chief raw materials are molasses and corn (usually frozen or injured). In Europe potatoes, rice, corn, and molasses are used.

The United States produces more industrial alcohol than any other country. This development was primarily due to the law allowing tax-free denatured alcohol for industrial purposes. War needs were the chief factor in the recent expansion of the industry to its present size. The following table shows production since 1917:

| Calendar year. | Total ethyl alcohol for nonbeverage purposes (including denaturing). | Completely denatured. | Specially denatured. |
|----------------|--|-----------------------|----------------------|
| | <i>Wine gallons.</i> | <i>Wine gallons.</i> | <i>Wine gallons.</i> |
| 1918..... | 75,181,931.0 | 10,328,454.6 | 39,834,561.4 |
| 1919..... | 49,077,946.0 | 9,976,720.6 | 28,294,219.0 |
| 1920..... | 49,283,326.0 | 13,528,403.0 | 15,307,947.1 |

Imports.—The tariff on industrial alcohol has practically prohibited imports. A maximum of 44,654 proof gallons was imported in 1913, and since 1916 the imports have varied from nothing to 312 proof gallons.

Exports of "alcohol" increased from 25,440 proof gallons in 1912 to a maximum of 51,941,634 proof gallons in 1917, or 25 per cent of the total output. This was due to the war needs for smokeless gunpowder. The exports since 1917 are shown in the following table:

| Calendar year. | Quantity. | Value. |
|----------------|-----------------------|-------------|
| | <i>Proof gallons.</i> | |
| 1918..... | 8,557,165 | \$4,704,743 |
| 1919..... | 20,311,166 | 8,966,819 |
| 1920..... | 25,213,539 | 10,860,328 |

Important changes in classification.—Ethyl alcohol has been mentioned specifically; it is dutiable under paragraph 237 of the act of 1913 at \$2.60 per proof gallon.

PARAGRAPH 5.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 5. All chemical elements and all chemical and medicinal compounds, preparations, mixtures and salts, and combinations thereof, all the foregoing obtained naturally or artificially and not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 3. Alkalies, alkaloids, * * * and all combinations of the foregoing, and all chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

PAB. 5. Alkalies, alkaloids, and all chemical and medicinal compounds, preparations, mixtures and salts, and combinations thereof not specially provided for in this section, 15 per centum ad valorem.

PAR. 28. Iodoform, seventy-five cents per pound.

PAR. 17. Chemical and medicinal compounds, combinations and all similar articles dutiable under this section, except soap, whether specially provided for or not, put up in individual packages of two and one-half pounds or less gross weight (except samples without commercial value) shall be dutiable at a rate not less than 15 per centum ad valorem: * * *.

PAR. 62. * * * iodate of potash, twenty-five cents per pound.

PAR. 38. Iodoform, * * * 15 cents per pound.

PAR. 65. * * * all other medicinal preparations not specially provided for in this section, twenty-five per centum ad valorem: * * *.

PAR. 67. * * * alkalies containing 50 per centum or more of bicarbonate of soda; * * * $\frac{1}{2}$ cent per pound; * * *.

PAR. 70. * * * alkalies containing fifty per centum or more of bicarbonate of soda, five-eighths of one cent per pound.

PAR. 76. * * * alkaline silicate, three-eighths of one cent per pound.

PAR. 248. * * * sugar of milk, five cents per pound.

PAR. 639. Oils: * * * ichthyol, * * * [Free].

PAR. 449. Chromium, hydroxide of, crude [Free].

PAR. 547. * * * sugar of milk [Free].

PAR. 561. Oils: * * * ichthyol, * * * [Free].

Imports reached a maximum of \$4,804,036 in 1913 and yielded a revenue of \$1,201,009. During the war the imports decreased to a

minimum of \$637,261 in 1916 and increased to \$1,235,112 in 1918, yielding a revenue of \$185,267. This large decrease during the war may be accounted for by the shutting off of imports from Germany, a country especially successful in producing the rarer chemicals. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-------------|-------------|-----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$1,130,733 | | \$169,610 | 15 |
| 1919..... | 4,673,131 | 1,088,415 | \$0.23 | 163,363 | 15 |
| 1920..... | 10,710,840 | 1,828,992 | .17 | 274,349 | 15 |
| 1921 (9 months)..... | 8,458,520 | 934,925 | .11 | | 15 |

Exports.—Statistics not available.

Important changes in classification.—The words “alkalies” and “alkaloids” have been omitted. Alkalies and alkaloids that are not specifically provided for are covered by the provision for chemical and medicinal compounds and preparations in paragraph 5. A specific provision for chemical elements was inserted in this paragraph in order to include such chemical substances as chlorine, oxygen, argon, and similar chemical elements which do not come within the provision for chemical compounds.

The words “all the foregoing obtained naturally or artificially,” were added so as to make provision for all chemical elements, chemical compounds and salts, and medicinal preparations and mixtures thereof, whether derived from natural sources or manufactured. (Reclassification Report, p. 13.)

Suggested changes.—“Chemical” should modify “compounds” and “salts”, and “medicinal” should modify “preparations.” Paragraph 5 might accordingly be changed to read as follows:

All chemical elements, all chemical salts and compounds, all medicinal preparations, and all combinations and mixtures of any of the foregoing, all the foregoing obtained naturally or artificially and not specially provided for [rate].

PARAGRAPH 6.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 6. Aluminum hydroxide or refined bauxite, one-half of 1 cent per pound; potassium aluminum sulphate or potash alum and ammonium aluminum sulphate or ammonia alum, 1 cent per pound; aluminum sulphate, alum cake or aluminous cake, containing not more than 15 per centum of alumina and more iron than the equivalent of one-tenth of 1 per centum of ferric oxide, three-tenths of 1 cent per pound; containing more than 15 per centum of alumina or not more iron than the equivalent of one-tenth of 1 per centum of ferric oxide, three-eighths of 1 cent per pound; all other aluminum compounds not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

PAR. 4. Alumina, hydrate of, or refined bauxite, containing not more than sixty-four per centum of alumina, four-tenths of one cent per pound; containing more than sixty-four per centum of alumina, six-tenths of one cent per pound. Alum, alum cake, patent alum, sulphate of alumina, and aluminous cake, containing not more than fifteen per centum of alumina and more than three-tenths of one per centum of iron oxide, one-fourth of one cent per pound; alum, alum cake, patent alum, sulphate of alumina, and aluminous cake, containing more than fifteen per centum of alumina, or not more than three-tenths of one per centum of iron oxide, three-eighths of one cent per pound.

PAR. 5. * * * chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 6. Alumina, hydrate of, or refined bauxite; alum, alum cake, patent alum, sulphate of alumina, and aluminous cake, and all other manufactured compounds of alumina, not specially provided for in this section, 15 per centum ad valorem.

ALUMINUM COMPOUNDS.

(See Survey A-3.)

ALUMINUM HYDROXIDE OR REFINED BAUXITE.

Description and uses.—Hydrate of alumina, or refined bauxite, is the oxide of the metal aluminum chemically combined with water. It is used principally in the preparation of metallic aluminum and other aluminum compounds; also for waterproofing fabrics and to some extent in medicine. It forms a constituent of many color lakes.

Production.—The raw material for the manufacture of alumina hydrate is bauxite (dutiable at \$1 per ton, par. 207, H. R. 7456).

Most of the hydrate of alumina used in this country is of domestic manufacture from domestic bauxite. This substance is made on a large scale as an intermediate product in the manufacture of metallic aluminum, and aluminum compounds from bauxite.

Imports during the five years immediately preceding the war ranged from about 1,500,000 pounds to 2,000,000 pounds annually, but since 1914 have greatly decreased, amounting to only 202,968 pounds in 1915 and 418 pounds in 1916. No imports are recorded for 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|---------|-------------|-------|------------------|
| | Pounds. | | | | Per cent. |
| 1913..... | 672 | \$1,884 | \$2.80 | \$283 | 15 |
| 1919..... | | | | | |
| 1920..... | 2,549 | 904 | .38 | 145 | 15 |

Exports.—Statistics not available.

ALUMS, ALUM CAKE, AND ALUMINUM SULPHATE.

Description and uses.—These names refer to various similar articles all of which contain aluminum sulphate as their essential ingredient. The different varieties or grades differ in the other ingredients present and may be classified as follows:

(1) Alums or crystal alums contain less than 15 per cent of oxide of aluminum (usually 10 to 12 per cent), and in addition either potassium sulphate or ammonium sulphate and water of crystallization (about 45 per cent), and not more than a few hundredths of 1 per cent of ferric oxide (iron oxide). They are usually made by dissolving refined hydrate of alumina in sulphuric acid, filtering, adding the potassium or ammonium sulphate and crystallizing the alum. The most important crystal alums are potash alum (potassium aluminum sulphate) and ammonia alum (potassium ammonia sulphate).

(2) Burnt alums, made from crystal alum by the elimination of most of the water. They contain more than 15 per cent of alumina.

(3) Iron-free aluminium sulphate, containing from 16 to 22 per cent of oxide of alumina and not more than a few hundredths of 1 per cent of ferric oxide. This grade is usually made from refined hydrate of alumina, but also directly from bauxite by a secret process for the elimination of the iron always present in the crude mineral.

(4) Aluminum sulphate, containing from 16 to 22 per cent of oxide of alumina and from about 0.2 per cent up to 0.75 per cent of ferric oxide. This grade is made directly from the crude mineral bauxite by solution in dilute sulphuric acid, followed by filtration from insoluble matter and evaporation. If the content of alumina is over 21 per cent, it is called "concentrated alum."

(5) Alum cake, or aluminous cake, contains less than 15 per cent of alumina, but rarely less than 14 per cent, and from about 0.2 per cent up to 0.75 per cent of ferric oxide, together with insoluble or earthy matter up to 10 per cent. It is made by the treatment of crude bauxite, or even clay, with strong sulphuric acid without any evaporation or attempt to eliminate insoluble matter. It is the lowest quality of all.

Alums are used largely in the preparation of sizing material in paper manufacture, as a mordant in dyeing, for the purification of water and sewage on a large scale, for tanning skins, for deodorizing mineral oils, and for hardening plaster casts. They are also used in the manufacture of color lakes, in medicine, and as an ingredient of some baking powders.

Production.—In the United States these substances are produced on a large scale from bauxite. Most of that consumed is of domestic manufacture. As many municipal and industrial waterworks produce sulphate for their own consumption a large part of the output does not enter the market. The production of aluminum sulphate and alums in the United States has been as follows:

| Year. | Alums. | | Aluminum sulphate. | |
|-----------|--------------------|-----------|--------------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Short tons.</i> | | <i>Short tons.</i> | |
| 1915..... | 24,915 | \$699,256 | 169,153 | \$3,224,495 |
| 1916..... | 27,257 | 1,177,881 | 153,860 | 4,410,741 |
| 1917..... | 19,714 | 1,017,083 | 178,738 | 5,746,427 |
| 1918..... | 20,286 | 1,051,449 | 209,079 | 6,473,086 |
| 1919..... | 17,019 | 879,198 | 200,034 | 6,763,067 |
| 1920..... | 16,824 | 999,259 | 234,003 | 8,228,712 |

Imports have not been large and there has been a decrease since 1915. In 1914, 152,808 pounds of lump alum were imported, 92 per cent of which came from England. Imports of sulphate of alumina have averaged less than 1 per cent of the domestic production.

Imports of alums, aluminum sulphate, and other manufactured compounds of aluminum since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 465,996 | \$14,751 | \$0.03 | \$2,213 | 15 |
| 1919..... | 686,579 | 21,877 | .03 | 3,282 | 15 |
| 1920..... | 2,678,846 | 68,035 | .02 | 10,205 | 15 |
| 1921 (9 months)..... | 1,280,329 | 33,285 | .03 | ..... | 15 |

Exports.—None recorded.

Important changes in classification.—The two important true alums—potassium aluminum sulphate or potash alum, and ammonium aluminum sulphate or ammonia alum—have been mentioned specifically because of their commercial importance and because they sell for nearly twice as much as aluminum sulphate (with which they are classified in previous acts) even when the latter was free.

The term “aluminum sulphate” has been substituted for “sulphate of alumina,” and “patent alum” (paragraph 6, act of 1913), now obsolete, has been omitted. The word “alum” has also been omitted because the principal true alums have been mentioned specifically.

The act of 1913 (par. 6) made no distinction between the various grades of aluminum sulphate; the act of 1909 divided them into two classes according to their content of iron oxide and alumina. A classification similar to that of 1909 was adopted in H. R. 7456, except that the limiting iron oxide content was reduced from three-tenths of 1 per cent to one-tenth of 1 per cent to accord with commercial grades. The phraseology “oxide of iron” was changed to “ferric oxide” to give a more precise chemical meaning. (Reclassification Report, p. 14.)

OTHER ALUMINUM COMPOUNDS.

Description and uses.—Other aluminum compounds of commercial importance are the acetate, known as “red liquor,” used as a mordant in calico dyeing and printing and in waterproofing and fireproofing fabrics; and aluminum chloride, used for refining mineral oils, for carbonizing wool, and in the manufacture of certain organic compounds.

Production.—In 1914 three plants were reported to be manufacturing aluminum chloride with a total output for the year of 4,702 short tons, valued at \$311,900, in 1919 an output of 4,806 short tons valued at \$371,850, and in 1920, 3,571 tons valued at \$297,550.

Imports included under alums, etc., *supra*.

Exports.—None recorded.

Suggested changes.—It is suggested that the phrase “all other aluminum compounds” in paragraph 6 be changed to “all other aluminum salts and compounds,” since the tariff acts have long distinguished “salts” and “compounds.”

PARAGRAPH 7.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 7. Ammonium carbonate, 1½ cents per pound; ammonium chloride, 1½ cents per pound; ammonium nitrate, ammonium perchlorate, and ammonium phosphate, 25 per centum ad valorem; ammonium sulphate, three-fifths of 1 cent per pound; liquid anhydrous ammonia, 2½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 5. Ammonia, carbonate of, one and one-half cents per pound; muriate of, or sal ammoniac, three-fourths of one cent per pound; liquid anhydrous, five cents per pound.

PAR. 3. * * * chemical * * * salts, * * * twenty-five per centum ad valorem; * * *.

PAR. 490. Ammonia, sulphate of [Free].

PAR. 7. Ammonia, carbonate of, and muriate of, ½ of 1 cent per pound; phosphate of, 1 cent per pound; liquid anhydrous, 2½ cents per pound; * * *.

PAR. 395. Ammonia, sulphate of, perchlorate of, and nitrate of [Free].

AMMONIUM COMPOUNDS.

(See Survey A-3.)

GENERAL.

The largest use of ammonia in normal times is in the form of ammonium sulphate for fertilizer purposes. Liquid anhydrous ammonia is extensively used for refrigeration, ammonium nitrate and ammonium picrate as explosives, aqua ammonia for household cleaning, and other ammonium compounds chiefly for chemical purposes.

During the war ammonia was used in large amounts in Germany for the manufacture of nitric acid, which, in turn, was used for making explosives. A beginning was made in the development of this industry in the United States during the war, but only a small fraction of the nitric acid consumed in the United States was made in this way.

Commercial supplies of ammonia came from three sources: (a) From coal as a by-product in the manufacture of coke and coal gas; (b) from calcium cyanamide (made by heating calcium carbide in an electric furnace in the presence of atmospheric nitrogen), which is converted into ammonia under the action of steam; (c) by direct combination of nitrogen and hydrogen (Haber process).

Before the war commercial supplies of ammonia in the United States were obtained entirely from coal, but during the war plants to operate both the cyanamid process and the direct synthetic process were built by the Government near Muscle Shoals, Ala. The cyanamid plant (designed to produce 41,500 tons of fixed nitrogen annually) was in successful operation, in part, at the signing of the armistice, but the synthetic plant (built to produce 8,500 tons of fixed nitrogen) had not been completed and put in to successful operation when the war came to an end. These plants have been idle since the signing of the armistice, but have not been scrapped or sold by the Government.

The Haber process, which has been very successful, was developed to a large extent in Germany. One of the two plants in Germany, located at Oppau, was destroyed by an explosion during 1921.

The first production of fixed nitrogen by a commercial firm was announced in August, 1921, by the Atmospheric Nitrogen Corporation (a subsidiary of the Allied Dye and Chemical Corporation), at Solvay, N. Y. The output of the first unit of this plant is 20,000 pounds of ammonia per day, or about 2,500 tons of fixed nitrogen annually.

AMMONIUM CARBONATE.

Description and uses.—Commercial ammonium carbonate, a mixture of ammonium carbonate and ammonium carbamate containing about 31 per cent of ammonia (NH_3), is a white crystalline salt smelling strongly of ammonia, volatile when heated, and sometimes known as sal volatile. It is used in wool scouring, in some baking powders, smelling salts, and certain domestic cleaning powders.

Production.—It is made by heating a mixture of ammonium sulphate and chalk (calcium carbonate). The vapors of ammonia, carbon dioxide, and water, on cooling, condense to form the solid mixture of ammonium carbonate and ammonium carbamate. The crude product is usually purified by sublimation. The domestic output is unknown.

Imports prior to 1915 averaged about 370,000 pounds per annum, doubling in 1915. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 6,802 | \$6,802 | \$1.00 | \$51 | 0.75 |
| 1919..... | 147,952 | 17,264 | .12 | 1,110 | 6.43 |
| 1920..... | 298,126 | 35,467 | .12 | 2,236 | 6.30 |
| 1921 (9 months)..... | 327,792 | 20,549 | .06 | | |

Exports.—Statistics not available.

Important changes in classification.—Ammonium sulphate is exempt from duty under paragraph 395 of the act of 1913.

AMMONIUM CHLORIDE.

Description and uses.—Ammonium chloride or muriate of ammonia is a combination of ammonia and hydrochloric acid. It is also called sal ammoniac. The crude material is usually more or less dark in color, owing to tarry impurities. Ammonium chloride comes in cakes (sal ammoniac), white and translucent, or in crystals (muriate of ammonia). It is used in pharmacy, in soldering, galvanizing iron, tinning, dyeing of textiles, and in electric dry batteries.

Production in 1914 was 11,511,934 pounds, valued at \$641,040, supplying less than 60 per cent of domestic consumption. The output in 1919 (preliminary figures) was 12,120,000 pounds valued at \$1,426,100. Ammonium chloride can be made by treating aqua ammonia with hydrochloric acid, by distilling ammoniacal liquor and

absorbing the ammonia gas in hydrochloric acid or by crystallization from a saturated solution of sulphate of ammonia and ordinary salt (sodium chloride).

Imports from 1910 until 1915 were between 9,000,000 and 14,000,000 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem |
|----------------------|----------------|----------|-------------|---------|-----------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 218,404 | \$19,618 | \$0.09 | \$1,638 | 8.35 |
| 1919..... | 2,011,028 | 245,738 | .12 | 15,083 | 6.14 |
| 1920..... | 6,699,359 | 698,320 | .10 | 50,245 | 7.20 |
| 1921 (9 months)..... | 3,444,146 | 237,936 | .07 | | |

Imports in postwar years have been chiefly from England and Germany.

Exports.—Statistics are not available.

AMMONIUM NITRATE.

Description and uses.—Ammonium nitrate is a white crystalline salt. When heated it decomposes into water and nitrous oxide ("laughing gas"), widely used as an anæsthetic during the war. Its largest application is in explosive mixtures, 90 per cent of which may be ammonium nitrate.

Production greatly increased during the war to supply the demand for explosives.

Imports in 1915 were 3,666,880 pounds, valued at \$193,907. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 77,101 | \$4,813 | \$0.06 |
| 1919..... | 509,208 | 34,630 | .07 |
| 1920..... | 28,476,593 | 2,141,580 | .07 |
| 1921 (9 months)..... | 30,724,090 | 1,987,490 | .06 |

Exports.—Statistics not available.

Important changes in classification.—Ammonium nitrate is exempt from duty under paragraph 395 of the act of 1913.

AMMONIUM PERCHLORATE.

Uses.—Ammonium perchlorate has been used technically as an oxidizing agent and in the manufacture of explosive mixtures.

Imports in 1914 and 1915 were about 70,000 pounds, valued at about \$6,300. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 625 | \$155 | \$0.25 |
| 1919..... | 118,316 | 15,236 | .14 |
| 1920..... | 3,458,544 | 325,635 | .10 |
| 1921 (9 months)..... | 3,580,714 | 325,635 | .09 |

Exports.—Statistics not available.

Important changes in classification.—Ammonium perchlorate is exempt from duty under paragraph 395 of the act of 1913.

AMMONIUM PHOSPHATE.

Description and uses.—There are two important ammonium phosphates, the monammonium phosphate and the diammonium phosphate. These are of little commercial importance compared with the other ammonium compounds, but are used in the manufacture of fireproof cloth and paper and for medicinal purposes. The sodium salt of acid ammonium phosphate has important analytical uses. There is a fertilizer known as Ammo-Phos sold in two grades; one grade contains 13 per cent ammonia and 47 per cent "available phosphoric acid," the other contains 20 per cent ammonia and 20 per cent "available phosphoric acid." This article is undoubtedly crude ammonium phosphates.

Production in this country is from calcium acid phosphate and ammonia, but the output is not known.

Imports decreased from a maximum of 68,039 pounds in 1911 to about 7,000 pounds in 1913, increasing sharply to 205,742 pounds in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|-------------------------|----------------|---------|-------------|-------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1920 ¹ | 12,917 | \$1,509 | \$0.12 | \$129 | 8.58 |
| 1921 (9 months)..... | 1,976 | 418 | .21 | | |

¹ No imports in calendar years 1918 and 1919.

Exports.—Statistics not available.

AMMONIUM SULPHATE.

Description and uses.—Ammonium sulphate or ammonia gas combined with sulphuric acid forms the larger part of the world's trade in ammonia. Commercial transactions are based on a standard content of 25 per cent of ammonia (NH₃). The largest use in normal times is in the manufacture of fertilizers. Such application was greatly curtailed during the war on account of the need to convert ammonia into ammonium nitrate for explosive purposes. It is also used in the preparation of other ammonium salts.

Production of ammonia (expressed as sulphate of ammonia) increased from 191,000 short tons in 1913 to 378,000 tons in 1918. Preliminary figures for 1920 indicate an output approaching 500,000 tons. About 90 per cent of the output in this country is obtained as a by-product in the manufacture of coke. In England the principal source is from illuminating gas works using the coal-gas process. Other countries obtained supplies from both sources in fairly equal quantities. Germany, since 1910, has been the largest producer; from 1910 to 1913 her exports were from 40,000 to 70,000 tons in ex-

cess of imports. England, prior to the war, ranked second, and exported about three-fourths of her output, thus leading as an exporter. The United States, prior to the war, ranked third in production, with France fourth, but the increase in the United States during and since the war gives this country an output nearly equal to that obtained in Germany from by-product sources. Germany, however, has developed large synthetic ammonia plants with a capacity of about double the by-product output.

Imports reached a maximum of 103,251 short tons in 1911, then decreased steadily to 3,983 tons in the fiscal year of 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|--------------|-----------|-------------|
| | <i>Tons.</i> | | |
| 1918 | 2,993 | \$425,881 | \$142.29 |
| 1919 | 2,354 | 313,873 | 133.34 |
| 1920 | 1,993 | 247,495 | 124.18 |
| 1921 (9 months)..... | 3,089 | 180,965 | 58.58 |

Exports are not shown prior to 1920, in which year (calendar) they were 66,714 short tons, valued at \$7,433,350, and for nine months of 1921, 67,422 tons, valued at \$4,119,858. They have been chiefly to Dutch East Indies, Cuba, and Spain. The 1920 export was about 13 per cent of the domestic output.

LIQUID ANHYDROUS AMMONIA.

Description and uses.—The term ammonia refers to a colorless gas composed of one part of nitrogen and three parts of hydrogen by volume. It is a weak alkali and has a strong, pungent, penetrating odor. Under pressure it becomes a liquid, which is then stored and shipped in steel cylinders, commonly containing about 100 pounds of ammonia. Liquid ammonia expands and vaporizes when the pressure is removed, and absorbs a large amount of heat, which gives anhydrous ammonia its wide use for refrigeration and ice making.

Production in 1914 was 16,659,789 pounds, valued at \$3,140,848, and increased greatly, to 54,700,000 pounds, valued at \$10,861,600, in 1919 (preliminary figures).

Imports are negligible, the largest being 26,506 pounds, valued at \$10,404 in 1920 (calendar year).

Exports.—Statistics not available.

PARAGRAPH 8.

H. R. 7456.

SENATE AMENDMENTS.

Par. 8. Antimony: Oxide, 2 cents per pound; tartar-emetic or potassium-antimony tartrate, 5 cents per pound; sulphides and other antimony compounds, not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

PAR. 173. * * * antimony, oxide of, one and one-half cents per pound and twenty-five per centum ad valorem.

PAR. 3. * * * chemical compounds, * * * and salts, * * * twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 144. * * * antimony oxide, salts, and compounds of, 25 per centum ad valorem.²

PAR. 5. * * * chemical * * * compounds, * * * 15 per centum ad valorem. [G. A. 7899, T. D. 36364 of 1916; *United States v. Innlis*, 7 Ct. Cust. Appls. 3, of 1916.]

ANTIMONY COMPOUNDS.

(See Survey C-17.)

Description and uses.—Antimony oxide is composed of metallic antimony and oxygen. The most important commercial oxide is antimony trioxide. Because of the scarcity and high price of tin oxide during the war antimony tetraoxide was used as a substitute pigment in the manufacture of ceramic enamels. It is not so satisfactory as tin oxide for pure white enamels, as it tends to produce a yellow or cream color. Antimony trioxide serves in the manufacture of tartar emetic and as a coloring agent in glass manufacture. Potassium antimony tartrate (tartar emetic) is used as a mordant in dyeing vegetable fibers and is the only official antimony compound in the United States Pharmacopœia. Antimony sulphide, a chemical combination of antimony and sulphur, occurs naturally as the mineral stibnite, which is the most important source of antimony. Natural sulphide obtained by the liquation of the mineral is not suitable for pigment purposes, and therefore artificial antimony sulphide is usually prepared. It is used chiefly as a pigment in the manufacture of red-rubber goods and to a lesser extent in the manufacture of matches, percussion caps, and in pyrotechnics. As it produces a dense white smoke, it was utilized during the war in "range-finding" shells.

Production.—Antimony compounds are manufactured from metallic antimony obtained from the ore (free under par. 1509), which is imported chiefly from China. Antimony oxide is prepared by burning metallic antimony in air or oxidizing it by means of nitric acid; antimony trisulphide by precipitating a solution of antimony chloride with hydrogen sulphide; antimony pentasulphide from the trisulphide by boiling with an alkali in sulphur; and tartar emetic by treating antimony trioxide with cream of tartar (potassium acid tartrate). The output of antimony salts in 1919 (preliminary figures) was 4,045,600 pounds, valued at \$1,190,000.

Imports in 1914 were: Antimony oxide, 386,558 pounds, valued at \$20,476; antimony sulphide, 321,379 pounds, valued at \$54,191; and tartar emetic, 55,744 pounds, valued at \$6,336. Imports of "antimony oxide, salts, and compounds of," decreased steadily to about 37,000 pounds in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 36,910 | \$11,904 | \$0.32 | \$2,976 | 25 |
| 1919..... | 252,785 | 9,501 | .04 | 2,375 | 25 |
| 1920..... | 595,474 | 25,280 | .04 | 6,315 | 25 |
| 1921 (9 months)..... | 301,100 | 14,134 | .05 | ..... | 25 |

² Salts and compounds of antimony oxide are not articles of commerce.

Exports.—Statistics not available.

Important changes in classification.—Tartar emetic, chemically potassium-antimony tartrate, is an important compound used chiefly for its antimony content as a mordant in dyeing fibers. The Tariff Commission suggested that it be mentioned specifically, and also that the provision for antimony compounds in paragraph 144 of the act of 1913 be transferred from Schedule C to Schedule 1 and assigned a separate paragraph.

The provision for "antimony oxide, salts, and compounds of" the Court of Customs Appeals has held (*United States v. Innis*, 7 Ct. Cust. Appls., 3, of 1916) is not to be read as if there were a "comma" after the word "antimony" and antimony sulphide was declared not classable as a salt or compound of antimony oxide under this paragraph, but dutiable as a chemical compound or salt under paragraph 5. The legislative history shows that when the tariff bill of 1913 was passed by the House of Representatives there was a comma after the word "antimony" and none after the word "oxide"; that the comma after the word "antimony" was stricken out in the Senate; and that a comma was inserted by the conference committee after the word "oxide," thereby making the law read "antimony oxide, salts, and compounds of." (G. A. 7688, T. D. 35142, of 1915.) Antimony oxide has also been held not within this paragraph. (G. A. 7899, T. D. 36364, of 1916.) To remedy this situation it was suggested that antimony oxide and antimony sulphide be mentioned specifically with all other antimony compounds and be included in this paragraph by a general provision. (See Reclassification Report, pp. 16-17.)

Suggested changes.—It is suggested that the phrase "antimony compounds" be changed to read "antimony salts and compounds," as salts and compounds have long been distinguished in tariff acts. The hyphen between "tartar" and "emetic" should be omitted.

PARAGRAPH 9.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 9. Argols, tartar, and wine lees, crude or partly refined, containing not more than 90 per centum of potassium bitartrate, 5 per centum ad valorem; containing more than 90 per centum of potassium bitartrate, cream of tartar, Rochelle salts or potassium-sodium tartrate, 5 cents per pound; calcium tartrate, crude, 5 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 6. Argols or crude tartar or wine lees crude, five per centum ad valorem; tartars and lees crystals, or partly refined argols, containing not more than ninety per centum of bitartrate of potash, and tartrate of soda or potassa, or Rochelle salts,

PAR. 8. Argols or crude tartar or wine lees crude or partly refined, containing not more than 90 per centum of potassium bitartrate, 5 per centum ad valorem; containing more than 90 per centum of potassium bitartrate, cream of tartar, and Rochelle salts or

three cents per pound; containing more than ninety per centum of bitartrate of potash, four cents per pound; cream of tartar and patent tartar, five cents per pound.

PAR. 3. * * * chemical compounds, * * * and salts, * * * twenty-five per centum ad valorem; * * *

tartrate of soda and potassa, 2½ cents per pound; calcium tartrate crude, 5 per centum ad valorem.

TARTRATE MATERIALS, CRUDE AND REFINED.

(See Survey A-1; also tartaric acid, p. 16.)

Description and uses.—Argols or crude tartar is a crystalline deposit which forms on the sides of wine casks during fermentation and contain about 50 to 85 per cent of acid potassium tartrate and 6 to 12 per cent of calcium tartrate. Wine lees are a similar deposit on the bottom of the casks and contain from 20 to 35 per cent of potassium acid tartrate and up to 20 per cent of calcium tartrate. Argols and wine lees (together with crude calcium tartrate referred to below) are the raw materials from which tartaric acid and all salts of tartaric acid, including cream of tartar, Rochelle salts, and tartar emetic, are prepared.

Cream of tartar is refined potassium bitartrate. The better grades contain more than 99.5 per cent of potassium bitartrate and less than five parts per million of lead or other heavy metals. It is used principally as an ingredient in one variety of baking powder; in the dyeing and printing of textiles; in medicines and in food products, especially jellies, preserves, and beverages; in photographic developing and printing; in the deposition of silver on glass for mirrors and ornaments; and as a laboratory reagent.

Rochelle salts or potassium-sodium tartrate is made from cream of tartar and soda ash, and is used in medicine, photography, and in chemical laboratories.

Crude calcium tartrate is also a by-product of the wine industry and a raw material for the manufacture of tartaric acid.

Production.—Small quantities have been produced in the past by the wine industry and relatively insignificant amounts are now obtained from unfermented grape juice. Domestic production has probably never exceeded 1 per cent of the world's supply, and probably will be still further reduced as a result of the constitutional amendment prohibiting the manufacture and sale of intoxicating beverages. Although no reliable statistics of production are available, Italy and France are undoubtedly the chief sources of the raw materials of the tartar industry and together produce more than three-fifths of the world's supply. Spain, Portugal, and French Africa are also important producers. Austria-Hungary and Germany are minor sources of supply. In recent years Argentina has produced argols.

Imports of argols and wine lees containing not more than 90 per cent of potassium bitartrate for the fiscal years 1910-1918, inclusive, have averaged 28,670,615 pounds, valued at \$3,416,326, and yielded an average revenue of \$170,815; while those containing more than

90 per cent of potassium bitartrate were negligible. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|-------------|-------------|-----------|------------------|
| CONTAINING NOT MORE THAN 90 PER CENT POTASSIUM BITARTRATE. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 28,041,454 | \$4,777,789 | \$0.17 | \$238,889 | 5 |
| 1919..... | 25,758,868 | 4,296,837 | .17 | 214,842 | 5 |
| 1920..... | 35,347,074 | 4,414,470 | .12 | 220,724 | 5 |
| 1921 (9 months)..... | 11,388,890 | 898,864 | .08 | ..... | 5 |
| CONTAINING MORE THAN 90 PER CENT POTASSIUM BITARTRATE. | | | | | |
| 1918..... | 39,236 | \$4,478 | \$0.11 | \$981 | 21.90 |
| 1919..... | 50,462 | 14,773 | .29 | 1,262 | 8.54 |
| 1920..... | 105,381 | 37,958 | .36 | 2,635 | 6.94 |
| 1921 (9 months)..... | 33,458 | 5,595 | .17 | ..... | ..... |

Imports of crude calcium tartrate for 1914-1918 (fiscal years), inclusive, have averaged 693,150 pounds, valued at \$75,435, and have yielded an average revenue of \$3,771. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 78,383 | \$14,584 | \$0.19 | \$729 | 5 |
| 1919..... | ..... | ..... | ..... | ..... | ..... |
| 1920..... | 267,270 | 28,048 | .10 | 1,402 | 5 |
| 1921 (9 months)..... | 168,189 | 8,509 | .05 | ..... | 5 |

Imports of cream of tartar during 1913 were 66,718 pounds, valued at \$11,798, and yielded a revenue of \$3,335. From October 4, 1913, to June 30, 1914, they were 812,421 pounds, valued at \$156,886, and yielded a revenue of \$20,310. Imports since 1914 have declined to 68,586 pounds in 1918, valued at \$16,067. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 13,597 | \$3,355 | \$0.25 | \$340 | 10.13 |
| 1919..... | 23,652 | 10,879 | .46 | 591 | 5.44 |
| 1920..... | 218,887 | 83,903 | .38 | 5,472 | 6.52 |
| 1921 (9 months)..... | 830,950 | 207,862 | .25 | ..... | ..... |

Imports of Rochelle salts have been variable, reaching a maximum in 1915 of 253,609 pounds, valued at \$19,244, yielding a revenue of \$6,340. In 1916 imports declined to 187 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 15,490 | \$4,948 | \$0.32 | \$387 | 7.82 |
| 1919..... | 29,142 | 9,537 | .33 | 729 | 7.64 |
| 1920..... | 117,377 | 29,013 | .25 | 2,934 | 10.11 |
| 1921 (9 months)..... | 279,205 | 47,097 | .17 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—Rochelle salts are chemically potassium sodium tartrate. "Potassa," used in the act of 1913 is obsolete both for commercial and scientific use. (Reclassification Report, p. 17.)

Suggested changes.—Page 4, line 16, of H. R. 7456: Insert the words "5 cents per pound" followed by a semicolon before the words "cream of tartar" and after the comma following "bitartrate."

PARAGRAPH 10.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 10. Balsams: Copaiba, fir or Canada, Peru, tolu, styrax, and all other balsams, all the foregoing which are natural and uncompounded, 10 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

ACT OF 1913.

PAR. 20. Drugs, such as * * * balsams, * * * which are natural and uncompounded drugs and not edible, and not specially provided for in this section, but which are advanced in value or condition by any process or treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture, one-fourth of one cent per pound, and in addition thereto ten per centum ad valorem: *Provided*, That no article containing alcohol, or in the preparation of which alcohol is used, shall be classified for duty under this paragraph.

PAR. 684. Storax, or styrax [Free].

PAR. 559. Drugs, such as * * * balsams, * * * any of the foregoing which are natural and uncompounded drugs and not edible and not specially provided for in this section, and are in a crude state, not advanced in value or condition by any process or treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture: *Provided*, That no article containing alcohol, or in the preparation of which alcohol is used, shall be admitted free of duty under this paragraph [Free].

PAR. 9. Balsams: Copaiba, fir or Canada, Peru, tolu, and all other balsams, which are natural and uncompounded and not suitable for the manufacture of perfumery and cosmetics, if in a crude state, not advanced in value or condition by any process or treatment whatever beyond that essential to the proper packing of the balsams and the prevention of decay or deterioration pending manufacture, all the foregoing not specially provided for in this section, 10 per centum ad valorem; if advanced in value or condition by any process or treatment whatever beyond that essential to the proper packing of the balsams and the prevention of decay or deterioration pending manufacture, all the foregoing not specially provided for in this section, 15 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

BALSAMS.

(See Survey A-3.)

General.—The term "balsam" as used in commerce has no exact chemical significance, although chemical authorities have endeavored to limit it to resins and oleoresins containing free or combined cin-

namic or benzoic acids. Resins and oleoresins, including those commercially and technically classed as balsams, are exudations of plants, sometimes occurring naturally in cavities in the plant, or obtained by wounding the plant. The balsams are used for medicinal purposes, in perfumery and cosmetics, and occasionally for technical purposes, such as the manufacture of varnishes.

COPAIBA BALSAM.

Description and uses.—Copaiba balsam is a liquid oleoresin and not a true balsam, chemically speaking. Its principal uses are in medicine and in the manufacture of varnish, lacs, and tracing paper.

Production.—Brazil and to a less extent Venezuela, Colombia, and Guiana, produce copaiba balsam in commercial quantities. It is obtained by the natives from wild trees.

Imports are given for both crude and advanced copaiba balsam but for the latter are quite insignificant. Imports of crude copaiba balsam averaged 199,919 pounds, valued at \$62,724, in 1909–1913. In 1914–1918 (fiscal year), the annual average was 281,084 pounds, valued at \$105,819, the average revenue since 1913 being \$10,170. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 348,680 | \$183,937 | \$0.53 | \$18,394 | 10 |
| 1919..... | 342,185 | 126,796 | .37 | 12,680 | 10 |
| 1920..... | 434,515 | 160,628 | .37 | 16,063 | 10 |
| 1921 (9 months)..... | 160,602 | 28,766 | .13 | ..... | 10 |

Imports of all balsams are chiefly from Brazil, Colombia, Venezuela, and England.

Exports.—Statistics not available.

FIR OR CANADA BALSAM.

Description and uses.—This is also an oleoresin rather than a true balsam. It is chiefly used in microscopy and to some extent in medicinal preparations such as plasters.

Production.—The tree yielding Canada balsam occurs through Canada and northeastern United States along the Appalachian Range, and is chiefly valued as a source of cheap lumber and paper pulp. The balsam is principally collected for commerce by the Indians of Quebec and is not sufficiently remunerative to attract higher classes of labor, although some is collected by Indians in Maine. Production in the United States is much less than in Canada. No statistics are available.

Imports are small and variable, consisting chiefly of crude balsams. For 1909–1918 average annual imports of 9,200 pounds, valued at \$5,788, are reported, the revenue for 1914–1918 averaging \$726. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,902 | \$2,475 | \$0.85 | \$248 | 10 |
| 1919..... | 2,602 | 3,235 | 1.24 | 324 | 10 |
| 1920..... | 1,693 | 2,914 | 1.72 | 291 | 10 |
| 1921 (9 months)..... | 1,084 | 1,337 | 1.23 | ..... | 10 |

Exports.—Statistics not available.

PERU BALSAM.

Description and uses.—This is a true balsam used in medicines and perfumery and to some extent as a cheap substitute for vanilla.

Production.—Peru balsam comes wholly from the Republic of Salvador. The United States is said to take normally about half of the annual production, the other half going chiefly to Germany, where an artificial "Peru balsam" is also produced.

Imports for the fiscal years 1909–1914 averaged 39,332 pounds of crude balsam, valued at \$46,065. Imports for 1915–1918 averaged 42,794 pounds, valued at \$108,849. For the years 1915–1918 Peru balsam yielded an annual revenue of \$10,885. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 64,742 | \$167,711 | \$2.59 | \$16,771 | 10 |
| 1919..... | 51,812 | 131,494 | 2.54 | 13,149 | 10 |
| 1920..... | 53,642 | 174,276 | 3.25 | 17,428 | 10 |
| 1921 (9 months)..... | 43,682 | 59,676 | 1.35 | ..... | 10 |

Exports.—Statistics are not available.

TOLU BALSAM.

Description and uses.—Tolu is a true balsam, used in medicine, pharmacy, perfumery, cosmetics, and chewing gum. It comes from a forest tree of South America, and is collected chiefly in Colombia and to a less extent in Venezuela and Peru.

Imports for 1909–1913 averaged 39,333 pounds, valued at \$10,581, chiefly from Colombia. For 1915–1918 the average was 54,004 pounds, valued at \$18,369, the revenue averaging \$1,469. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 61,011 | \$42,620 | \$0.70 | \$4,262 | 10 |
| 1919..... | 69,920 | 69,688 | 1.00 | 6,969 | 10 |
| 1920..... | 54,051 | 57,537 | 1.06 | 5,754 | 10 |
| 1921 (9 months)..... | 33,531 | 22,082 | .66 | ..... | 10 |

Exports.—Statistics not available.

STYRAX AND OTHER BALSAMS.

Description and uses.—Styrax is a true balsam. Its principal use is for flavoring tobacco. It is also used in medicine, perfumery, and cosmetics. Other balsams are included under this paragraph without specific mention, but appear to be without individual importance.

Production.—Styrax is obtained from Asia Minor; it is valued in oriental medicines, and chiefly consumed in India and China. A product resembling styrax and yielded by the sweet gum tree occurs in the United States, but does not give a profitable yield. Tropical America produces larger amounts of balsam, which have appeared on the American market.

Imports of styrax for 1909–1916 averaged 18,634 pounds, valued at \$2,932. In 1917–18 they averaged 12,840 pounds, valued at \$24,583. In 1914–1918 the average revenue was \$1,132. Importations of other balsams averaged 44,085 pounds, valued at \$17,041, in 1909–1918 (fiscal years). Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

STYRAX BALSAM.

| | Pounds. | | | | Per cent. |
|----------------------|---------|----------|--------|---------|-----------|
| 1918..... | 2,526 | \$10,110 | \$4.00 | \$1,011 | 10 |
| 1920..... | 8,494 | 7,493 | .88 | 749 | 10 |
| 1921 (9 months)..... | 5,661 | 3,702 | .65 | ..... | 10 |

ALL OTHER BALSAMS.

| | | | | | |
|----------------------|--------|----------|--------|---------|----|
| 1918..... | 61,391 | \$95,429 | \$1.55 | \$9,543 | 10 |
| 1919..... | 12,706 | 8,364 | .66 | 836 | 10 |
| 1920..... | 37,148 | 31,854 | .86 | 3,185 | 10 |
| 1921 (9 months)..... | 5,210 | 6,181 | 1.19 | ..... | 10 |

Exports.—Statistics not available.

Important changes in classification.—Styrax is the most important balsam included in the act of 1913 within the provision for "all other balsams." As imports since 1909 have averaged about 15,000 pounds, this balsam is mentioned specifically in H. R. 7456.

The phrase "not suitable for the manufacture of perfumery and cosmetics," as applied to balsams (par. 9, act of 1913), was omitted, since any balsam of salable quality can be used for making perfumes and cosmetics.

As practically all balsams are imported in a crude state, the provision in the act of 1913 which reads, "if advanced in value or condition by any process," etc., is practically inoperative. All balsams are crude articles within the meaning of paragraph 9 of the act of 1913, as when advanced beyond this condition they lose their identity as balsams.

The Tariff Commission suggested in its Reclassification Report, pages 17–18, that both of these phrases be omitted.

PARAGRAPH 11.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 11. Barium carbonate, precipitated, 1 cent per pound; barium chloride, 1½ cents per pound; barium dioxide, 4 cents per pound; and barium nitrate, 2 cents per pound.

ACT OF 1909.

PAR. 3. * * * chemical compounds, * * * and salts, * * * twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 10. Barium, chloride of, ¼ cent per pound; dioxide of, 1½ cents per pound; carbonate of, precipitated, 15 per centum ad valorem.

PAR. 5. * * * chemical * * * compounds, * * * and salts, * * * 15 per centum ad valorem.

BARIUM COMPOUNDS.

(See Survey A-4.)

General.—The barium chemicals mentioned and others not mentioned are made chiefly from barytes dutiable under paragraph 64. Witherite, on the free list, is imported and can be used as the raw material for barium chemicals. Until 1915 about 35 per cent of the domestic consumption of crude barytes was imported for the manufacture of lithopone and as the raw material for a very limited quantity of barium chemicals. The domestic production, chiefly from Missouri, supplied the market for ground and floated barytes.

During the war the production of barytes more than quadrupled, owing to lack of imports from Germany, the consequent establishment of a barium chemical industry in the United States, and the increase in the demand for barytes in the lithopone and rubber industries. The greatest State output shifted from Missouri to Georgia in 1916.

Germany and England are large producers of barytes and barium chemicals and will be the chief competitors of the domestic industry.

BARIUM CARBONATE, PRECIPITATED.

Description and uses.—Barium carbonate exists in nature as the mineral witherite. (See par. 1681, p. 1467.) Precipitated barium carbonate is a white powder practically insoluble in water. It is used chiefly in the ceramic industry in making face brick to prevent a white efflorescence, for optical glass and some kinds of enameled ironware, in the preparation of other barium chemicals, in flat wall paints, and as a rat poison.

Production.—Practically the entire supply was imported from Germany before the war. With the establishment here of a barium chemicals industry the production increased from 2,746 short tons in 1915 to 8,238 tons in 1917; it then decreased slightly to 7,135 tons in 1919 and 7,484 tons in 1920.

Barium carbonate is produced by passing carbon dioxide over heated barium sulphide or by treating a solution of barium sulphide or barium chloride with soda ash. The precipitated barium carbonate is then filtered, washed, and dried.

An investigation by the Tariff Commission² showed that to the three firms from which data were obtained the average cost in 1919 of making barium carbonate was \$0.0316 per pound.

Imports, first shown in 1912, were 950,000 pounds, increasing to nearly 5,000,000 pounds in 1914, but fell to 106,288 pounds in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | | | | 15 |
| 1919..... | 8,549 | \$2,686 | \$0.31 | \$400 | 15 |
| 1920..... | 951,501 | 37,462 | .04 | 5,619 | 15 |
| 1921 (9 months)..... | 1,973,352 | 38,083 | .02 | | 15 |

Exports.—Statistics not available.

BARIUM CHLORIDE.

Description and uses.—Barium chloride is a white crystalline substance, containing about 15 per cent of water of crystallization. It is used principally for preparing other barium chemicals, chiefly precipitated barium sulphate, and as a mordant in manufacturing color lakes. It is also employed in the purification of salt, as a water softener, as an analytical reagent in sulphur determinations, and to some extent in the ceramics industry.

Production.—Barium chloride is prepared by treating barium carbonate (witherite) with hydrochloric acid or by heating barium sulphide with calcium chloride. Prior to the war barium chloride was practically all imported from Germany, but after a domestic industry was established, the production increased from 2,106 short tons in 1915 to 4,870 short tons in 1917. About 4,500 short tons were made in 1918 and in 1919, but in 1920 the output declined to 3,084 tons.

The cost of production of barium chloride in the United States in 1919, as determined by the Tariff Commission, was \$0.0539 per pound (average of four firms).

Imports prior to 1914 were practically constant at about 2,800,000 pounds per year, increasing sharply to about 6,000,000 pounds in 1914. There were about 5,000,000 pounds in 1915. There were no imports in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 1,099,636 | \$19,846 | \$0.02 | \$2,749 | 13.85 |
| 1920..... | 3,190,255 | 151,778 | .05 | 7,976 | 5.25 |
| 1921 (9 months)..... | 2,798,700 | 147,930 | .06 | | |

Exports.—Statistics not available.

² For further detail see "Barytes, barium chemicals, and lithopone" (Survey A-4), pp. 75-79.

BARIUM DIOXIDE.

Description and uses.—Barium dioxide, barium peroxide, or barium binoxide is a compound of barium and oxygen. When pure it is a white powder insoluble in water. The crude product is usually green in color. It is used chiefly in the production of hydrogen peroxide, but also as a bleaching agent and as a source of oxygen. It was used during the war in tracer bullets.

Production.—Barium dioxide is made by heating barium nitrate or barium carbonate, first in a closed vessel and then in a current of air. Prior to the war, Germany supplied our barium dioxide, but when imports from that country ceased, a domestic barium chemicals industry was established, the production of which reached a maximum of 2,555 short tons in 1917 and then declined to 858 tons in 1919.

The cost of production of barium dioxide in 1919, as determined by investigation of the Tariff Commission, was \$0.197 per pound (average of 3 firms).

Imports prior to the war were about 3,700,000 pounds per year, increasing in 1914 to about 6,000,000 pounds. Imports ceased by 1917-18. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|-------------------------|----------------|----------|-------------|---------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1920 ¹ | 501,673 | \$64,447 | \$0.13 | \$7,525 | 11.68 |
| 1921 (9 months)..... | 904,713 | 91,192 | .10 | | |

¹ No imports in 1918 and 1919.

Exports.—Statistics not available.

BARIUM NITRATE.

Description and uses.—Barium nitrate is made by treating barium chloride with sodium nitrate or Chile saltpeter. It is an important barium chemical used in explosive mixtures and for making other barium products, fireworks, detonators, and railroad signals.

Production was 971 short tons in 1915, followed by a steady decline to 137 tons in 1918. The 1919 production increased sharply to 784 tons.

Imports of barium nitrate in 1914 (only year for which statistics are available) were 1,040,772 pounds, valued at \$38,728, chiefly from Germany.

Exports.—Statistics not available.

Important changes in classification.—Barium nitrate, an important compound, imported in large quantities before the war, and now being made in the United States, is specifically provided for. (Reclassification Report, p. 18.)

PARAGRAPH 12.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 12. Blackings, powders, and creams for cleaning or polishing, not specially provided for, 25 per centum ad valorem: *Provided*, That no preparations containing alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

PAR. 7. Blacking of all kinds, twenty-five per centum ad valorem; all creams and preparations for cleaning or polishing boots and shoes, twenty-five per centum ad valorem.

ACT OF 1913.

PAR. 11. Blacking of all kinds, polishing powders, and all creams and preparations for cleaning or polishing, not specially provided for in this section, 15 per centum ad valorem: *Provided*, That no preparations containing alcohol shall be classified for duty under this paragraph.

CLEANING AND POLISHING PREPARATIONS.

(See Survey A-5.)

Description and uses.—This paragraph covers all articles used as blacking, polishes, and cleaning preparations, such as shoe blacking, leather polishes, stove polishes, floor polishes, furniture polishes, auto body polishes, metal polishes, and scouring compounds used for cleaning, and wall-paper cleaners.

Production in 1914 of blacking, stains, and dressings was valued at \$10,259,617; of polishing preparations, \$5,228,178; and of cleaning preparations, \$5,565,846. In 1919 the output of blacking, stains, and dressings was (preliminary figures) \$25,279,000, and of cleansing and polishing preparations \$26,215,000.

Imports from 1911 to 1913, inclusive, of blanco polish were valued between \$15,000 and \$35,000 per annum; in 1917 at \$53,458, and in 1918 at \$24,821. All other blacking, polishing, and cleaning preparations from 1910 to 1914 ran from \$35,000 to \$45,000 per year and decreased to \$26,724 in 1918. The imports of blacking in 1914 came chiefly from England and were valued at \$32,424. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------|
| BLANCO POLISH. | | | |
| 1918..... | \$21,803 | \$3,284 | 15 |
| 1919..... | 22,080 | 3,318 | 15 |
| 1920..... | 33,742 | 5,061 | 15 |
| 1921 (9 months)..... | 17,127 | | 15 |
| ALL OTHER. | | | |
| 1918..... | \$28,186 | \$4,228 | 15 |
| 1919..... | 39,025 | 5,854 | 15 |
| 1920..... | 34,361 | 5,154 | 15 |
| 1921 (9 months)..... | 13,943 | | |

Exports of blacking, including shoe pastes and polishes, prior to 1917 were fairly constant between \$500,000 and \$780,000, and then increased steadily to \$2,933,448 in the calendar year 1920; for 9 months in 1921 they were only \$965,320. Exports in 1920 were chiefly to Mexico, Argentina, and Cuba.

PARAGRAPH 13.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 13. Bleaching powder or chlorinated lime, three-fifths of 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 8. Bleaching powder, or chloride of lime, one fifth of one cent per pound.

PAR. 12. Bleaching powder, or chloride of lime, $\frac{1}{16}$ cent per pound.

BLEACHING POWDER.

(See Survey A-5.)

Description and uses.—Bleaching powder or chlorinated lime, incorrectly called chloride of lime, is a white powder which, when treated with an acid, evolves chlorine. It is sold on the basis of the "available chlorine" content. It is primarily a bleaching agent used for bleaching pulp and paper stock, and cotton and linen in textile mills and laundries. Liquid chlorine, however, is fast replacing it for the purification of public water supplies.

Production in 1914 was 310,380,000 pounds, valued at \$2,916,225, nearly twice that in 1909. Production in 1919 (preliminary figures) had decreased to 177,140,000 pounds, valued at \$3,418,500, or about one-half the 1914 output. This decrease may be attributed to competition from liquid chlorine. The commercial manufacture of chlorinated lime was promoted by a duty of one-fifth cent per pound in the act of 1897, and the industry subsequently developed rapidly, supplying the greater part of domestic consumption.

Bleaching powder is produced from lime and chlorine gas. The chlorine, which is a joint product in the manufacture of electrolytic caustic soda, is largely made at Niagara Falls, N. Y. It is also manufactured by two firms in Michigan and by one firm in California. Large consumers are installing electrolytic chlorine plants in order to produce their own bleach in liquid form.

Imports previous to 1914 were between 40,000 and 50,000 short tons a year; the United Kingdom supplied from 70 to 80 per cent, most of the remainder coming from Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem |
|----------------------|----------------|----------|-------------|-------|-----------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1913..... | 540,131 | \$11,446 | \$0.02 | \$540 | 4.72 |
| 1919..... | 341,812 | 6,787 | .02 | 342 | 5.04 |
| 1920..... | 2,474,617 | 86,873 | .03 | 2,475 | 2.86 |
| 1921 (9 months)..... | 6,154,912 | 131,306 | .02 | ..... | ..... |

Exports in 1918 (fiscal year) were 13,060,401 pounds, valued at \$558,066, shipped chiefly to Argentina, Canada, Brazil, Chile, and Spain, in the order given. South America consumed about 50 per cent of the total. These markets formerly were supplied by Germany and England. Later statistics (for calendar years) follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|------------|-------------|---------------------|
| Quantity (pounds)..... | 9,450,793 | 21,019,736 | 48,886,348 | 12,045,336 |
| Value..... | \$310,268 | \$517,317 | \$1,430,142 | \$343,074 |

In postwar years exports were chiefly to Canada, British India, Sweden, and China.

Important changes in classification.—"Chloride of lime" as used in the act of 1913 (par. 12) is an incorrect designation for bleaching powder and confuses it with calcium chloride. "Chlorinated lime" is a term used in the trade and in the United States Pharmacopœia. (Reclassification Report, p. 19.)

PARAGRAPH 14.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 14. Caffeine, \$1.50 per pound; compounds of caffeine, 25 per centum ad valorem; impure tea, tea waste, tea siftings and sweepings, for manufacturing purposes in bond, pursuant to the provisions of the Act of May 16, 1908, entitled "An Act to amend an Act to prevent the importation of impure and unwholesome tea, approved March 2, 1897," and the Act of May 31, 1920, entitled "An Act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1921," 1 cent per pound.

ACT OF 1909.

PAR. 65. * * * all other medicinal preparations not specially provided for in this section, twenty-five per centum ad valorem: * * *

PAR. 559. Drugs, * * * not advanced * * * [Free],

ACT OF 1913.

PAR. 13. Caffein, \$1 per pound; compounds of caffein, 25 per centum ad valorem; impure tea, tea waste, tea siftings or sweepings, for manufacturing purposes in bond, pursuant to the provisions of the Act of May sixteenth, nineteen hundred and eight, 1 cent per pound.

CAFFEINE AND TEA WASTE.

(See Survey A-5.)

Description and uses.—Caffeine is an alkaloid obtained principally from the leaves of tea, and also occurring in coffee, kola nut, guarana, and in several other plants and plant products. Caffeine forms white, odorless, flexible crystals of a bitter taste. It is chiefly used in the preparation of soft drinks of the Coca-Cola type and also in medicine as a cerebral stimulant. In medical practice it is being displaced to a considerable extent by the related alkaloids, theobromine, and theophylline. The first named occurs in cocoa and the sec-

ond in tea, but both, especially theophylline, are manufactured synthetically.

The principal compounds of caffeine are citrate, effervescent citrate, sodium benzoate, and sodium salicylate. These find application in medicine.

Tea siftings, sweepings, waste, etc., are the inferior qualities of tea leaves unfit for beverage purposes. The average content of caffeine in imported tea waste is about 2 per cent. For the most part they are waste products swept up from warehouses, docks, and vessels. In addition, low grades of tea, not salable for beverage uses, are denatured with lime or other substances and sold for caffeine manufacture.

Production.—Caffeine is manufactured in the principal European countries, especially Germany, and also in Japan. In the United States it is made chiefly from tea waste and to a lesser extent from the refuse of coffee-roasting establishments. After a preliminary treatment with lime, the caffeine is extracted with such a solvent as benzol, and the product purified by recrystallization. About 50 pounds of tea waste are required for 1 pound of caffeine. No statistics of domestic manufacture are available, but imports of tea waste suffice for the manufacture of about 150,000 pounds annually. Caffeine has been made in Germany as a by-product of the synthesis of theophylline and theobromine from uric acid, derived from South American guano deposits.

Imports.—Prior to 1914 caffeine and its compounds were dutiable at 25 per cent ad valorem. For 1909–1914 an average annual import of caffeine of 49,278 pounds, valued at \$143,105, was reported. The rate of \$1 per pound imposed by the act of 1913 was equivalent to practically 30 per cent ad valorem during 1914–15. For 1916–1918 the highest ad valorem rate was 10.03 per cent. Importations have decreased markedly during the war, owing to the shutting off of imports from Germany, which supplied about 98 per cent of the imports in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 7,225 | \$72,201 | \$9.99 | \$7,225 | 10.01 |
| 1919..... | 1,720 | 13,718 | 7.98 | 1,720 | 12.54 |
| 1920..... | 2,332 | 11,445 | 4.91 | 2,332 | 20.37 |
| 1921 (9 months)..... | 7,235 | 34,048 | 4.71 | | |

Imports of caffeine compounds have not been shown since 1916.

Imports of tea waste and siftings in 1913 had reached 7,168,410 pounds, valued at \$215,938, and during the war ranged between 5,000,000 and 10,000,000 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 9,857,029 | \$759,734 | \$0.08 | \$98,570 | 12.97 |
| 1919..... | 8,572,030 | 537,893 | .06 | 85,720 | 15.94 |
| 1920..... | 11,915,732 | 787,508 | .07 | 119,157 | 15.13 |
| 1921 (9 months)..... | 6,957,606 | 378,943 | .05 | | |

Exports.—Statistics not available.

PARAGRAPH 15.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 15. Calcium carbide, 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 3. * * * chemical compounds, * * * and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 440. * * * calcium carbide * * * [Free].

CALCIUM CARBIDE.

(See Survey FL-8.)

Description and uses.—Calcium carbide is a compound of calcium and carbon. It is a solid, usually gray, which is energetically decomposed by water, evolving acetylene gas. The commercial carbide yields from 4.5 to 4.7 cubic feet of acetylene for each pound of carbide. It is made in the electric furnace and has the property of absorbing nitrogen at a red heat to form calcium cyanamide, used as a fertilizer. The raw materials are lime and carbon, usually coke or anthracite coal. The principal use is in making acetylene for artificial lighting and for welding and cutting of metals; also in manufacturing acetic acid from acetylene by the aid of catalysis. Large quantities of the carbide are consumed in making calcium cyanamide.

Production of calcium carbide for sale in this country is, in the main, by one company, that going into calcium cyanamide being largely consumed where made and not entering the market. Domestic production is sufficient to supply the home demand.

Import statistics are shown in combination with those for other articles. Official Canadian export statistics show that for the fiscal years (ended March 31) 1916 to 1921 between 90,000,000 and 130,000,000 pounds of Canadian carbide were exported annually to this country, except in 1920, when only 63,000,000 pounds were shipped out.

Exports, chiefly to Cuba, South America, Mexico, and Canada, average a little over 30,000,000 pounds and have varied little from 1912 to 1917. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 18,146,239 | 23,900,239 | 23,369,534 | 9,674,905 |
| Value..... | \$1,347,458 | \$1,404,870 | \$1,111,587 | \$479,801 |

Important changes in classification.—Transferred from the free list of the act of 1913. (Par. 440.)

PARAGRAPH 16.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 16. Calomel, corrosive sublimate, and other mercurial preparations, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 65. * * * calomel, corrosive sublimate, and other mercurial medicinal preparations, thirty-five per centum ad valorem; * * *

PAR. 14. Calomel, corrosive sublimate, and other mercurial preparations, 15 per centum ad valorem.

CALOMEL AND CORROSIVE SUBLIMATE.

(See Survey A-5.)

Description and uses.—These compounds, the most important mercurials, are composed of mercury and chlorine. Corrosive sublimate or mercury bichloride contains about 74 per cent of mercury and about 26 per cent of chlorine. It is either a white transparent mass or forms lustrous crystals, which are soluble in water and extremely poisonous. It is used in medicine and has valuable antiseptic properties. It is also used in calico printing, for the preservation of wood and of anatomical specimens, for embalming, disinfecting, and as a fixing agent in photography.

Calomel or mercury monochloride is a chemical compound composed of about 85 per cent of mercury and 15 per cent of chlorine. It is an impalpable powder, usually yellowish white, and insoluble in water. Its chief use is medicinal. Its technical uses are small and unimportant.

Production.—Both calomel and corrosive sublimate are prepared from metallic mercury or quicksilver, the latter metal being subject to a duty of 35 cents per pound (par. 383, H. R. 7456). Mercury is first converted into the sulphate by heating with sulphuric acid. The sulphate of mercury is then sublimed with salt (sodium chloride) and a little manganese dioxide, thereby producing corrosive sublimate. Calomel is usually prepared from corrosive sublimate by heating with metallic mercury. The product is then purified by washing with dilute nitric acid and water.

The production of mercurial salts in 1914 was 605,701 pounds, valued at \$518,023, and in 1919, according to preliminary figures, increased to 1,143,800 pounds, valued at \$1,775,000. This quantity supplies a large part of the domestic consumption, as imports are small.

Imports of calomel and corrosive sublimate prior to the 1918 calendar year have been combined with other mercurial preparations (see pp. 58 and 59). Statistics from July 1, 1918, are as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-----------------------------|----------------|--------|-------------|-------|------------------|
| CALOMEL. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918 ¹ | 500 | 3852 | \$1.70 | \$128 | 15 |
| 1919..... | 325 | 538 | 1.65 | 81 | 15 |
| 1920..... | 3,301 | 3,607 | 1.09 | 541 | 15 |
| 1921 (9 months)..... | 120 | 138 | 1.15 | ..... | 15 |
| CORROSIVE SUBLIMATE. | | | | | |
| 1920 ² | 3,971 | 2,941 | .74 | 441 | 15 |

¹ Six months only, July 1 to Dec. 31.

² Included in "Other mercurial preparations" in 1918 and 1919.

Exports.—Statistics not available.

OTHER MERCURIAL PREPARATIONS.

(See Survey A-5.)

The other important mercurials, which are, however, of lesser importance than calomel and corrosive sublimate, are mercuric sulphate, blue mass (U. S. P.), red precipitate, white precipitate, and mercury iodide.

Mercuric sulphate is a white crystalline powder used chiefly for the preparation of calomel and corrosive sublimate. It is also used with potassium bisulphate for filling galvanic batteries.

Blue mass (U. S. P.) is a mercurial medicinal. The United States Pharmacopœia specifies that it shall contain not less than 32 per cent nor more than 34 per cent of mercury.

Red precipitate or mercuric oxide is a compound of mercury and oxygen, usually prepared by heating mercuric nitrate. An oxide having the same chemical composition, but a yellow color, is obtained by adding an alkali to a cold solution of a mercury salt. It is sometimes preferred, as it is usually a finer powder. Red precipitate is used for medicinal purposes, for preparing other mercurials, in paint for ship bottoms, and for diluting pigments used on porcelain.

White precipitate or ammoniated mercury chloride is obtained by treating a solution of mercuric chloride (corrosive sublimate) with an excess of ammonia, and is marketed as a white amorphous powder or as pulverulent pieces. It is insoluble in water and is used as an ointment for sores and skin diseases. This white precipitate should not be confused with the French "white precipitate" (précipité blanc), which is calomel containing not less than 75 nor more than 80 per cent of mercury.

Mercury iodide in commerce has two forms, known as yellow (or green) and red. The yellow product is mercurous iodide, while the red is mercuric iodide. They are used both internally and externally for medicinal purposes.

Imports of calomel, corrosive sublimate, and other mercurial preparations prior to 1915 were valued between \$30,000 and \$42,000. The

imports decreased to \$2,124 in 1918. Later statistics of "other mercurial preparations" follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918 ^{1, 2} | 16 | \$30 | \$1.87 | \$5 | 15 |
| 1919..... | 10 | 33 | 3.30 | 5 | 15 |
| 1920..... | 9,887 | 11,240 | 1.14 | 1,696 | 15 |
| 1921 (9 months)..... | 1,902 | 1,420 | .75 | ..... | 15 |

¹ Includes corrosive sublimate.

² Six months only, July 1 to Dec. 30.

Exports.—Statistics not available.

PARAGRAPH 17.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 17. Carbon tetrachloride, 2½ cents per pound; chloroform, 8 cents per pound; tetrachloroethane and trichloroethylene, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 14. Chloroform, ten cents per pound.

PAR. 19. Chloroform, 2 cents per pound; carbon tetrachloride, 1 cent per pound.

PAR. 3. * * * chemical compounds, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

PAR. 5. * * * chemical * * * compounds, * * * not specially provided for in this section, 15 per centum ad valorem.

CARBON TETRACHLORIDE.

(See Survey A-6.)

Description and uses.—Carbon tetrachloride or tetrachloromethane is a liquid the vapors of which are very effective in extinguishing fire. It is used in fire extinguishers known as Pyrene, J. M., and Fyr-Fyter, and also for dry cleaning of fabrics and gloves. It is a valuable solvent, an important raw material for making chloroform, and was largely used during the war in producing smoke screens.

Production.—Increased use as a solvent and cleanser, great demand for fire extinguishers since 1909, large war needs, and cessation of imports during the war have greatly developed the industry. In 1919 the output (preliminary figures) reached 9,811,800 pounds, valued at \$803,600.

The raw materials necessary in its production are coke (carbon), sulphur, and chlorine gas, all available in this country. Sulphur chloride is a by-product and may be used for the production of more carbon tetrachloride. Carbon tetrachloride is manufactured at Midland, Mich.; Charleston, W. Va.; Niagara Falls, N. Y.; and Pittsburg, Calif.

Imports in 1914 were 572,910 pounds; in 1915, 342,854 pounds; valued, respectively, at \$28,300 and \$18,139, and were almost entirely from Germany. After 1915 imports ceased, until in 1921 (9 months) when 12,196 pounds, valued at \$387, entered.

Exports.—Statistics not available.

CHLOROFORM.

(See Survey A-6.)

Description and uses.—Chloroform is a colorless liquid with a characteristic ethereal odor, its vapors, when inhaled, producing anæsthesia, a property giving it its largest use. It is employed also as a solvent and as an antiseptic, about 1 per cent of grain alcohol being added to prevent decomposition.

Production in 1914 was 1,333,954 pounds, valued at \$295,317, a decrease of more than 500,000 pounds compared with 1909, probably due to the increased use of ether in anæsthesia. The 1919 output (preliminary figures) was 1,677,600 pounds, valued at \$516,600. Chloroform is one of many articles which requires chlorine in its manufacture. It is made from three different raw materials—carbon tetrachloride, acetone, or grain alcohol—all of which are produced in the United States in sufficient quantities. The war demand for acetone greatly stimulated the production of chloroform from carbon tetrachloride.

Imports in 1914 were 2,444 pounds, valued at \$990. Since the war they have been less than 100 pounds annually.

Exports.—Statistics not available.

TETRACHLOROETHANE AND TRICHLOROETHYLENE.

Description and uses.—These two products are organic solvents derived from acetylene by treatment with chlorine in the presence of a catalyst. Tetrachloroethane is formed first by the direct chlorination of acetylene, and may then be converted into trichloroethylene by digesting with an alkali at an elevated temperature.

Tetrachloroethane is used primarily as a solvent in the manufacture of artificial silk, airplane "dopes," and noninflammable films. Trichloroethylene is used chiefly as a solvent for the extraction of various medicinal alkaloids, such as caffeine, and in the preparation of decaffeinated coffee. These two solvents are preferred to carbon tetrachloride and chloroform, as in the presence of water they do not hydrolyze and give off hydrochloric acid as readily as these latter products.

Production in the United States is a result of war conditions; domestic requirements were supplied by imports prior to the war. They are manufactured by those firms which make chlorine.

Imports in 1914 (only year statistics are available) were 93,581 pounds of tetrachloroethane, valued at \$5,636 (68 per cent of which was from England), and 18,316 pounds of trichloroethylene, valued at \$4,393 (85 per cent from England). Prices of imported products in April, 1921, were about 16½ cents per pound for tetrachloroethane and about 20 cents per pound for trichloroethylene.

Reports.—Statistics not available.

Important changes in classification.—Tetrachloroethane and trichloroethylene—important chlorine products used for solvent purposes similar to carbon tetrachloride and chloroform—are specially provided for.

PARAGRAPH 18.

H. R. 7466.

SENATE AMENDMENTS.

PAR. 18. Chalk or whiting or Paris white: Dry, ground, bolted, or precipitated, 15 per centum ad valorem; ground in oil (putty), or put up in the form of cubes, blocks, sticks, or disks, or otherwise, including tailors', billiard, red, and manufactures of chalk not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 13. Chalk, when ground, bolted, precipitated naturally or artificially, or otherwise prepared, whether in the form of cubes, blocks, sticks or disks, or otherwise, including tailors', billiard, red, * * * one cent per pound; manufactures of chalk not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 54. Whiting and Paris white, dry, one-fourth of one cent per pound; ground in oil, or putty, one-half of one cent per pound.

PAR. 15. Chalk, precipitated, suitable for medicinal or toilet purposes; chalk put up in the form of cubes, blocks, sticks, or disks, or otherwise, including tailors', billiard, red, and other manufactures of chalk not specially provided for in this section, 25 per centum ad valorem.

PAR. 60. Whiting and Paris white, dry, and chalk, ground or bolted, 1/4 cent per pound; whiting and Paris white, ground in oil, or putty, 15 per centum ad valorem.

CHALK, WHITING, OR PARIS WHITE.

(See Survey A-5.)

Description and uses.—Chalk is a soft earthy form of calcium carbonate composed mainly of small marine organisms and shells. It is generally yellowish or grayish, but is sometimes snow white. It occurs abundantly along the southern coast of England and in the north of France.

Ground chalk, whiting, and Paris white are merely different grades of the same material—natural chalk, ground, washed, and bolted. The quality and price are quite variable and dependent on the purity, color, fineness, and freedom from grit.

Precipitated chalk is artificially prepared by chemical means from calcium chloride and soda ash. It can be secured free from grit and in finely divided condition more easily and perfectly than the natural chalk, and it is therefore preferred for toilet and medicinal purposes.

Chalk has a great variety of uses. The crude chalk is sometimes used as a fertilizer for clayey or acid soils, and in England in the manufacture of sodium carbonate and for producing carbon dioxide in quantity. It is an ingredient of whiting and Paris white, which

enter into rubber goods, linoleum, paints, calcimine, and putty. The finer grades are used in the preparation of metal polishes, in tooth powders and pastes, and to a certain extent in medicine as an antacid. Chalk is also used in the manufacture of crayons, artists' pastel colors, and paints.

Production.—There are no known deposits of chalk in the United States which are equal to those of England and France, though some pure forms of limestone are ground for whiting and Paris white. England and France produce nearly all the crude chalk used in this country. Considerable quantities of crude chalk imported from these countries are purified in the United States.

Whiting and Paris white reach the American market from three sources: (1) Imports, constituting 1 to 2 per cent; (2) manufactures from domestic crude material (limestone), 10 to 15 per cent; and (3) manufactures from imported crude chalk, about 85 per cent of the total.

Imports in 1914 from England amounted to 84,361 tons of crude chalk and from France 43,203 tons. By 1916 the imports from France practically ceased, while those from England increased to 127,536 tons in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-------------------|-----------|-------------|
| | <i>Long tons.</i> | | |
| 1918..... | 83,933 | \$113,985 | \$1.26 |
| 1919..... | 97,969 | 140,614 | 1.44 |
| 1920..... | 159,146 | 267,138 | 1.68 |
| 1921 (9 months)..... | 38,597 | 85,361 | 2.21 |

Imports of whiting and Paris white, dry, in 1913 were 3,536,747 pounds, valued at \$14,000. The maximum import during the war was over 5,000,000 pounds in 1915. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,446,190 | \$16,949 | \$0.01 | \$2,446 | 14.43 |
| 1919..... | 1,529,668 | 12,098 | .01 | 1,530 | 12.64 |
| 1920..... | 17,749,441 | 175,743 | .01 | 17,749 | 10.10 |
| 1921 (9 months)..... | 11,350,266 | 70,761 | .01 | ..... | ..... |

Imports of chalk, ground or bolted, and precipitated chalk suitable for medicinal or toilet purposes have been comparatively small. Since the war those of ground or bolted chalk have not exceeded 2,500,000 pounds, valued at \$63,000, in 1920; and the precipitated chalk in 1919 reached a maximum of 1,350,000 pounds, valued at \$38,610. Imports of putty have been sporadic and negligible, the maximum since the war being 467,220 pounds, valued at \$10,859, during the first nine months of 1921. Imports of manufactures of chalk have been practically negligible.

Exports in 1910 were valued at \$110,647; in 1914, at \$40,154; in 1918, manufactures of chalk were valued at \$186,711. They have increased since the war to \$458,868 in 1920 (calendar year).

Important changes in classification.—The act of 1913 has separate provisions for ground chalk and whiting or Paris white and for precipitated chalk suitable for medicinal or toilet purposes at different rates of duty. Although it is possible to form a judgment of quality, and therefore price, based upon the fineness, color, and purity, there is no method to determine with certainty the process of manufacture. The Tariff Commission therefore suggested to the Committee on Ways and Means that all varieties of chalk, whiting, or Paris white, whether ground, bolted, or precipitated, be placed together in the same paragraph at the same rate of duty. As there is a wide variation in price between the poorest and highest grades, an ad valorem rate has advantages over a specific rate of duty. (Reclassification Report, p. 21.)

PARAGRAPH 19.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 19. Chemical compounds, mixtures, and salts, of which gold, platinum, rhodium, or silver constitutes the element of chief value, 15 per centum ad valorem.

ACT OF 1909.

PAR. 3. * * * chemical compounds, mixtures and salts. * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 65. Salts and all other compounds and mixtures of which * * * gold, platinum, rhodium, silver, * * * constitute the element of chief value, 10 per centum ad valorem.

CHEMICAL COMPOUNDS OF GOLD, PLATINUM, RHODIUM, AND SILVER.

(See Survey A-17.)

Description and uses.—The metals named in this paragraph occur in nature in relatively small amounts and their salts and compounds are among the most expensive chemicals of mineral origin which find technical or medicinal use. The evident purpose of this paragraph is to impose a lower rate of duty on the relatively expensive substances than would be imposed under the general provision for salts, compounds, and mixtures not otherwise more specifically provided for (par. 5). Gold, platinum, and silver salts are used chiefly in photography. Technical or medicinal uses for salts of rhodium are not recorded.

Production.—Separate figures for the production of salts of rhodium are not available, but in 1914 and 1919 the production of the other salts included in this paragraph was as follows:

| | 1914. | | 1919. | |
|----------------------------|-----------|-----------|-----------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| Gold salts.....ounces..... | 28,817 | \$291,658 | 14,844 | \$143,071 |
| Platinum salts.....do..... | 365 | 6,998 | ..... | ..... |
| Silver salts.....do..... | 2,563,238 | 846,050 | ..... | 2,441,7 |

Imports (including bismuth and tin salts mentioned in the act of 1913) have not been large and have shown a decided decrease since the beginning of the war. The total imports in 1915 were valued at \$24,685. Imports of silver salts amounted in 1914 to about 806 pounds, mostly from England. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|---------|-------|------------------|
| 1915..... | | \$7,695 | \$779 | 10 |
| 1919..... | | 3,745 | 375 | 10 |
| 1920..... | | 22,944 | 2,294 | 10 |
| 1921 (9 months)..... | | 13,534 | | 10 |

Exports.—Statistics not available.

PARAGRAPH 20.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 20. Chemical compounds, salts, and preparations, of bismuth, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 3. * * * chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 65. Salts and all other compounds and mixtures of which bismuth, * * * constitute the element of chief value, -10 per centum ad valorem.

CHEMICAL COMPOUNDS AND PREPARATIONS OF BISMUTH.

(See Survey A-17.)

Description and uses.—The chief use of bismuth salts is in medicine and cosmetics. The Pharmacopœia of the United States lists various bismuth salts. Bismuth chromate and bismuth oxychloride are used to a limited extent as pigments. Other salts and compounds have less important uses.

The above compounds are made from bismuth chloride or bismuth nitrate, which are obtained by the action of hydrochloric and nitric acids, respectively, on metallic bismuth.

Production.—Separate figures for the production of salts of bismuth are not available prior to 1919, when the output of bismuth salts was 502,300 pounds, valued at \$1,235,500 (preliminary figures).

Imports of bismuth salts during 1914 amounted to 588 pounds, most of which came from Germany. Later statistics are included with those of gold, silver, platinum, and rhodium salts. (Par. 19.)

Exports.—Statistics not available.

Important changes in classification.—Separated from gold, silver, platinum, and rhodium salts, etc., because not a precious or rare metal.

Suggested changes.—The substitution of the word "mixtures" for "preparations" would make this paragraph agree with paragraph 19 of H. R. 7456 and with paragraph 65 of the act of 1913.

PARAGRAPH 21.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 21. Chemicals, drugs, medicinal and similar substances, whether dutiable or free, when imported in capsules, pills, tablets, lozenges, troches, ampoules, tubes, or similar forms, shall be dutiable at not less than 25 per centum ad valorem.

ACT OF 1909.

PAR. 65. * * * all other medicinal preparations not specially provided for in this section, twenty-five per centum ad valorem: *Provided*, That chemicals, drugs, medicinal and similar substances, whether dutiable or free, imported in capsules, pills, tablets, lozenges, troches, or similar forms, and intended for medicinal purposes, shall be dutiable at not less than the rate imposed by this section on medicinal preparations.

CHEMICALS, DRUGS, ETC., WHEN IMPORTED IN CAPSULES, ETC.

Imports (under paragraph 17 of the act of 1913) in packages of 2½ pounds or less from 1914, when first shown, to 1918, inclusive, have been valued between \$455,491 and \$711,016 per year, and have yielded a yearly revenue varying from \$91,357 to \$142,203. Imports in the form of capsules, etc., amounted to \$800,000 in both 1914 and 1915, and yielded a yearly revenue of about \$200,000. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

CHEMICAL AND MEDICINAL COMPOUNDS, ETC., IN PACKAGES OF 2½ POUNDS OR LESS.

| Year | Value | Duty | Per cent. |
|-----------------|-----------|----------|-----------|
| 1918 | \$465,925 | \$75,716 | 20 |
| 1919 | 491,591 | 98,318 | 20 |
| 1920 | 741,360 | 148,272 | 20 |
| 1921 (9 months) | 323,658 | 64,732 | 20 |

CHEMICAL AND MEDICINAL COMPOUNDS, ETC., IN CAPSULES, PILLS, TABLETS, ETC.

| Year | Value | Duty | Per cent. |
|-----------------|-----------|----------|-----------|
| 1918 | \$455,491 | \$91,100 | 20 |
| 1919 | 483,787 | 96,757 | 20 |
| 1920 | 684,296 | 136,859 | 20 |
| 1921 (9 months) | 438,234 | 87,647 | 20 |

Exports.—Statistics not available.

Important changes in classification.—The first portion of the corresponding 1913 paragraph, relating to articles in 2½-pound packages or less, has been omitted from H. R. 7456, owing to the litigation which has arisen in its administration. (Reclassification Report, pp. 24, 25.)

Suggested changes.—Page 6, paragraph 21, line 13: Insert “including powders put up in medicinal doses” after “forms.”

PARAGRAPH 22.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 22. Chemical elements, and chemical and medicinal compounds, preparations, mixtures, and salts, distilled and essential oils, expressed and extracted oils, animal oils and greases, ethers and esters, flavoring and other extracts, and natural or synthetic fruit flavors, fruit esters, oils and essences, all the foregoing and their combinations when containing alcohol, and all articles consisting of vegetable or mineral objects immersed or placed in, or saturated with, alcohol, except perfumery and spirit varnishes, and all alcoholic compounds not specially provided for, if containing 20 per centum of alcohol or less, 20 cents per pound and 25 per centum ad valorem; containing more than 20 per centum and not more than 50 per centum of alcohol, 40 cents per pound and 25 per centum ad valorem; containing more than 50 per centum of alcohol, 80 cents per pound and 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 2. Alcoholic compounds, including all articles consisting of vegetable, animal or mineral objects immersed or placed in, or saturated with, alcohol, not specially provided for in this section, sixty cents per pound and twenty-five per centum ad valorem.

PAR. 3. * * * chemical compounds, mixtures and salts containing alcohol or in the preparation of which alcohol is used, and not specially provided for in this section, fifty-five cents per pound, but in no case shall any of the foregoing pay less than twenty-five per centum ad valorem.

PAR. 65. Medicinal preparations containing alcohol or in the preparation of which alcohol is used, not specially provided for in this section, fifty-five cents per pound, but in no case shall the same pay less than twenty-five per centum ad valorem; * * *.

PAR. 16. Chemical and medicinal compounds and preparations, including mixtures and salts, distilled oils, essential oils, expressed oils, rendered oils, greases, ethers, flavoring and other extracts and fruit essences, all the foregoing and their combinations when containing alcohol, and all articles consisting of vegetable or mineral objects immersed or placed in, or saturated with, alcohol, except perfumery and spirit varnishes, and all alcoholic compounds not specially provided for in this section, if containing 20 per centum of alcohol or less, 10 cents per pound and 20 per centum ad valorem; containing more than 20 per centum and not more than 50 per centum of alcohol, 20 cents per pound and 20 per centum ad valorem; containing more than 50 per centum of alcohol, 40 cents per pound and 20 per centum ad valorem.

CHEMICAL COMPOUNDS, MIXTURES AND SALTS, ALCOHOLIC.

Imports of chemical compounds have been chiefly in the class containing 20 per cent of alcohol or less and in 1918 (fiscal year) were valued at \$30,387 and yielded a revenue of \$6,893. In 1918 imports of the class containing between 20 and 50 per cent of alcohol were valued at \$15,382 and yielded a revenue of \$7,859; those containing more than 50 per cent of alcohol, at \$850, with a revenue of \$709.

Imports of medicinal compounds have also been chiefly in the class containing 20 per cent of alcohol or less, and in 1918 were valued at \$63,579 and yielded a revenue of \$18,422. In 1918 (fiscal year) imports of the class containing between 20 and 50 per cent alcohol were valued at \$26,002 and yielded a revenue of \$18,400; those compounds containing more than 50 per cent of alcohol were valued at \$10,789, with a revenue of \$13,284.

Imports of vegetable or mineral objects immersed in alcohol are practically negligible.

Statistics of alcoholic compounds have not been separately reported since 1914. Before then imports decreased from 1,272 pounds, valued at \$1,585 in 1910, to 643 pounds, valued at \$749 in 1913.

Imports of chemical compounds, mixtures, and salts since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

CONTAINING 20 PER CENT OR LESS OF ALCOHOL.

| | Pounds. | | | | Per cent. |
|----------------------|---------|----------|--------|---------|-----------|
| 1918..... | 5,628 | \$25,056 | \$4.99 | \$5,513 | 22.00 |
| 1919..... | 1,187 | 3,062 | 2.54 | 651 | 24.46 |
| 1920..... | 2,573 | 3,469 | 1.35 | 951 | 27.43 |
| 1921 (9 months)..... | 2,697 | 4,720 | 1.81 | | |

CONTAINING MORE THAN 20 PER CENT AND NOT MORE THAN 50 PER CENT ALCOHOL

| | | | | | |
|----------------------|--------|---------|--------|---------|-------|
| 1918..... | 26,921 | \$9,768 | \$0.36 | \$7,137 | 73.10 |
| 1919..... | 171 | 950 | 5.56 | 224 | 23.80 |
| 1920..... | 1,681 | 1,501 | 1.46 | 505 | 33.74 |
| 1921 (9 months)..... | 1,418 | 2,196 | 1.55 | | |

CONTAINING MORE THAN 50 PER CENT OF ALCOHOL.

| | | | | | |
|----------------------|--------|---------|--------|---------|--------|
| 1918..... | 2,469 | \$1,185 | \$0.48 | \$1,226 | 103.24 |
| 1919..... | 591 | 308 | .52 | 298 | 96.75 |
| 1920..... | 4,204 | 18,111 | 4.31 | 5,304 | 29.28 |
| 1921 (9 months)..... | 16,691 | 13,698 | .82 | | |

Imports of medicinal compounds since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

CONTAINING 20 PER CENT OR LESS OF ALCOHOL.

| | Pounds. | | | | Per cent. |
|----------------------|---------|----------|--------|----------|-----------|
| 1918..... | 49,940 | \$36,773 | \$1.14 | \$16,349 | 28.8 |
| 1919..... | 38,236 | 113,836 | 1.95 | 28,501 | 25.12 |
| 1920..... | 56,292 | 77,023 | 1.37 | 21,034 | 27.31 |
| 1921 (9 months)..... | 59,653 | 54,610 | .91 | | |

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|--|----------------|-----------|-------------|----------|------------------------|
| CONTAINING MORE THAN 20 PER CENT AND NOT MORE THAN 50 PER CENT OF ALCOHOL. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 144,661 | \$120,906 | 83.64 | \$33,120 | 43.91 |
| 1919..... | 112,978 | 42,535 | 38 | 31,103 | 73.12 |
| 1920..... | 102,343 | 53,647 | 52 | 27,106 | 58.16 |
| 1921 (9 months)..... | 202,973 | 123,913 | 61.41 | 74,800 | 60.91 |
| CONTAINING MORE THAN 50 PER CENT OF ALCOHOL. | | | | | |
| 1918..... | 26,502 | \$11,436 | 80.43 | \$12,926 | 112.93 |
| 1919..... | 106,276 | 31,454 | 29 | 28,801 | 158.15 |
| 1920..... | 231,734 | 134,880 | 58 | 114,804 | 29.90 |
| 1921 (9 months)..... | 492,698 | 276,672 | 56 | | |

Exports.—Statistics not available.
Important changes in classification.—The phraseology of this paragraph has been slightly modified to agree with changes made in other paragraphs for these articles when not containing alcohol. (Reclassification Report, p. 23).

Suggested changes.—Page 6, lines 16, 17: "And," between "distilled" and "essential" oils and between "expressed" and "extracted" oils should be changed to "or" to avoid a possible construction requiring that the oils shall be both distilled and essential or both expressed and extracted.

PARAGRAPH 23.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 23. Chicle, crude, 15 cents per pound; refined or advanced in value by drying, straining, or any other process or treatment whatever beyond that essential to the proper packing, 20 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 30. Chicle, ten cents per pound.

PAR. 30. Gums: * * * chicle, crude, 15 cents per pound; refined or advanced in value by drying, straining, or any other process or treatment whatever beyond that essential to the proper packing, 20 cents per pound:

CHICLE.

(See Survey A-9.)

Description and uses.—Gum chicle is a dried milky juice derived from *Archas sapota*, a tree whose habitat extends from Mexico to Guiana, the principal source of supply being Yucatan. The milky juice derived from incisions in the bark is boiled and allowed to

harden in molds. First-class chicle is nearly white when well cooked, fresh and clean, but turns reddish when overcooked. Certain trees also yield a primarily reddish gum. Crude chicle as it leaves Mexico contains about 50 per cent water, some of which is lost in transportation, and as imported, contains about 40 per cent water. Its chief use is in the manufacture of chewing gum, for which it is refined by grinding, straining, and drying.

Imports.—Prior to the act of 1913 all chicle was dutiable at a uniform rate. In 1913 the import was 6,920,415 pounds, valued at \$3,059,116, and yielded a revenue of \$692,041. From July 1 to October 3, 1913, 7,998,186 pounds, but for the remainder of the fiscal year 1914 only about 1,500,000 pounds of both crude and refined chicle were imported. Since 1914 the imports of crude chicle have increased from 2,465,400 pounds in 1915 to 4,580,501 pounds, valued at \$2,076,143, and yielding a revenue of \$687,075 in 1918. The import of refined chicle increased from 1,934,760 pounds in 1915 to 3,935,093 pounds, valued at \$2,371,834, and yielded a revenue of \$787,018 in 1917. In 1918 (fiscal year) the import of refined decreased to 2,028,367 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|------------------------|----------------|-------------|-------------|-----------|------------------------|
| CRUDE CHICLE. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1915..... | 5,674,724 | \$2,640,440 | .47 | \$651,209 | 32.13 |
| 1919..... | 7,515,265 | 4,769,601 | .63 | 1,127,290 | 23.63 |
| 1920..... | 7,035,915 | 4,868,368 | .69 | 1,666,387 | 21.68 |
| 1921 (9 months)..... | 3,936,145 | 2,464,968 | .63 | | |
| REFINED CHICLE. | | | | | |
| 1915..... | 1,262,670 | \$1,005,138 | .80 | \$252,534 | 25.12 |
| 1919..... | 566,039 | 698,598 | 1.23 | 113,208 | 16.20 |
| 1920..... | 237,665 | 298,883 | 1.26 | 47,533 | 15.90 |
| 1921 (9 months)..... | 102,799 | 117,199 | 1.14 | | |

Exports.—Statistics not available.

Suggested changes.—Attention is called to the classification of various gums used as substitutes in part or as adulterants for chicle in the manufacture of chewing gum. These gums would be exempt from duty under paragraph 1577, in H. R. 7456, whereas chicle is dutiable under this paragraph. Such treatment of these gums, related to chicle, in paragraph 1577, would tend to encourage the importation of these inferior gums.

PARAGRAPH 24.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 24. Chloral hydrate, terpin hydrate, thymol, urea, and glycerophosphoric acid, and salts and compounds of glycerophosphoric acid, 25 per centum ad valorem.

ACT OF 1909.

PAR. 1. * * * all other acids not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 3. * * * all chemical compounds, * * * and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; chemical compounds, * * * and salts containing alcohol or in the preparation of which alcohol is used, and not specially provided for in this section, fifty-five cents per pound, but in no case shall any of the foregoing pay less than twenty-five per centum ad valorem.

PAR. 65. Medicinal preparations * * * in the preparation of which alcohol is used, not specially provided for in this section, fifty-five cents per pound, but in no case shall the same pay less than twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 18. Chloral hydrate, * * * urea, terpin hydrate, * * * glycerophosphoric acid and salts and compounds thereof, * * * thymol, 25 per centum ad valorem.

CHLORAL HYDRATE.

(See Survey A-6.)

Description and uses.—Chloral hydrate is a white crystalline solid of sharp taste used chiefly as a sleep-producing drug. Chloral is converted into chloral hydrate by the addition of water, and is also combined with other substances to form various drugs used for neuralgia and as sleep producers.

Production.—Chloral hydrate is manufactured by treating ethyl alcohol (grain alcohol) with chlorine gas and subsequently with sulphuric acid and water. The use of denatured alcohol is lawful for this purpose.

Prior to the war its manufacture was attempted here from tax-paid alcohol but discontinued because of the reduction in price of the German product. After the war its manufacture was resumed at St. Louis, Mo., and at Midland, Mich., upon a scale sufficient to supply domestic needs.

Imports in 1914 were 644 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,032 | \$746 | \$0.72 | 187 | 25 |
| 1921 (9 months)..... | 1,905 | 1,758 | .92 | ..... | 25 |

Exports.—Statistics not available.

TERPIN HYDRATE.

(See Survey A-6.)

Description and uses.—Terpin hydrate is prepared by the action of nitric acid and alcohol on turpentine oil. It crystallizes in colorless, rhombic prisms, has a slightly aromatic odor and a bitter taste, and is used chiefly as a medicinal.

Production.—Terpin hydrate is manufactured in the United States by several firms, but data on production are lacking.

Imports.—The largest imports during any one year (1914) were 6,929 pounds, valued at \$1,020, yielding a revenue of \$255. Over 92 per cent of these imports came from Germany. A few small shipments only have been imported in 1921.

Exports.—Statistics not available.

THYMOL.

(See Survey A-6.)

Description and uses.—Thymol is a chemical derived from ajowan seed, native to India, Egypt, Persia, and Afghanistan. It is used in the treatment of disease, as an antiseptic wash, in some brands of tooth pastes, in preparations to destroy molds and certain parasites, as the hookworm, and as an embalming fluid for corpses and anatomical specimens.

Production.—Thymol has been produced domestically from imported ajowan seed, although before the war it was chiefly imported from Germany, which had a virtual monopoly in its manufacture. Because of the scarcity of ajowan during the war, experiments have been undertaken on several American plants with the view to obtaining a domestic supply. Present production is not known. Thymol is manufactured to some extent in England and India.

Imports for 1914-1918 show an average of 12,199 pounds, valued at \$33,336; revenue, \$8,334. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|-----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 33,743 | \$105,829 | \$3.14 | \$26,457. | 25 |
| 1919..... | 10,747 | 82,470 | 7.67 | 20,618 | 25 |
| 1920..... | 9,557 | 66,353 | 6.94 | 16,588 | 25 |
| 1921 (9 months)..... | 7,078 | 34,799 | 4.92 | ..... | 25 |

Exports.—Statistics not available.

UREA.

(See Survey A-6.)

Description and uses.—Urea is the commercial name for the substance which is found naturally in the urine as well as in the blood, milk, and other animal fluids. It crystallizes in transparent, colorless, four-sided prisms. Urea forms salts such as the nitrate, oxalate, acetate, citrate, and hydrochloride, used chiefly as medicinals.

Its largest use is as a stabilizer in pyroxylin plastics.

Production.—Urea has been manufactured in the United States only since the latter part of 1916. It is made by treating calcium cyanamide with water in the presence of a mineral acid. It may also be prepared from phosgene gas and ammonia.

Calcium cyanamide, the raw material of urea, is manufactured by an American firm with a plant located in Canada. Successful manufacture requires cheap electric power.

Domestic manufacture of urea resulted from the failure of German supplies. The annual production is not known, but is estimated not to exceed 200,000 pounds. Urea is made in Germany from ammonium cyanate—a by-product of the cyanide industry—by treating with boiling water.

Imports.—The largest quantity of urea imported since 1914 was 79,192 pounds, valued at \$32,498, with a revenue of \$3,125 in 1916.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-----------------|-----------|---------|-------------|---------|------------------|
| | Pounds. | | | | Per cent. |
| 1918 | 9,929 | \$8,160 | \$0.82 | \$3,037 | 25 |
| 1919 | 14,290 | 9,741 | .68 | 2,435 | 25 |
| 1920 | 23,685 | 14,045 | .59 | 3,521 | 25 |
| 1921 (9 months) | 8,890 | 2,399 | .27 | | 25 |

Exports.—None recorded.

GLYCEROPHOSPHORIC ACID, AND SALTS AND COMPOUNDS THEREOF.

(See Survey A-6.)

Description and uses.—Glycerophosphoric acid is the substance formed when glycerol (glycerin) and phosphoric acid are heated together. It is a clear, colorless liquid when made, but decomposes rapidly and changes color. It is rarely obtained pure and is of little importance commercially, but its salts—sodium, calcium, and potassium glycerophosphates—are used as medicinals. Glycerophosphoric acid is also used in medicine when combined with iron, manganese, quinine, and strychnine.

Production.—The production of glycerophosphoric acid and its salts is carried out by several manufacturers of a general line of pharmaceuticals, there being two companies in New York State, two in St. Louis, and one in Philadelphia.

Imports show a decrease in quantity since 1914, but an increase in value. In 1917, 5,853 pounds of the acid and its salts were imported as compared with 24,789 pounds in 1914, 15,933 pounds in 1915, and 7,668 pounds in 1916. The revenue obtained during the maximum year, 1914, was \$5,767. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-----------------|-----------|--------|-------------|-------|------------------|
| | Pounds. | | | | Per cent. |
| 1918 | 209 | \$349 | \$4.06 | \$212 | 25 |
| 1919 | 3,840 | 13,274 | 2.68 | 2,569 | 25 |
| 1920 | 7,521 | 10,958 | 1.46 | 2,740 | 25 |
| 1921 (9 months) | 6,595 | 8,169 | 1.24 | | 25 |

Exports.—None recorded.

Important changes in classification.—Items omitted from this paragraph but contained in paragraph 18, act of 1913, have been transferred to the coal-tar paragraph.

on being subjected to distillation yield in the portion distilling below one hundred and ninety degrees centigrade a quantity of tar acids equal to or more than 5 per centum of the original distillate; all similar products by whatever name known, which are obtained, derived, or manufactured in whole or in part from any of the products provided for in this paragraph, or from any of the products provided for in paragraph 1546; all mixtures, including solutions, consisting in whole or in part of any of the foregoing products provided for in this paragraph, except sheep dip and medicinal soaps; all the foregoing products provided for in this paragraph, not colors, dyes, or stains, color acids, color bases, color lakes, leuco-compounds, indoxyl, indoxyl compounds, ink powders, photographic chemicals, medicinals, synthetic aromatic or odoriferous chemicals, synthetic resinlike products, synthetic tanning materials, or explosives, and not specially provided for in paragraph 26 or 1546, 30 per centum ad valorem and 7 cents per pound.

hereafter specifically repealed by section five hundred and two, fifteen per centum ad valorem.

SEC. 501. That on and after the day following the passage of this Act, in addition to the duties provided in section five hundred, there shall be levied, collected, and paid upon all articles contained in Group II a special duty of 2½ cents per pound, * * *

During the period of five years beginning five years after the passage of this Act such special duties shall be annually reduced by twenty per centum of the rate imposed by this section, so that at the end of such period such special duties shall no longer be assessed, levied, or collected; but if, at the expiration of five years from the date of the passage of this Act, the President finds that there is not being manufactured or produced within the United States as much as sixty per centum in value of the domestic consumption of the articles mentioned in Group II * * * of section five hundred, he shall by proclamation so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied, or collected.

SEC. 502. That paragraphs * * * twenty-one, twenty-two, and twenty-three and the words "salicylic acid" in paragraph one of Schedule A of section one of an Act entitled "An act to reduce tariff duties and to provide revenue for the Government, and for other purposes," approved October third, nineteen hundred and thirteen, and paragraphs * * * four hundred and fifty-two, * * * and the words "carbolic" and "phthalic," in paragraph three hundred and eighty-seven of the "free list" of section one of said Act, and so much of said Act or any existing law or parts of law as may be inconsistent with this title, are hereby repealed.

ACT OF 1909.

PAR. 1. * * * salicylic acid, five cents per pound; * * *

PAR. 15. * * * all other products or preparations of coal tar, not colors or dyes and not medicinal, not specially provided for in this section, twenty per centum ad valorem.

PAR. 482. Acids: * * * benzoic, carbolic, * * * phthalic, * * * [Free].

PAR. 491. Aniline salts [Free].

PAR. 498. Arseniate of aniline [Free].

PAR. 536. * * * products of coal tar known as * * * naphthalin,

ACT OF 1913.

PAR. 1. * * * salicylic acid, 2½ cents per pound; * * *

PAR. 18. * * * acetanilid, * * * 25 per centum ad valorem.

PAR. 21. All other products or preparations of coal tar, not colors or dyes, not specially provided for in this section, 15 per centum ad valorem.

PAR. 22. Coal-tar distillates, not specially provided for in this section; * * * naphthol, resorcin, * * * all the foregoing not medicinal and not colors or dyes, 5 per centum ad valorem.

* The Treasury Department held on Feb. 9, 1922, that the reduction of specific duties begins on Sept. 9, 1922. (T. D. 89007.)

* * * phenol, cresol, toluidine, xylydin, cumidin, binitrotoluol, binitrobenzol, benzidin, tolidin, dianisidin, naphtol, naphtylamin, diphenylamin, benzaldehyde, benzyl chloride, resorcin, nitro-benzol, and nitrotoluol, naphtylaminsulfoacids and their sodium or potassium salts, naphtholsulfoacids and their sodium or potassium salts, amidonaphtholsulfoacids and their sodium or potassium salts, amidosalicylic acid, binitrochlorbenzol, diamidostilbendisulfoacid, metanilic acid, paranitranilin, dimethylanilin; all the foregoing not medicinal and not colors or dyes [Free].

PAR. 630. Oils: * * * aniline, * * * [Free].

PAR. 23. Coal-tar products known as anilin oil and salts, toluidine, xylydin, cumidin, binitrotoluol, binitrobenzol, benzidin, tolidin, dianisidin, naphtylamin, diphenylamin, benzaldehyde, benzyl chloride, nitro-benzol and nitrotoluol, naphtylaminsulfoacids and their sodium or potassium salts, naphtholsulfoacids and their sodium or potassium salts, amidonaphtholsulfoacids and their sodium or potassium salts, amidosalicylic acid, binitrochlorbenzol, diamidostilbendisulfoacid, metanilic acid, paranitranilin, dimethylanilin; all the foregoing not medicinal and not colors or dyes. 10 per centum ad valorem.

PAR. 387. Acids: * * * carbolic, * * * phthalic, * * * [Free].

PAR. 452. * * * products of coal tar known as anthracene * * * naphthalin, phenol, and cresol [Free].

COAL-TAR INTERMEDIATES.

(See Reports T. I. S.—6, 11, 15, 22, and 23.)

Description and uses.—Paragraph 25 includes a class of coal-tar chemicals commonly known as “intermediates.” They do not occur as such in coal tar, but are prepared from the “crudes” by chemical treatment, such as that with sulphuric acid, nitric acid, alkalies or chlorine, and other chemicals. The “crudes” are compounds, such as benzene, toluene, naphthalene, separated by simple methods from coal tar, and are exempt from duty under paragraph 1546.

Intermediates are the raw materials which, by complex chemical processes are converted into dyes, drugs, perfumes, flavors, photographic chemicals, synthetic resins, and tanning materials. They are also used to accelerate the vulcanization of rubber, as camphor substitutes, in the direct production of dyes on the fiber, and for increasing fastness of dyed colors in which case they are known as “developers.” On purification many intermediates are used directly as drugs, perfumes, and flavors.

Production.—Previous to the war the small requirements of the domestic dye industry were supplied by importation. Production of a single intermediate, aniline, was organized in 1910 and reached in 1914 an output of 18,000,000 pounds. Production of all intermediates since 1916 is given in the following table. The large reduction in 1919 was due to the decreased output of intermediates required in the manufacture of military explosives and poisonous gases. In 1920 there were 119 firms making 236 intermediates:

| | 1917 | 1918 | 1919 | 1920 |
|------------------------|---------------|---------------|--------------|--------------|
| Quantity (pounds)..... | 322,745,353 | 357,662,251 | 177,362,426 | 257,726,911 |
| Value..... | \$106,966,750 | \$124,382,892 | \$63,210,079 | \$95,291,686 |

Imports.—The prewar supply of intermediates was imported from Germany, a relatively small amount coming from England. In the calendar year 1913 Germany exported to the United States 9,328,000 pounds of intermediates. Imports since 1917 are shown in the following table:

| Calendar year | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|-----------------|-----------|----------|-------------|----------|------------------------|
| | Pounds. | | | | Per cent. |
| 1918 | 358,034 | \$99,830 | \$0.28 | \$23,925 | 23.97 |
| 1919 | 178,667 | 84,815 | .47 | 17,089 | 20.15 |
| 1920 | 4,810,505 | 751,448 | .16 | 232,980 | 21.00 |
| 1921 (9 months) | 1,329,376 | 325,587 | .24 | | |

Exports.—Statistics not available.

Important changes in classification.—On December 12, 1918, the Tariff Commission transmitted to the Committee on Ways and Means a report entitled "Dyes and Other Coal-Tar Chemicals." This report recommended amendments to Title V of the act of September 8, 1916, repealing provisions of the tariff act of 1913 relative to coal-tar products. These recommendations have been incorporated in H. R. 7456. (See also Reclassification Report, p. 32.)

Phenol, anthracene, cresol, and naphthalin were exempt from duty under paragraph 452, and phthalic and carbolic acids were admitted free under paragraph 387 of the act of 1913. Cresol is free under the act of 1916. Quinolin, exempt from duty under the act of 1916, is also transferred to the dutiable schedule of H. R. 7456. The provision "after the removal of all water present" has been added relative to the solidifying point of naphthalene.

Suggested changes.—Page 8, lines 12, et seq., of H. R. 7456: Arrange alphabetically.

Page 8, line 16, of H. R. 7456, "toluylenediamine" should be spelled "tolylenediamine," without the letter "u."

Page 9, line 1, of H. R. 7456: Insert a comma after "water-gas tar."

PARAGRAPH 26.

H. R. 7456.

ACT OF 1916.

PAR. 26. Coal tar products: All colors, dyes, or stains, whether soluble or not in water, color acids, color bases, color lakes, leuco-compounds, whether colorless or not, indoxyl and indoxyl compounds; ink powders; photographic chemicals; acetanilide suitable for medicinal use, acetphenetidine, acetylsalicylic acid, antipyrine, benzaldehyde suitable for medicinal use, benzoic acid suitable for medicinal use, betanaphthol suitable for medicinal use, guaiacol and its derivatives, phenolphthalein, resorcinol suitable for medicinal use, salicylic acid and its salts suitable for medicinal use, salol, and other medicinals; sodium benzoate; saccharin; artificial musk, benzyl ace-

TITLE V.—DYESTUFFS.

SEC. 500. That on and after the day following the passage of this Act, except as otherwise specially provided for in this title, there shall be levied, collected, and paid upon the articles named in this section when imported from any foreign country into the United States or into any of its possessions, except the Philippine Islands and the Islands of Guam and Tutulla, the rates of duties which are prescribed in this title, namely:

Group II. * * * benzoic acid,
* * * salicylic acid * * * 15 per centum ad valorem and 2½ cents per pound.

tate, benzyl benzoate, coumarin, diphenyloxide, methyl anthranilate, methyl salicylate, phenylacetaldehyde, phenylethyl alcohol, and other synthetic odoriferous or aromatic chemicals, including flavors, all of these products not marketable as perfumery, cosmetics, or toilet preparations, and not mixed and not compounded, and not containing alcohol; synthetic phenolic resin and all resinlike products prepared from phenol, cresol, phthalic anhydride, coumarone, indene, or from any other article or material provided for in paragraph 25 or 1546, all of these products whether in a solid, semisolid, or liquid condition; synthetic tanning materials; picric acid, trinitrotoluene, and other explosives except smokeless powders; all of the foregoing products provided for in this paragraph, when obtained, derived, or manufactured in whole or in part from any of the products provided for in paragraph 25 or 1546; natural alizarin and natural indigo, and colors, dyes, stains, color acids, color bases, color lakes, leuco-compounds, indoxyl, and indoxyl compounds, obtained, derived, or manufactured in whole or in part from natural alizarin or natural indigo; natural methyl salicylate or oil of wintergreen or oil of sweet birch; natural coumarin; natural gallicol and its derivatives, and all mixtures, including solutions, consisting in whole or in part of any of the articles or materials provided for in this paragraph, excepting mixtures of synthetic odoriferous or aromatic chemicals, 35 per centum ad valorem and 7 cents per pound; *Provided*, That the specific duty of 7 cents per pound herein provided for on colors, dyes, or stains, whether soluble or not in water, color acids, color bases, color lakes, leuco-compounds, indoxyl, and indoxyl compounds, shall be based on standards of strength which shall be established by the Secretary of the Treasury, and that upon all importations of such articles which exceed such standards of strength the specific duty of 7 cents per pound shall be computed on the weight which the article would have if it were diluted to the standard strength, but in no case shall any such articles of whatever strength pay a specific duty of less than 7 cents per pound; *Provided further*, That beginning six months after the date of passage of this Act no package containing any such color, dye, stain, color acid, color base, color lake, leuco-compound, indoxyl, or indoxyl compound shall be admitted to entry into the United States unless such package and

Group III. All colors, dyes, or stains, whether soluble or not in water, color acids, color bases, color lakes, photographic chemicals, medicinals, flavors, synthetic phenolic resin, or explosives, not otherwise specially provided for in this title, when obtained, derived, or manufactured in whole or in part from any of the products provided for in Groups I and II, natural alizarin and indigo, and colors, dyes, or color lakes obtained, derived, or manufactured therefrom, thirty per centum ad valorem, or equivalent to the former to Sec 501. That on and after the day following the passage of this Act, in addition to the duties provided in section five hundred, there shall be levied, collected, and paid, in and upon all articles contained in Group III (except natural and synthetic alizarin, and dyes obtained from alizarin, anthracone, and carbazol, natural and synthetic indigo and all indigoids, whether or not obtained from indigo; and medicinals and flavors) a special duty of 5 cents per pound. During the period of five years beginning five years after the passage of this Act, such special duties shall be annually reduced by twenty per centum of the rate imposed by this section, so that at the end of such period such special duties shall no longer be assessed, levied, or collected; but if at the expiration of five years from the date of the passage of this Act, the President finds that there is not being manufactured or produced within the United States as much as sixty per centum in value of the domestic consumption of the articles mentioned in Groups * * * III of section five hundred, he shall by proclamation so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied, or collected.

Sec. 502. That paragraphs twenty, twenty-one, * * * and the words "salicylic acid" in paragraph one of Schedule A of section one of an Act entitled "An Act to reduce tariff duties and to provide revenue for the Government, and for other purposes," approved October third, nineteen hundred and thirteen, and paragraphs three hundred and ninety-four, * * * and five hundred and fourteen, * * * of the "free list" of section one of said Act, and so much of said Act or any existing law or parts of law as may be inconsistent with this title, are hereby repealed.

⁵ The Treasury Department held on Feb. 9, 1922, that the reduction of specific duties begins on Sept. 9, 1922 (T. D. 39007).

the invoice shall bear a plain, conspicuous, and truly descriptive statement of the identity and percentage, exclusive of diluents, of such color, dye, stain, color acid, color base, color lake, leuco-compound, indoxyl, or indoxyl compound contained therein: *Provided further*, That on and after the passage of this Act no package containing any such article shall be admitted to entry into the United States if it or the invoice bears any statement, design, or device regarding such article or the ingredients or substances contained therein which is false, fraudulent, or misleading in any particular; in the enforcement of the foregoing provisions the Secretary of the Treasury shall adopt a standard of strength for each dye or other article which shall conform as nearly as practicable to the commercial strength in ordinary use in the United States prior to July 1, 1914: *Provided further*, That any article or product which may come within the terms of other paragraphs of this Act, as well as within the terms of paragraph 25, 26, or 1546, shall be assessed for duty or exempted from duty as the case may be, under paragraph 25, 26, or 1546.

ACT OF 1909.

PAR. 15. Coal-tar dyes or colors, not specially provided for in this section, thirty per centum ad valorem; all other products or preparations of coal tar, not colors or dyes and not medicinal, not specially provided for in this section, twenty per centum ad valorem.

PAR. 3. * * * essential oils, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 18. Coloring for brandy, wine, beer, or other liquors, fifty per centum ad valorem.

PAR. 25. Indigo extracts or pastes, three-fourths of one cent per pound; indigo, carmined, ten cents per pound.

PAR. 26. * * * ink powders, twenty-five per centum ad valorem.

PAR. 65. * * * medicinal preparations * * * not specially provided for in this section, twenty-five per centum ad valorem: * * *

PAR. 218. Saccharine, sixty-five cents per pound.

PAR. 485. * * * all explosive-substances used for mining, blasting, artillery, or sporting purposes, when valued at twenty cents or less per pound, two cents per pound; valued above twenty cents per pound, 4 cents per pound.

ACT OF 1913.

PAR. 20. Coal-tar dyes or colors, not specially provided for in this section, 30 per centum ad valorem.

PAR. 1. * * * salicylic acid, 2½ cents per pound; * * *

PAR. 5. * * * all * * * medicinal compounds, * * * 15 per centum ad valorem.

PAR. 18. * * * salol, phenolphthalein, * * * acetanilid, acetphenetidid, antipyrine, * * * acetylsalicylic acid, aspirin, guaiacol carbonate. * * * 25 per centum ad valorem.

PAR. 21. All other products or preparations of coal tar, not colors or dyes, not specially provided for in this section, 15 per centum ad valorem.

PAR. 26. Coloring for brandy, wine, beer, or other liquors, 40 per centum ad valorem.

PAR. 37. * * * ink powders, 15 per centum ad valorem.

PAR. 46. * * * essential and distilled oils * * * not specially provided for in this section, 20 per centum ad valorem: * * *

PAR. 49. * * * all natural or synthetic odoriferous or aromatic sub

PAR. 482. Acids: * * * nitrople-
ric. * * * [Free].

PAR. 487. Alizarin, natural or artifi-
cial, and dyes derived from alizarin or
from anthracin [Free].

PAR. 536. * * * resorcin * * *
[Free].

stances, preparations, and mixtures
used in the manufacture of, but not
marketable as, perfumes or cosmetics;
all the foregoing not containing alco-
hol and not specially provided for in
this section, 20 per centum ad valorem.

PAR. 67. Soda: Benzoate of, 5 cents
per pound; * * *

PAR. 179. Saccharin, 65 cents per
pound.

PAR. 394. Alizarin, natural or syn-
thetic, and dyes obtained from aliza-
rin, anthracene, and carbasol [Free].

PAR. 501. * * * all explosive sub-
stances, not specially provided for in
this section, used for mining, blasting,
and artillery purposes [Free].

PAR. 514. Indigo, natural or syn-
thetic, dry or suspended in water, and
dyes obtained from indigo [Free].

PAR. 538. Madder and munjeet, or
Indian madder, ground or prepared,
and all extracts of [Free].

PAR. 592. Indigo [Free].

PAR. 617. Madder and munjeet, or
Indian madder, ground or prepared,
and all extracts of [Free].

COAL-TAR FINISHED PRODUCTS.

(See Reports T. I. S.—6, 11, 15, 22, and 23.)

DYES AND COLORS.

All colors, dyes, or stains, whether or not soluble in water, color acids, color bases, color lakes, leuco-compounds, whether colorless or not, indoxyl, and indoxyl compounds, ink powders.

Description and uses.—Under paragraph 26 is included a variety of products made by chemical processes from the coal-tar intermediates enumerated in paragraph 25. They are used in dyeing, coloring, or staining of vegetable and animal fibers, paper, leather, wood, feathers, varnishes, soaps, fats, foods, and other products; and in the preparation of inks and color lakes, a class of paint pigments. The color bases, leuco-compounds, and indoxyl are either nearly finished dyes or products which are closely related and readily converted into dyes by simple treatment.

Production.—Previous to the war the domestic synthetic dye industry was restricted to assembling a limited quantity of dyes from intermediates imported from Germany. In 1914, 6,619,729 pounds of "coal-tar dyes," valued at \$2,470,096, were made from imported intermediates (aniline in part excepted).

During the war the failure of the foreign supply and the great needs of the domestic consumer, combined with great initiative on the part of the dye makers, gave rise to the rapid development of dye manufacturing. In 1917, 45,977,246 pounds were produced, increasing to 88,263,776 pounds in 1920.

Production since 1914 has been as follows:

| | 1914 | 1917 | 1918 | 1919 | 1920 |
|------------------------|-------------|-------------|--------------|--------------|--------------|
| Quantity (pounds)..... | 6,619,729 | 45,977,246 | 58,404,446 | 63,402,194 | 88,263,776 |
| Value..... | \$2,470,096 | \$7,798,228 | \$22,026,800 | \$67,806,856 | \$96,613,740 |

Imports of dyes were 45,950,895 pounds in the fiscal year 1914, at which time the United States depended largely on Germany for a supply of dyes. During the war, when the supply from Europe was shut off, the domestic production rapidly increased. Imports have shown a permanent decrease since 1914. The following table gives the imports of coal-tar dyes and colors since 1917:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|-----------------|-----------|-------------|-------------|-----------|
| | Pounds. | | | |
| 1917 | 2,542,089 | \$2,578,976 | \$1.01 | \$965,122 |
| 1918 | 2,625,946 | 3,339,722 | 1.27 | 1,104,178 |
| 1920 | 3,743,318 | 4,458,595 | 1.46 | 1,796,689 |
| 1921 (9 months) | 2,790,066 | 3,708,386 | 1.33 | |

Exports.—The rapid increase in dye production, during a period when Germany was shut off from the foreign export markets, led to the establishment of an export trade in coal-tar dyes. In 1918 the value of exports of "aniline dyes" was \$8,629,611, and of "all other dyes" (not including logwood extract), \$6,636,909. In 1920, the maximum export year, the exports of "aniline dyes" reached \$22,450,480, and of "all other" \$7,373,111.

For the first nine months of 1921 exports decreased to \$4,089,897 for "aniline dyes" and \$956,074 for "all other." This great reduction in exports, while attributable in part to the general business depression, was largely due to the appearance of German dyes in the large foreign markets, such as China, India, and Japan. Exports for the calendar years 1918-1921 are given in the following table:

| Dyes | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------------|-------------|--------------|--------------|--------------------|
| Aniline dyes | \$8,629,611 | \$10,794,071 | \$22,450,480 | \$4,089,897 |
| All other dyes and dyestuffs | 6,636,909 | 5,904,425 | 7,373,111 | 956,074 |

¹ The domestic exports of dyes, as shown by the Commerce Department, are divided into 3 groups—(1) aniline dyes, (2) logwood extract, and (3) all other dyes and dyestuffs.

The third classification may include both natural dyes (other than logwood extracts, shown separately), as well as coal-tar dyes. Since logwood extract, however, is the most important natural dye exported from the United States, it is reasonable to assume that a considerable portion of "all other dyes and dyestuffs" represents coal-tar dyes.

ALIZARIN AND INDIGO

Important changes in classification.—Natural or synthetic alizarin and dyes obtained from alizarin, anthracene, and carbazal (par. 294), and natural or synthetic indigo, dry or suspended in water, and dyes obtained from indigo (par. 514) are on the free list of the act of 1913. They are dutiable under Group III of the act of 1916. Madder and munjeet, or Indian madder, ground or prepared, and all extracts of, are free of duty under paragraph 588, act of 1913. See also paragraph 25, page 76.

PHOTOGRAPHIC CHEMICALS.

Description and uses.—These important coal-tar chemicals are strong reducing agents and are used as "developers" in photography.

Production is given in the following table:

| | 1917 | 1918 | 1919 | 1920 |
|------------------------|-----------|-----------|-------------|-------------|
| Quantity (pounds)..... | 252,498 | 219,749 | 325,909 | 440,789 |
| Value..... | \$922,281 | \$823,915 | \$1,088,340 | \$1,915,848 |

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad- valorem. |
|----------------------|----------------|-----------|-------------|----------|----------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 14,550 | \$108,537 | \$7.46 | \$33,289 | 30.67 |
| 1919..... | 12,059 | 77,876 | 6.46 | 21,948 | 30.77 |
| 1920..... | 21,808 | 67,640 | 3.10 | 21,382 | 31.61 |
| 1921 (9 months)..... | 27,888 | 64,417 | 2.34 | | |

Exports.—Not separately recorded.

Important changes in classification.—See paragraph 25, page 76.

MEDICINALS.

*Description and uses.—*From the viewpoint of national welfare the production of a variety of synthetic coal-tar drugs is of great importance. These products have a diversified application in the treatment and diagnosis of disease. The majority of them are of recent introduction in medicine. The most important from the medical standpoint is arsphenamine (salvarsan).

Production is shown in the following table:

| | 1917 | 1918 | 1919 | 1920 |
|------------------------|-------------|-------------|-------------|-------------|
| Quantity (pounds)..... | 2,418,274 | 3,622,283 | 6,777,988 | 5,184,989 |
| Value..... | \$5,639,907 | \$7,782,994 | \$7,983,071 | \$5,738,776 |

Imports since 1917 are given in the following table:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|-----------|----------|------------------------|
| | | | | <i>Per cent.</i> |
| 1918..... | | \$201,074 | \$99,322 | 30 |
| 1919..... | | 148,408 | 55,540 | 30 |
| 1920..... | | 168,666 | 48,817 | 30 |
| 1921 (9 months)..... | | 215,988 | | |

Exports are not separately shown.

Important changes in classification.—See paragraph 25, page 76.

*Suggested changes.—*Page 11, line 3, of H. R. 7456: "Guaicol" should be "guaiacol."

FLAVORS AND PERFUME MATERIALS.

*Description and uses.—*Coal-tar flavors and perfumes are not sharply differentiated, as many are used interchangeably. These classes of coal-tar chemicals constitute a natural and essential branch

of a well-rounded dye industry. They are used as a flavoring material in foods, pharmaceuticals, and tobacco. In addition, many of them are valuable perfumes, serving as satisfactory substitutes for the more costly natural products.

Production is given in the following table:

| Calendar year. | Flavors. | | Perfumes. | |
|----------------|----------------|-------------|----------------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Pounds.</i> | | <i>Pounds.</i> | |
| 1918..... | 458,258 | \$4,925,637 | 118,263 | \$584,695 |
| 1919..... | 610,826 | 1,313,654 | 41,419 | 164,302 |
| 1920..... | 186,884 | 527,468 | 89,740 | 232,008 |

Imports of perfume materials are not shown separately, and imports of flavors have been negligible since 1918.

Exports.—Statistics are not available.

Important changes in classification.—See paragraph 25, page 76.

SYNTHETIC TANNING MATERIALS.

Description and uses.—Synthetic tanning materials constitute a new branch of the coal-tar industry, which has been developed since 1918. They are made by the condensation of certain coal-tar derivatives with formaldehyde in the presence of an acid. These products are usually applied in tanning in conjunction with the natural tanning agents.

Production figures are not available prior to 1920, when 3,142,861 pounds, valued at \$233,674 were reported.

Imports are not separately shown.

Exports figures are not available.

Important changes in classification.—See paragraph 25, page 76.

SYNTHETIC RESINS.

Description and uses.—These products are prepared by condensing phenol or cresol or para-coumarone with formaldehyde and ammonia or with hexamethylenetetramine. They are used as an amber substitute in mouth pieces for pipes, for cigarette holders, and similar articles. They are of especial importance as electrical insulating materials and in the manufacture of varnishes and lacquers.

Production has increased from 3,094,534 pounds, valued at \$2,311,358 in 1919 to 4,659,680 pounds, valued at \$3,410,119 in 1920.

Imports since 1918 are shown below:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 1,114 | \$2,890 | \$2.57 | 8014 | 31.95 |
| 1920..... | 3,479 | 2,681 | 1.08 | 629 | 34.63 |
| 1921 (9 months)..... | 688 | 908 | 1.47 | | |

Exports are not separately recorded.

Important changes in classification.—See paragraph 25, page 76.

COAL-TAR EXPLOSIVES.

Description and uses.—Explosives made from coal-tar derivatives are used as high-explosive shell fillers in military shells, torpedoes, and grenades.

Picric acid is a trinitro derivative of phenol. It is a pale yellow solid substance which melts to a liquid at 122° C. It is one of the most powerful explosive shell fillers. The raw materials from which picric acid is made are phenol (carboic acid) or monochlorobenzol and nitric and sulphuric acids. Ammonium picrate is also largely used for the same purposes as picric acid.

Trinitrotoluene, also known as trotyl and T. N. T., is a high explosive used principally in shells. It is preferable to picric acid for most purposes. It is made by the nitration of toluene.

Tetranitroaniline, or tetryl, is a more powerful explosive than picric acid, and is also somewhat more sensitive. It is a solid crystalline substance made by the nitration of dimethylaniline. It has much the same use as picric acid and T. N. T.

Production figures are not available; during the war large quantities of picric acid and T. N. T. were produced, and also considerable amounts of the new explosive tetryl.

Imports of picric acid in 1918 were 3,240,500 pounds, valued at \$254,385.

Exports of picric acid are shown for calendar years in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|---------|---------|---------------------|
| Quantity (pounds)..... | 39,584,858 | 2,474 | 9,480 | 1,366 |
| Value..... | \$23,231,892 | \$2,684 | \$4,022 | \$706 |

Important changes in classification.—Explosive substances used for mining, blasting, and artillery purposes are exempt from duty under paragraph 501 of the act of 1913. (See par. 25, p. 76.)

Suggested changes.—Page 12, lines 15–19 of H. R. 7456: The provision “That any article or product which may come within the terms of other paragraphs of this Act, as well as within the terms of paragraph 25, 26, or 1546, shall be assessed for duty or exempted from duty, as the case may be, under paragraph 25, 26, or 1546” is too broad. It is therefore suggested that the following phrasing, in which conflicting paragraphs are referred to by number, be adopted:

That any article or product which may come within the terms of paragraph 1, 5, 35, 37, 56, 63, 79, or 1578 of this act, as well as within the terms of paragraph 25, 26, or 1546, shall be assessed for duty or exempted from duty, as the case may be, under paragraph 25, 26, or 1546.

PARAGRAPH 27.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 27. Cobalt: Oxide, 20 cents per pound; sulphate, linoleate, and all other cobalt compounds, 25 per centum ad valorem.

ACT OF 1909.

PAR. 16. Cobalt, oxide of, twenty-five cents per pound.

PAR. 3. * * * chemical compounds, * * * and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 24. Cobalt, oxide of, 10 cents per pound.

PAR. 5. * * * chemical * * * compounds, * * * and salts, * * * 15 per centum ad valorem.

COBALT OXIDE.

(See Survey A-6.)

Description and uses.—Two grades of cobalt oxide are found on the market, the black and the gray.

The oxide is usually produced directly from the ore, but if the pure substance is wanted the metal is first obtained and then changed to the oxide. Zaffer (par. 1690, free list) is an impure cobalt oxide.

Cobalt oxide is used in the preparation of cobalt salts, in the manufacture of smalt and of enameled ironware, for producing blue enamels and glazes on porcelain, and as a drier for paints and varnishes.

Production.—Since Canada began producing cobalt in quantity the production of the oxide in the United States has been very small. Canada furnishes nearly all of the world's supply. The output in 1919 (preliminary figures) of cobalt salts was valued at \$104,970.

Imports are almost entirely from Canada. They increased from 28,729 pounds in 1913 to 109,484 pounds in 1914 and to 238,934 pounds in 1916. The import during 1918 was 220,863 pounds.

The large increase in imports of cobalt oxide has been accompanied by a marked decrease in imports of cobalt ore, which was free of duty under the acts of 1909 and 1913. With cobalt oxide dutiable at 25 cents per pound, considerable ore was imported and converted into the oxide in the United States. Since the passage of the act of 1913 plants have been built in Canada; these treat the ore and ship oxide and metal into this country. Imports of cobalt oxide since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 208,586 | \$291,699 | \$1.40 | \$20,860 | 7.15 |
| 1919..... | 131,424 | 184,751 | 1.41 | 13,142 | 7.11 |
| 1920..... | 202,724 | 399,605 | 1.97 | 20,27½ | 5.07 |
| 1921 (9 months)..... | 85,441 | 188,721 | 2.21 | | |

Exports.—Statistics not available.

COBALT SULPHATE.

Description and uses.—Cobalt sulphate is a red powder derived by the action of sulphuric acid on cobalt oxide. Its chief use is in ceramics.

Production.—Statistics not available.

Imports of cobalt sulphate in 1914 (only year available) were 54,389 pounds, valued at \$15,960.

Important changes in classification.—New specific provision.

COBALT LINOLEATE AND OTHER COBALT COMPOUNDS.

Description and uses.—Cobalt linoleate is one of the most important driers used in the paint, varnish, and printing ink industries, owing to the accelerated drying effect which it produces. It is sold largely admixed with linseed or soya-bean oil, in paste or liquid form, ready for direct mixing with paints.

Production.—Statistics are not available. Considerable quantities, however, are made in this country. It is produced by heating together solutions of cobalt sulphate and sodium linoleate.

Imports.—Statistics are available for 1914 only, when 18,983 pounds, valued at \$4,677, were imported, almost entirely from Germany. It is known that several shipments have come from England during 1921.

Exports.—Statistics are not available.

Important changes in classification.—New specific provision. The provision for "other cobalt compounds" is also new.

Suggested changes.—It is suggested that the words "cobalt salts and compounds" be substituted for the term "cobalt compounds," since tariff acts have long distinguished salts from compounds.

PARAGRAPH 28.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 28. Cellulose esters, collodion and other liquid solutions of pyroxylin, of other cellulose esters or ethers, or of cellulose, 35 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 17. Collodion * * * forty cents per pound; * * *.

PAR. 25. Collodion and all other liquid solutions of pyroxylin, or of other cellulose esters, or of cellulose, 15 per centum ad valorem; * * *.

CELLULOSE ESTERS AND SOLUTIONS OF PYROXYLIN.

(See Survey A-6.)

Description and uses.—Pyroxylin is a name applied to the soluble nitrates of cellulose. Collodion is a solution of pyroxylin in alcohol and ether. It is used in surgery and to some extent in photography.

Of the other cellulose esters the acetates are the most important. They are made by treating cellulose with acetic anhydride and sulphuric acid. Cellulose acetate is used for making one variety of artificial silk and replaces nitrocellulose where noninflammability is important, as in "dope" or varnish for airplane wings and for moving picture films, when for use in the home or small theaters.

Production.—The materials used in the manufacture of pyroxylin are cellulose in some form, nitric acid, and sulphuric acid. These liquid solutions of pyroxylin are made by a group of manufacturers other than those making compounds of pyroxylin (par. 29).

Imports of collodion and other liquid solutions of pyroxylin since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$51 | | \$3 | 15 |
| 1919..... | 226 | 344 | \$1.52 | 52 | 15 |
| 1920..... | 998 | 1,580 | 1.59 | 237 | 15 |
| 1921 (9 months)..... | 2,350 | 2,190 | .93 | | 15 |

Imports of cellulose esters are not listed separately.

Exports.—Statistics not available.

Important changes in classification.—Cellulose esters have been specifically mentioned in this paragraph, and the liquid solutions of cellulose esters have been distinguished from compounds of pyroxylin. (See p. 88 and Reclassification Report, p. 37.)

PARAGRAPH 29.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 29. Compounds of pyroxylin, of other cellulose esters or ethers, or of cellulose, by whatever name known, in blocks, sheets, rods, tubes, or other forms, and not made into finished or partly finished articles, 40 cents per pound; made into finished or partly finished articles, of which any of the foregoing is the component material of chief value, 65 cents per pound and 25 per centum ad valorem: *Provided*, That all such articles, whether or not more specifically provided for elsewhere, shall be dutiable under this paragraph.

ACT OF 1909.

ACT OF 1913.

PAR. 17. * * * all compounds of pyroxylin or of other cellulose esters, whether known as celluloid or by any other name, forty cents per pound; if in blocks, sheets, rods, tubes, or other forms, not polished, wholly or partly, and not made up into finished or partly finished articles, forty-five cents per pound; if polished, wholly or partly, or if in finished or partly finished articles, except moving-picture films, of which collodion or any compound of pyroxylin or of other cellulose esters, by whatever name known, is the component material of chief value, sixty-five cents per pound and thirty per centum ad valorem.

PAR. 25. * * * compounds of pyroxylin or of other cellulose esters, whether known as celluloid or by any other name, if in blocks, sheets, rods, tubes, or other forms not polished, wholly or partly, and not made into finished or partly finished articles, 25 per centum ad valorem; if polished, wholly or partly, or if finished or partly finished articles, of which collodion or any compound of pyroxylin or other cellulose esters, by whatever name known, is the component material of chief value, 40 per centum ad valorem.

PYROXYLIN PLASTICS.

(See Survey A-6.)

Description and uses.—Pyroxylin is a name applied to the soluble nitrates of cellulose.

Pyroxylin plastics are substances composed of pyroxylin, camphor, and a solvent, and are sold under trade names such as "celluloid," "fiberoid," "viscoloid," "pyralin," and "nixonoid." They are used for making combs, mirror and brush backs, knife-handles, buttons, toys, rims for eyeglasses, and many other articles. Pyroxylin is used also in the manufacture of artificial leather and silk.

Production.—The materials used in the manufacture of pyroxylin are cellulose in some form, nitric acid, and sulphuric acid. A stabilizer, usually urea, is added; also pigments and dyes for opaque or colored products.

The domestic production of pyroxylin plastics has increased greatly, its value being in 1899, \$1,526,572; in 1909, \$5,682,379; in 1914, \$8,876,509; and in 1919 (preliminary figures), \$30,169,000.

Germany was formerly the largest producer of pyroxylin and our strongest competitor. England and France were extensive manufacturers of pyroxylin plastics before the war. When the factories were largely given over to the making of explosives the production of plastics in those countries greatly diminished, with a consequent increase in exports from the United States. Japan will probably become the leading competitor under normal conditions, since she controls the world's supply of camphor and is growing in experience in manufacture.

Synthetic camphor was manufactured in this country during the war, but its manufacture was discontinued because of the low prices of natural camphor. It is now reported (December, 1921) that manufacture is to be resumed at an early date.

Imports of pyroxylin plastics not made into finished or partly finished articles have not averaged more than 1 per cent of the domestic production, even though a marked increase followed the act of 1913. Imports of the partly or wholly finished manufactured articles in 1914 were about 10 per cent of the domestic production. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-----------------------|----------------|---------|-------------|----------|------------------|
| NOT FINISHED. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 4,977 | \$4,489 | \$0.90 | \$1,122 | 25 |
| 1919..... | 5,234 | 6,217 | 1.19 | 1,554 | 25 |
| 1920..... | 7,615 | 14,210 | 1.87 | 3,553 | 25 |
| 1921 (9 months)..... | 29,445 | 35,311 | 1.20 | | 25 |
| POLISHED OR FINISHED. | | | | | |
| 1918..... | | \$4,846 | | \$17,938 | 40 |
| 1919..... | 26,482 | 51,340 | \$1.94 | 20,536 | 40 |
| 1920..... | | 170,843 | | 44,337 | 40 |
| 1921 (9 months)..... | | 71,332 | | | 40 |

Exports of celluloid and manufactures in 1910 were valued at \$1,189,080; in 1914, at \$1,387,541; in 1918, at \$3,744,745. In postwar years exports increased to \$9,046,302 in 1920 (calendar year) and then declined to \$1,771,299 during the first nine months of 1921. They have gone chiefly to France, England, Canada, and Italy.

Important changes in classification.—The words "or ethers, or of cellulose," have been added, as compounds are made of cellulose or of cellulose ethers similar to those of pyroxylin.

Compounds of pyroxylin are now dutiable (par. 25, act of 1913) at different rates, depending upon whether or not they are polished, those polished carrying the same rate of duty as manufactured or finished articles composed in chief value of pyroxylin. As this division has caused some litigation, arising from the facts that the polishing constitutes a comparatively slight advance in the value of pyroxylin, and that the surfaces are given finishes other than polishing, this distinction was omitted in H. R. 7456. (Reclassification Report, p. 37.)

PARAGRAPH 30.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 30. Compounds of casein, known as galalith, or by any other name, in blocks, sheets, rods, tubes, or other forms, not made into finished or partly finished articles, 25 cents per pound; made into finished or partly finished articles of which any of the foregoing is the component material of chief value not specially provided for, 40 cents per pound and 25 per cent ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

CASEIN COMPOUNDS.

Description and uses.—Galalith, a product of casein, is a hornlike material made largely into fine-toothed combs and other toilet articles. It competes to a certain extent with celluloid articles, but is not so strong and is subject to warping. It is fire resistant, however. The process of manufacture consists in hardening casein with formaldehyde.

Production.—The domestic industry manufacturing galalith articles from casein is small. The industry is confined mainly to France, and, to a lesser extent, to Germany. A few manufacturers in this country make finished articles from sheets, rods, tubes, etc. In 1914 the German production amounted to 10 metric tons daily, with the year's output valued at 10,000,000 marks.

Imports since 1917 are as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|----------|------------------|
| 1918..... | \$87,671 | \$10,151 | Per cent. 15 |
| 1919..... | 96,284 | 14,443 | 15 |
| 1920..... | 114,515 | 17,177 | 15 |
| 1921 (9 months)..... | 70,578 | | 15 |

Exports.—Statistics not available.

Important changes in classification.—New provision. Now dutiable according to the kind of article.

PARAGRAPH 31.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 31. Drugs, such as barks, beans, berries, buds, bulbs, bulbous roots, excrescences, fruits, flowers, dried fibers, dried insects, grains, herbs, leaves, lichens, mosses, roots, stems, vegetables, seeds (aromatic, not garden seeds), seeds of morbid growth, weeds, and all other drugs of vegetable or animal origin; any of the foregoing which are natural and uncompounded drugs and not edible, and not specially provided for, but which are advanced in value or condition by shredding, grinding, chipping, crushing, or any other process or treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture, 10 per centum ad valorem: *Provided*, That the term "drug" wherever used in this Act shall include only those substances having therapeutic or medicinal properties and chiefly used for medicinal purposes: *And provided further*, That no article containing alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

PAR. 20. Drugs, such as barks, beans, berries. * * * buds, bulbs, bulbous roots, excrescences, fruits, flowers, dried fibers, dried insects, grains, * * * herbs, leaves, lichens, mosses, nuts, nutgalls, roots, stems, spices, vegetables, seeds (aromatic, not garden seeds), seeds of morbid growth, weeds, and woods used expressly for dyeing or tanning; any of the foregoing which

ACT OF 1913.

PAR. 27. Drugs, such as barks, beans, berries, buds, bulbs, bulbous roots, excrescences, fruits, flowers, dried fibers, dried insects, grains, * * * herbs, leaves, lichens, mosses, roots, stems, vegetables, seeds (aromatic, not garden seeds), seeds of morbid growth, and weeds; any of the foregoing which are natural and uncompounded drugs and not edible, and not specially pro-

are natural and uncompounded drugs and not edible, and not specially provided for in this section, but which are advanced in value or condition by any process or treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture, one-fourth of one cent per pound, and in addition thereto ten per centum ad valorem: *Provided*, That no article containing alcohol, or in the preparation of which alcohol is used, shall be classified for duty under this paragraph.

PAR. 504. Balm of Gilead [Free].

PAR. 666. Salep, or salop [Free].

vided for in this section, but which are advanced in value or condition by shredding, grinding, chipping, crushing, or any other process or treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture, 10 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

PAR. 592. Salep, or salop [Free].

PAR. 409. Balm of Gilead [Free].

BOTANICAL DRUGS.

(See Survey A-7.)

Production.—The drugs listed under this paragraph and under paragraph 1562 of the free list are extremely numerous and for the most part are of strictly foreign production. Most of those produced domestically are not grown elsewhere. During the war a number of medicinal staples formerly imported were successfully cultivated in this country. American producers, however, use valuable agricultural land and a high type of labor; foreign materials are collected from plants growing wild, by the cheapest classes of labor. The quality of American drugs excels that of imported products, because of scientific research and methods of cultivation. Among such domestic drugs are belladonna, digitalis, cannabis, henbane, valerian, insect flowers, and Levant wormseed. Important products not commercially cultivated here are senna, rhubarb, quassia, orris root, scammony, squills, and colocynth.

Imports were 1,776,386 pounds, valued at \$113,165 in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 332,319 | \$98,652 | \$0.30 | \$9,865 | 10 |
| 1919..... | 731,506 | 218,789 | .30 | 21,879 | 10 |
| 1920..... | | 346,335 | | 34,634 | 10 |
| 1921 (9 months)..... | | 125,286 | | | 10 |

Imports of such drugs not advanced in value were valued at \$726,675 in 1914, and reached a maximum of \$1,710,566 in 1918 (fiscal year).

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$370,829 | |
| 1919..... | 5,512,940 | 1,256,307 | \$0.23 |
| 1920..... | 13,102,419 | 1,505,662 | .01 |
| 1921 (9 months)..... | 4,627,735 | 402,843 | .09 |

Exports of ginseng amounted to \$1,832,686 in 1914. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 226,731 | 307,585 | 160,050 | 105,570 |
| Value..... | \$1,372,586 | \$3,338,531 | \$1,875,348 | \$879,666 |

Exports of ginseng have been chiefly to Hongkong, Canada, and China.

Exports of all other roots, herbs, and barks were valued at \$476,837 in 1910 and at \$513,071 in 1914. A maximum of \$1,632,281 was reached in 1919 (calendar year). Exports then decreased to \$401,282 during the first nine months of 1921. These exports have been chiefly to England, Canada, and Japan.

Important changes in classification.—As the term “drugs” has under past acts been interpreted in different ways, it has been defined as applying only to articles having chief use in medicine. Gums were omitted, as they are seldom used medicinally. The provision for all other drugs was expanded to include those of animal origin. (Reclassification Report, p. 39.)

Balm of Gilead and salep or salop, not mentioned in H. R. 7456, are on the free list of the act of 1913 (pars. 409 and 592).

PARAGRAPH 32.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 32. Aconite, aloes, asafetida, cocculus indicus, ipecac, jalap, manna, marshmallow or althea root, leaves and flowers, maté, and pyrethrum or insect flowers, all the foregoing which are natural and uncompounded, but which are advanced in value or condition by shredding, grinding, chipping, crushing, or any other process or treatment whatever beyond that essential to proper packing and the prevention of decay or deterioration pending manufacture, 10 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

ACT OF 1913.

PAR. 483. Aconite [Free].
 PAR. 503. Asafetida [Free].
 PAR. 538. Cocculus indicus [Free].
 PAR. 594. Ipecac [Free].
 PAR. 597. Jalap [Free].
 PAR. 620. Manna [Free].
 PAR. 480. * * * articles manufactured, in whole or in part, not provided for in this section, * * * twenty per centum ad valorem.
 PAR. 20. Drugs, * * * advanced * * * one-fourth of one cent per pound, and in addition thereto, ten per centum ad valorem: * * *.

PAR. 388. Aconite [Free].
 PAR. 405. Asafetida [Free].
 PAR. 454. Cocculus indicus [Free].
 PAR. 516. Ipecac [Free].
 PAR. 519. Jalap [Free].
 PAR. 541. Manna [Free].
 PAR. 385. * * * articles manufactured, in whole or in part, not provided for in this section, * * * 15 per centum ad valorem.
 PAR. 27. Drugs, * * * advanced * * * 10 per centum ad valorem: * * *.

ACONITE.

(See Survey FL-2.)

Description and uses.—Aconite is a crude drug. Both the roots and the leaves of the plant are used; the former, however, are more important. Although the chief use of aconite is as a sedative, it is also an important therapeutic. The alkaloid aconitine is also prepared from aconite.

Production.—The chief producing countries are Germany, Austria-Hungary, England, Spain, and Japan. As a rule aconite is collected from wild plants chiefly, although it is occasionally cultivated. It has not been commercially produced in the United States because of the small demand and low price.

Imports of aconite are small and variable in amount. From 1911 to 1917 they averaged 13,769 pounds, valued at \$1,992. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1919..... | 28,712 | \$6,283 | \$0.22 |
| 1920..... | 32,476 | 8,811 | .27 |
| 1921 (9 months)..... | 5,168 | 884 | .17 |

Exports.—Statistics not available.

Important changes in classification.—Aconite advanced, is transferred from paragraph 388 of the free list of the act of 1918 and made dutiable like other advanced drugs in paragraph 81.

ALOE8.

(See Survey A-7.)

Description and uses.—Aloes, the dried juice of a tropical plant, is commonly classed as a gum. It comes in several varieties from Curacao, Dutch West Indies, and from Africa. It is a cathartic and an ingredient of many proprietary pills.

Production.—There is no domestic production.

Imports of crude aloes from 1909 to 1919 averaged, per annum, 1,059,300 pounds, valued at \$85,351. Statistics for the years 1918-1921 follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|---------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 1,750,080 | \$146,000 | \$0.08 |
| 1919..... | 1,086,800 | 176,162 | .16 |
| 1920..... | 1,144,009 | 99,215 | .09 |
| 1921 9 months)..... | 628,495 | 44,290 | .07 |

Exports.—None recorded.

Important changes in classification.—First specific mention of aloes.

ASAfetida.

(See Survey FL-2.)

Description and uses.—Asafetida, a crude drug, is a gum resin obtained from the root of *Ferula fetida*. It is an ancient medicinal, not now highly valued, but still used in nervous affections.

Production.—Asafetida is collected from a wild plant native to the deserts of Persia and Afghanistan. No attempts have been made to cultivate it. The product comes chiefly by way of India.

Imports of asafetida for 1909–1917 averaged 100,734 pounds, valued at \$40,808. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 41,346 | \$30,581 | \$0.74 |
| 1919..... | 91,553 | 179,485 | 1.98 |
| 1920..... | 68,694 | 123,759 | 1.80 |
| 1921 (9 months)..... | 145,956 | 241,072 | 1.66 |

Exports.—Statistics not available.

Important changes in classification.—Asafetida advanced, is transferred from paragraph 405 of the free list of the act of 1913, and made dutiable at the rate on other advanced drugs in paragraph 31.

COCCULUS INDICUS.

(See Survey FL-2.)

Description and uses.—Cocculus indicus is a berry used in India as a fish poison and in the United States and Europe chiefly in the preparation of ointments for destruction of skin parasites and other purposes. PicROTOXIN, used in medicine, is a derivative.

Production.—It is derived from a wild plant occurring in India and Ceylon. It is also found in the Philippines.

Imports recorded are very small. From 1909 to 1917 they are reported only four times, the total amounting to 24,788 pounds, valued at \$3,445. There is reason to believe, however, that larger imports, invoiced as "fish berries," are not tabulated here. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|--------|-------------|
| | <i>Pounds.</i> | | |
| 1919..... | 4,097 | \$580 | \$0.14 |
| 1920..... | 1,908 | 213 | .11 |
| 1921 (9 months)..... | 21,952 | 1,383 | .06 |

Exports.—Statistics not available.

Important changes in classification.—Cocculus indicus advanced is transferred from paragraph 454 of the free list of the act of 1913, and made dutiable at the rate on other advanced drugs in paragraph 31.

IPECAC.

(See Survey FL-2.)

Description and uses.—Ipecac is a crude root drug. It is used in medicine as an emetic and expectorant; also in the manufacture of its alkaloids, of which emetine is the most important.

Production.—Ipecac grows wild in South American forests and is collected by Indians. Attempts have been made to cultivate this important and high-priced drug in other tropical regions, but only in India and the Straits Settlements has commercial success on a small scale been attained. American supplies are derived from Colombia and Brazil.

Imports of ipecac for 1909–1918 (fiscal years) averaged 76,131 pounds, valued at \$135,248. In recent years its commercial value has increased largely, owing to the demand for emetine. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|-----------|-------------|
| | Pounds. | | |
| 1918..... | 137,150 | \$267,049 | \$1.95 |
| 1919..... | 118,873 | 292,046 | 2.46 |
| 1920..... | 93,815 | 230,848 | 2.47 |
| 1921 (9 months)..... | 30,799 | 85,005 | 1.67 |

Exports.—Statistics not available.

Important changes in classification.—Ipecac advanced is transferred from paragraph 516 of the free list of the act of 1913 and made dutiable at the rate on other advanced drugs in paragraph 31.

JALAP.

(See Survey FL-2.)

Description and uses.—Jalap, the tuberous root of *Erogonium purga*, is a crude drug. It is used in medicine as a cathartic.

Production.—Jalap (from Jalapa, a city in Vera Cruz) is native to Mexico, where it grows wild, and is also cultivated by the Indians. Cultivation on a small scale exists in India, but only the Mexican product reaches America.

Imports of jalap for 1909–1917 averaged 183,126 pounds, valued at \$28,574. Quantitatively jalap is one of the chief drug roots imported. Prices in the New York market increased more than five-fold from 1915 to 1919. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|----------|-------------|
| | Pounds. | | |
| 1918..... | 111,873 | \$44,833 | \$0.40 |
| 1919..... | 107,838 | 56,678 | .52 |
| 1920..... | 175,038 | 85,261 | .49 |
| 1921 (9 months)..... | 18,766 | 3,187 | .17 |

Exports.—Statistics not available.

Important changes in classification.—Jalap advanced is transferred from paragraph 519 of the free list of the act of 1913 and made dutiable at the rate on other advanced drugs in paragraph 31.

MANNA.

(See Survey FL-2.)

Description and uses.—Manna, the concrete saccharine exudation of the European flowering ash (*Fraxinus ornus*), is a crude drug. It is employed in medicine as a laxative and is a source of mannite, which may also be derived from tagua-nut waste.

Production.—Manna is the product of a variety of ash cultivated in Sicily, at present the only commercial source of the drug. It is largely exported to Central and South America. Porto Rico takes considerable quantities; it is little used in the United States.

Imports of manna for 1909-1918 averaged 65,415 pounds, valued at \$30,182. Statistics for the years 1918-1921 follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|----------|-------------|
| | Pounds. | | |
| 1918..... | 44,100 | \$23,386 | \$0.53 |
| 1919..... | 52,712 | 47,678 | .58 |
| 1920..... | 76,778 | 32,397 | .42 |
| 1921 (9 months)..... | 20,563 | 10,626 | .52 |

Exports.—Statistics not available.

Important changes in classification.—Manna advanced, is transferred from paragraph 541 of the free list of the act of 1913, and made dutiable at the rate on other advanced drugs in paragraph 31.

MARSHMALLOW OR ALTHEA.

(See Survey FL-2.)

Description and uses.—Marshmallow (or althea) root, leaves, and flowers, crude drugs with mucilaginous properties, used chiefly in pharmacy, are not related to the confectionery marshmallows.

Production.—These drugs under normal conditions are imported chiefly from Germany, but during the war came from Italy, Spain, and France. The plant is cultivated in Europe and, though introduced here, low prices have deterred growth for drug purposes.

Imports of althea root prior to 1917 averaged less than 8,000 pounds. In 1917 the imports were 23,120 pounds, valued at \$5,846. Imports of leaves in 1917 were 21,713 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|---------|-------------|
| | Pounds. | | |
| ROOT. | | | |
| 1918..... | 10,153 | \$2,839 | \$0.28 |
| 1919..... | 32,921 | 9,579 | .29 |
| 1920..... | 52,904 | 15,613 | .29 |
| 1921 (9 months)..... | 15,218 | 2,199 | .14 |
| LEAVES AND FLOWERS. | | | |
| 1918..... | 14,287 | \$1,659 | \$0.12 |
| 1919..... | 17,823 | 3,908 | .22 |
| 1920..... | 34,475 | 7,788 | .23 |
| 1921 (9 months)..... | 11,287 | 744 | .07 |

Exports.—Statistics not available.

Important changes in classification.—First specific mention of marshmallow or althea roots, leaves, or flowers advanced.

Suggested changes.—Page 14, line 10 of H. R. 7456: Change the comma after the word "manna" to a semicolon, and in line 11, the comma after the word "flowers" to a semicolon. This change is necessary to make it clear that the words "marshmallow or althea" modify "leaves and flowers" as well as "root."

PYRETHRUM OR INSECT FLOWER.

(See Survey A-7.)

Description and uses.—Pyrethrum is a perennial plant growing wild in northern Africa, the Levant, and the Mediterranean coast of Europe, is also cultivated. The root is collected and dried as the valuable portion. It is a powerful irritant and local stimulant.

Production.—Gathering of pyrethrum is confined to the localities mentioned above.

Imports in 1914 were 503,189 pounds, valued at \$90,435, principally from Austria-Hungary and Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 2,438,939 | \$415,494 | \$0.17 |
| 1919..... | 6,193,977 | 1,717,006 | .28 |
| 1920..... | 5,065,187 | 2,482,207 | .49 |
| 1921 (9 months)..... | 1,911,961 | 710,375 | .37 |

Exports.—Statistics not available.

Important changes in classification.—New specific provision.

MATÉ.

Description and uses.—Maté is a shrub native to Paraguay, an infusion of the prepared leaves of which also called maté is extensively consumed as a beverage in the interior of South America. It contains among other substances a peculiar tannin and the alkaloid caffeine.

Production.—The leaves of the shrub are gathered at intervals of two or three years by the natives in South America, and large quantities are annually shipped to the countries of that continent.

Import and export statistics not available.

Important changes in classification.—New specific provision.

PARAGRAPH 33.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 33. Buchu leaves, 10 cents per pound; coca leaves, 10 cents per pound; gentian, one-fourth of 1 cent per pound; licorice root, one-half of 1 cent per pound; sarsaparilla root, 1 cent per pound; belladonna, digitals, henbane, and stramonium, 25 per centum ad valorem.

ACT OF 1909.

PAR. 41. * * * coca leaves, five cents per pound; * * *

PAR. 20. Drugs, * * * advanced * * * one-fourth of one cent per pound, and in addition thereto, ten per centum ad valorem: * * *

PAR. 550. Drugs, * * * not advanced * * * [Free].

PAR. 611. Licorice root, unground [Free].

ACT OF 1913.

PAR. 39. Leaves and roots: Buchu leaves, 10 cents per pound; coca leaves, 10 cents per pound; gentian, $\frac{1}{2}$ cent per pound; licorice root, $\frac{1}{2}$ cent per pound; sarsaparilla root, 1 cent per pound.

PAR. 27. Drugs, * * * advanced * * * 10 per centum ad valorem: * * *

PAR. 477. Drugs, * * * not advanced * * * [Free].

BUCHU LEAVES.

(See Survey A-10.)

Description and uses.—Buchu leaves are a crude drug, used in medicine, especially for genito-urinary diseases, but not highly valued in modern therapeutics.

Production.—British South Africa is the only commercial source of buchu leaves. The plant is a native shrub which grows wild; owing to extensive collection, it is becoming rare and cultural experiments are being made. In order to conserve the supply an export duty has been placed on buchu by British South Africa. The United States consumes 50 to 80 per cent of the total output.

Imports for 1911-1917 averaged 119,168 pounds per year, valued at \$110,544. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------------|---------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 55,549 | \$50,677 | \$0.91 | \$5,555 | 10.96 |
| 1919..... | 108,190 | 133,866 | .12 | 10,819 | 8.08 |
| 1920..... | 98,502 | 218,642 | 2.22 | 9,850 | 4.51 |
| 1921 (9 months)..... | 44,659 | 42,805 | .96 | | |

Exports.—Statistics not available.

COCA LEAVES.

(See Survey A-10.)

Description and uses.—Coca leaves are a crude drug used chiefly in the manufacture of cocaine. The Harrison Act as recently amended, and also the war revenue act, provide stringent regulations of traffic in coca leaves. Decocainized coca leaves are used to some extent in the manufacture of soft drinks. This product is in no way related to cocoa.

Production.—Coca leaves are commercially produced in South America and to a lesser extent in India and Dutch East Indies. The plant is native to Peru, Bolivia, and Ecuador, and is cultivated in those countries by the natives, who chew the leaves. Successful experimental cultivation has recently been reported in Florida.

Imports for 1909-1918 averaged 979,312 pounds, valued at \$136,680. Revenue has practically doubled with an increase in duty from 5 cents to 10 cents a pound. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-----------|-------------|-----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,346,013 | \$218,133 | \$0.16 | \$134,601 | 61.42 |
| 1919..... | 795,674 | 167,957 | .21 | 79,507 | 47.34 |
| 1920..... | 634,356 | 161,643 | .25 | 63,436 | 39.24 |
| 1921 (9 months)..... | 104,129 | 15,320 | .15 | | |

Exports.—Statistics not available.

GENTIAN.

(See Survey A-10.)

Description and uses.—Gentian is a crude drug root used as a bitter tonic in proprietary medicine. It is the most important of the nonalkaloid bitters.

Production.—Gentian plants grow wild in the mountainous portions of central and southern Europe, where they are collected by very cheap labor—women, children, and old men. France is the chief source of our supplies, lesser amounts coming from other European countries.

Imports for 1909-1918 averaged 1,376,841 pounds, valued at \$31,063. The average annual revenue on gentian since 1914 has been \$2,676. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------------|-------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 275,747 | \$35,913 | \$0.13 | \$689 | 1.92 |
| 1919..... | 603,594 | 66,238 | .11 | 1,309 | 2.28 |
| 1920..... | 1,205,763 | 98,933 | .08 | 2,014 | 3.05 |
| 1921 (9 months)..... | 267,381 | 19,874 | .07 | | |

Exports.—Statistics not available.

LICORICE ROOT.

(See Survey A-10.)

Description and uses.—Licorice root is a plant product used in tobacco manufacture and in the preparation of licorice paste. The root yields about 20 per cent or more of its weight in paste. It has been considered indispensable in the manufacture of chewing tobacco, but on account of the shortage during the war, flavoring substitutes containing little or no licorice were developed.

Production.—Licorice plant is grown extensively in southern Europe and Asia Minor, and American supplies are normally drawn chiefly from Asiatic Turkey. The licorice plant has also been intro-

duced into America and grows readily in localities where severe frosts do not occur. Occasional attempts at commercial production have been made, but the costs of raising and curing the product have been too high to enable it to compete with imports. Imports of licorice from China have been noted during the war.

Imports for 1909-1917 averaged 85,225,819 pounds, valued at \$1,693,014. Since 1914 the average annual revenue has been about \$138,000. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-------------|-------------|----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 27,068,489 | \$1,485,796 | \$0.07 | \$67,671 | 3.41 |
| 1919..... | 49,487,602 | 3,818,969 | .08 | 128,719 | 3.24 |
| 1920..... | 36,449,621 | 3,581,460 | .06 | 141,124 | 3.94 |
| 1921 (9 months)..... | 38,631,788 | 1,724,826 | .04 | | |

Exports.—Statistics not available.

SARSAPARILLA ROOT.

(See Survey A-10.)

Description and uses.—Sarsaparilla is a crude drug used chiefly in proprietary medicines, such as blood purifiers and tonics. It may be, but usually is not employed in soft drinks known as "sarsaparillas."

Production.—Sarsaparilla is chiefly derived from wild plants growing in the forests of Mexico, Central America, and northern South America. Small amounts are cultivated in Jamaica and Ceylon, but products of these localities rarely reach the United States.

Imports have tended to decrease in recent years, owing presumably to a lessened medicinal demand. The average import from 1909 to 1918 was 328,748 pounds, valued at \$41,064. Between 1913-1918 sarsaparilla yielded an average annual revenue of \$1,903. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------------|---------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 266,424 | \$72,484 | \$0.28 | \$2,564 | 3.53 |
| 1919..... | 211,259 | 62,568 | .30 | 2,113 | 3.38 |
| 1920..... | 220,358 | 68,915 | .31 | 2,204 | 3.20 |
| 1921 (9 months)..... | 87,755 | 14,280 | .25 | | |

Exports.—Statistics not available.

BELLADONNA, DIGITALIS, HENBANE, AND STRAMONIUM.

(See Survey A-7.)

Description and uses.—The herbs belladonna, digitalis, henbane, and stramonium are natural exotic drugs which are gathered because of the valuable medicinal properties due to the alkaloids which they contain. Both the leaves and roots of belladonna are used.

The alkaloid atropine, which is derived from it, is of great importance in surgery of the eye, and is also used as a sedative and in the manufacture of pain-relieving plasters. Henbane and stramonium are closely related to belladonna and their uses are much the same. Digitalis, or "foxglove," is used chiefly as a heart tonic. All of these products are official in the United States Pharmacopœia.

Production.—Experimental cultivation of these drugs has been carried on in the United States for a number of years, but has assumed commercial importance only since the commencement of the war. While their commercial value is small, nevertheless they are indispensable to the practice of modern medicine. Production of belladonna in 1918 was estimated at 166,000 pounds of herbs, stems, and leaves, and 22,000 pounds of roots. Sixty growers were engaged in its cultivation and utilized 274 acres. California, Michigan, Pennsylvania, and Indiana ranked in acreage in the order mentioned. Michigan has been the chief source of henbane. Stramonium grows wild in the southern Appalachians, where it has been collected to a limited extent. It has been cultivated in California and elsewhere. Digitalis is cultivated in California, Oregon, Virginia, South Carolina, and other States. It now grows wild in the Pacific northwest, where considerable quantities were collected during the war. Its production in 1917 was estimated at 10,000 pounds.

Owing to the care received in cultivation, domestic crude drugs are of superior quality to the imported articles, which grow wild in southern Europe and parts of Asia. But owing to the cheap labor employed in gathering the herbs, the imported drugs constitute the chief source of supply for domestic requirements. The domestic cultivation is not likely to be successful except in the hands of those possessing adequate equipment for proper curing and botanical knowledge of the characteristics of the drugs.

Import figures are available for 1914 only, when they were: Belladonna, 141,074 pounds of leaves and 65,886 pounds of roots; digitalis, 22,371 pounds, valued at \$1,874; henbane, 186,429 pounds, valued at \$10,609; and stramonium, 171,574 pounds.

Exports.—Statistics not available.

Important changes in classification.—These drugs are given specific mention for the first time. Under the act of 1913 (par. 477) they are exempt from duty when not advanced.

PARAGRAPH 34.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 34. Ergot, 10 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 562. Ergot [Free].

PAR. 28. Ergot, 10 cents per pound.

ERGOT.

(See Survey A-7.)

Description, uses, and production.—Ergot is a crude botanical drug having important and legitimate uses, especially in obstetrics, but employed criminally to produce abortion. It is a fungous growth

on the rye plant, occurring erratically throughout the rye-growing section of the United States, notably in Minnesota and the Dakotas. (On account of its poisonous nature, removal from the rye is essential. As ergot grains are two or three times larger than rye grains, passing the rye through a screen removes all but the imperfect or broken ergot. Rye flour containing more than one-tenth of 1 per cent of ergot is held to be adulterated under the Pure Food and Drugs act. Ergot removed from rye by screening is mixed with other refuse, and since machine methods for its separation and collection are not available, it has not proved commercially profitable in the United States. Ergot occurs in all rye-growing countries and is collected chiefly in Russia, Spain, Germany, Austria, and Sweden by cheap hand labor.

Imports have come principally from Spain and Russia. For the years 1909-1918 (fiscal) an annual average of 164,842 pounds, valued at \$99,193, is reported. The act of 1913 yielded an average annual revenue of \$14,689. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------------|---------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 97,647 | \$61,523 | \$0.63 | \$9,765 | 15.87 |
| 1919..... | 171,950 | 346,707 | 2.02 | 17,195 | 4.98 |
| 1920..... | 226,835 | 789,695 | 3.48 | 22,684 | 2.87 |
| 1921 (9 months)..... | 31,334 | 51,660 | 1.65 | | |

Exports.—Statistics not available.

PARAGRAPH 35.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 35. Ethers and esters: Diethyl sulphate and dimethyl sulphate, 25 per centum ad valorem; ethyl acetate, 4 cents per pound; ethyl chloride, 15 cents per pound; ethyl ether, 6 cents per pound; and ethers and esters of all kinds not specially provided for, 25 per centum ad valorem: *Provided*, That no article containing more than 10 per centum of alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

ACT OF 1913.

PAR. 21. Ethers: Sulphuric, eight cents per pound; spirits of nitrous ether, twenty cents per pound; * * * ethers of all kinds not specially provided for in this section, fifty cents per pound; ethyl chloride, thirty per centum ad valorem: *Provided*, That no article of this paragraph shall pay a less rate of duty than twenty-five per centum ad valorem.

PAR. 29. Ethers: Sulphuric, 4 cents per pound; amyl nitrite, 20 per centum ad valorem; amyl acetate and ethyl acetate or acetic ether, 5 cents per pound; ethyl chloride, 20 per centum ad valorem; ethers and esters of all kinds not specially provided for in this section, 20 per centum ad valorem: *Provided*, That no article containing more than 10 per centum of alcohol shall be classified for duty under this paragraph.

ETHERS AND ESTERS.

(See Survey A-7.)

GENERAL.

Ether when used as a name alone, without special designation, always signifies ethyl ether or diethyl oxide. The term also serves as a class name to designate a group of organic chemical compounds which are oxides of hydrocarbon alkyl radicals. Esters are products of the action of acids on alcohols with the elimination of water. They are analogous to inorganic salts. Many compounds which are strictly esters are often and incorrectly called ethers.

Of the articles mentioned in this paragraph ethyl ether is the only true ether. The other commodities are, strictly speaking, esters.

DIETHYL SULPHATE AND DIMETHYL SULPHATE.

Description and uses.—Diethyl sulphate and dimethyl sulphate are sulphuric esters of ethyl alcohol and methyl alcohol, respectively. Diethyl sulphate is a fragrant, colorless liquid, inflammable, and boils at 96° C. It is used chiefly as an ethylating agent for introducing the ethyl group in organic compounds, especially in the manufacture of coal-tar dyes. Recent developments in its manufacture indicate that its use for this purpose will increase. It has advantages over other ethylating agents—such as ethyl chloride and ethyl bromide—due to its lower volatility and the ease with which it can be stored, handled, and shipped.

Dimethyl sulphate is very similar chemically to diethyl sulphate, and boils at about 188° C. It is used chiefly as an agent to introduce the methyl group in organic compounds. In the past it has had a wider use as a methylating agent than has diethyl sulphate as an ethylating agent, due to the fact that it was cheaper. With an improved and cheaper process of manufacture, diethyl sulphate will probably assume an increased importance as compared with dimethyl sulphate.

Production.—Both of these products are prepared by passing sulphuric anhydride or sulphur trioxide into the corresponding alcohol; that is, ethyl alcohol for diethyl sulphate and methyl alcohol for dimethyl sulphate. Within the last two or three years a new process has been developed for producing diethyl sulphate from the gas ethylene, the latter being obtained from the waste gases of petroleum-cracking processes, from other hydrocarbon gases, or from ethyl alcohol. Diethyl sulphate is produced by passing ethylene into sulphuric acid at a temperature approximating the boiling point of diethyl sulphate. Dimethyl sulphate is produced by passing sulphuric trioxide into methyl alcohol below 0° C. and distilling off the dimethyl sulphate under vacuum. Production statistics are not available.

Import statistics are available for dimethyl sulphate only in 1914, when they were 9,134 pounds, valued at \$2,381, chiefly from Germany.

Exports.—Statistics not available.

Important changes in classification.—Diethyl sulphate and dimethyl sulphate are mentioned specifically for the first time (Reclassification Report, p. 42).

ETHYL ACETATE.

Description and uses.—Ethyl acetate is the acetic ester of ethyl alcohol, and is a colorless liquid boiling at 77° C. It is used chiefly when mixed with amyl acetate as a solvent for pyroxylin plastics. The use of ethyl acetate for this purpose has increased greatly since the introduction of tax-free denatured alcohol. Pure ethyl acetate finds extensive use in the manufacture of artificial fruit essences or flavors.

Production.—It is produced by boiling under reflux condensation a mixture of ethyl alcohol, fused sodium acetate, and sulphuric acid, and then distilling off the ethyl acetate. Statistics of production are not available prior to 1919, when the output was 2,251,000 pounds, valued at \$340,000 (preliminary figures).

Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 80 | \$39 | \$0.49 | \$1 | 10.26 |
| 1920..... | 400 | 495 | 1.23 | 20 | 4.08 |
| 1921 (9 months)..... | 30 | 8 | .27 | | |

Exports.—Statistics not available.

Important changes in classification.—The term "acetic ether," used as a synonym for ethyl acetate in the act of 1918, has been omitted, since ethyl acetate is an ester. (Reclassification Report, p. 42.)

ETHYL CHLORIDE.

Description and uses.—Ethyl chloride is the hydrochloric ester of ethyl alcohol and is known by many pharmaceutical names. It is a very low-boiling liquid and is put up in mechanically sealed glass or metal tubes. It is used chiefly as a local anesthetic.

Production.—Ethyl chloride is usually prepared by treating ethyl alcohol with hydrochloric acid in the presence of a dehydrating agent, such as anhydrous zinc chloride or phosphorus pentoxide. It is also formed by the action of chlorine on ethane and by the action of hydrochloric acid on ether in sealed tubes. Production in 1919 (preliminary figures) was 248,100 pounds, valued at \$166,200.

Imports prior to the war averaged about 8,000 pounds per year. Imports in 1917 were about 9,000 pounds, but during the other war years was considerably below the average. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 22,495 | \$2,250 | \$0.10 | \$450 | 20.00 |
| 1920..... | 3,373 | 3,218 | .95 | 644 | 20.00 |
| 1921 (9 months)..... | 4,566 | 4,002 | .88 | | 20.00 |

Exports.—Statistics not available.

ETHYL ETHER.

Description and uses.—Ethyl ether, also known as sulphuric ether, is a colorless liquid with a pleasant odor. Inhaled vapors produce anesthesia, the property which gives ether its chief use in surgery. It is also used to some extent as a local anesthetic. Technically ether is largely used in combination with alcohol as a solvent for nitrocellulose (guncotton, collodion, pyroxylin plastics); it also dissolves other substances such as resins, fats, waxes, and alkaloids; and is used in some formulas for denaturing alcohol.

Production.—Ether is produced by heating ethyl or grain alcohol with sulphuric acid. Its production in 1914, excluding the explosives industry, was 2,120,082 pounds, valued at \$278,816, or double the production of 1909. The output in 1919 (preliminary figures) was double that of 1914, or 4,111,800 pounds, valued at \$1,103,700. Domestic production supplies the consumption, imports being sporadic and negligible.

Imports in 1912 were 1,435 pounds, valued at \$207, decreasing to less than 100 pounds a year, 1915–1918. Since 1918 imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------|----------------|--------|-------------|----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 8 | \$7 | \$0.88 | ..... | 4.87 |
| 1919..... | 282,576 | 28,258 | .10 | \$11,303 | 40.00 |
| 1920..... | 100 | 34 | .34 | 4 | 11.76 |

Exports.—Statistics not available.

Important changes in classification.—The term ethyl ether has been used in place of sulphuric ether (act of 1913), which is not an accurate description of the article. (Reclassification Report, p. 42.)

ALL OTHER ETHERS AND ESTERS.

Production.—The production of all other ethers in 1919 (preliminary figures) was valued at \$225,100.

Imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 120 | \$210 | \$1.75 | 42 | 20 |
| 1919..... | 22,796 | 2,464 | .11 | 493 | 20 |
| 1920..... | 249 | 757 | 3.04 | 151 | 20 |
| 1921 (9 months)..... | 7,654 | 1,452 | .19 | ..... | 20 |

Exports.—Statistics not available.

Important changes in classification.—Amyl nitrite and amyl acetate have been omitted and now fall within the provision for "ethers and esters of all kinds" n. s. p. f.

PARAGRAPH 36.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 36. Extracts, dyeing and tanning: Chestnut, cutch, chlorophyll, divi-divi, fustic, hemlock, logwood, mangrove, myrobalan, oak, Persian berry, quebracho, valonia, wattle, and other extracts, decoctions, and preparations of vegetable origin used for dyeing, coloring, staining, or tanning, not specially provided for, and combinations and mixtures of the foregoing articles in this paragraph, 11 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

PAR. 22. Extracts and decoctions of logwood and other dyewoods, and extracts of bark, such as are commonly used for dyeing or tanning, not specially provided for in this section, seven-eighths of one cent per pound; * * * extract of Persian berries, twenty per centum ad valorem; chlorophyll, twenty per centum ad valorem; extracts of quebracho, not exceeding in density twenty-eight degrees Baumé, one-half of one cent per pound; exceeding in density twenty-eight degrees Baumé, three-fourths of one cent per pound; extracts of hemlock bark, one-half of one cent per pound; extracts of sumac, and of woods other than dyewoods, not specially provided for in this section, five-eighths of one cent per pound; all extracts of vegetable origin suitable for dyeing, coloring, staining or tanning, not containing alcohol and not medicinal, and not specially provided for in this section, fifteen per centum ad valorem.

PAR. 18. Coloring for brandy, wine, beer, or other liquors, fifty per centum ad valorem.

PAR. 605. Lac dye, * * * [Free].

ACT OF 1913.

PAR. 30. Extracts and decoctions of * * * Persian berries, sumac, logwood, and other dyewoods, and all extracts of vegetable origin suitable for dyeing, coloring, or staining, not specially provided for in this section; all the foregoing not containing alcohol and not medicinal, $\frac{1}{4}$ of 1 cent per pound.

PAR. 28. Coloring for brandy, wine, beer, or other liquors, 40 per centum ad valorem.

PAR. 31. Extract of chlorophyll, 15 per centum ad valorem; * * *.

PAR. 526. Lac dye * * * [Free].

PAR. 624. Tanning material: Extracts of quebracho, and of hemlock bark; extracts of oak and chestnut and other barks and woods other than dyewoods such as are commonly used for tanning not specially provided for in this section; * * * [Free].

EXTRACTS, DYEING AND TANNING.

(See Survey A-8.)

General.—Dyeing and tanning materials of vegetable origin bear a close relationship as to origin and process of manufacture and use. The extracts are prepared from barks, woods, and fruits by treatment with hot water followed by evaporation to a liquid of desired density or a solid. Tanning and dye extracts are frequently made in the same plant with the same equipment. In the tanning agents the active ingredient is tannin, while in the dyeing materials coloring matter is sought. Most of the extracts contain both coloring

matter and tannin and many are used for both tanning and dyeing; hence any tariff classification based on use involves administrative difficulties and results in litigation.

All raw materials for manufacture of these extracts are free under the act of 1913 (par. 624). The extracts received in that act a different tariff treatment, depending on their use as a dyeing or tanning material. "Extracts of vegetable origin suitable for dyeing, coloring, or staining, not specially provided for," are dutiable at three-eighths of one cent per pound under paragraph 30, while extracts of vegetable origin, "such as are commonly used for tanning" not specially provided for, are free of duty under paragraph 624. This attempt to classify on basis of use has resulted in litigation.

To facilitate customs classification and to avoid litigation these very similar products were given uniform tariff treatment in H. R. 7456. (Reclassification Report, p. 44.)

CHESTNUT EXTRACT.

(See Survey A-8.)

Description and uses.—Chestnut extract is the most important domestic tanning agent. It is made from the wood of the chestnut (*Castanea dentata*), a tree of abundant occurrence in the Appalachians, although the blight threatens the entire stand. The liquid extract contains 25 per cent tannin and the solid extract about 60 per cent. They are used in tanning (principally on heavy leathers), and have a small application in dyeing.

Production of chestnut extract is not separately shown prior to 1919, when it was 444,735,000 pounds, valued at \$17,287,700 (preliminary figures).

Imports of chestnut bark extract (not identical with above) in 1914 were 256,078 pounds, valued at \$4,234, chiefly from France. Imports have been negligible since 1916.

Exports of chestnut extract before the war were small. During the war extract was exported to England, amounting to approximately 1,200 tons a month in 1918.

Important changes in classification.—Chestnut extract is exempt from duty under the act of 1913 (par. 624).

CUTCH EXTRACT.

(See Survey A-8.)

Description and uses.—Cutch or catechu is an extract prepared from the wood of the *acacia catechu*. This tree is cultivated in India and Burma, and also occurs in the East Indies and East Africa. The extract is sold in blocks or cakes of dark brown color, brittle and glossy when broken. Cutch is used principally in dyeing and textile printing for the production of the well-known "cutch brown." It is also used to a small extent in tanning.

Production in 1919 (preliminary figures) was 525,000 pounds, valued at \$66,500. As this extract is not of domestic origin these figures undoubtedly represent imported solid extract dissolved and sold as liquid extract.

Imports in 1914 were 328,940 pounds, valued at \$16,187. Later statistics are not available.

Exports.—None recorded.

EXTRACT OF CHLOROPHYLL.

Description and uses.—Chlorophyll, known as leaf green, is the green coloring matter of the leaves and stalks of growing plants. Being soluble, it may be extracted from plants by volatile solvents. The extracts are of minor importance and are used to color liqueurs and cordials, confectionery, food preserves, fats, oils, and soaps.

Production.—Chlorophyll is made by extracting the coloring matter of the green plant with alcohol or other solvents. The solvent is then usually recovered by distillation, and a small amount of an alkaline carbonate is added to preserve the color.

Imports for 1910-1918 averaged 4,031 pounds annually, valued at \$3,393, with revenue of \$619. The following table shows imports since 1917:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 371 | \$325 | \$1.42 | \$79 | 15 |
| 1920..... | 57 | 258 | 4.53 | 39 | 15 |
| 1921 (9 months)..... | 1,570 | 2,592 | 1.65 | | 15 |

Exports.—Not recorded.

DIVI-DIVI EXTRACT.

(See Survey A-8.)

Description and uses.—Divi-divi (free under par. 1563) is the dried pod of *Caesalpinia coriaria*, a small tree found in the neighborhood of Maracaibo, South America, and also in the West Indies and Central America. The pods are 2 to 3 inches long, red to black brown in color, and after drying frequently resemble the letter "S." They have a tannin content of 40 to 45 per cent, are used as a tanning agent, and are usually leached directly by the tanner. A liquid extract containing 25 per cent tannin is an article of commerce.

Production of extract is not separately shown.

Imports of the extract are not separately shown, but imports of divi-divi during 1909-1918 averaged 5,459,181 pounds annually, valued at \$98,190. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 22,092,927 | \$428,421 | \$0.02 |
| 1919..... | 28,341,366 | 669,436 | .02 |
| 1920..... | 15,528,823 | 371,747 | .02 |
| 1921 (9 months)..... | 4,081,418 | 45,190 | .01 |

Exports.—Not recorded.

Important changes in classification.—Extract of divi-divi is exempt from duty under paragraph 624 of the act of 1918.

FUSTIC.

(See Survey A-8.)

Description and uses.—Fustic wood (free under par. 1563) is a yellow dyewood from the tree *Morus* or *Maclura tinctoria*. The wood is imported from West Indies, Mexico, Central and South America. The extract is made from the heart wood. It occurs as a liquid extract of 51° and as a solid extract, both of which are used in textile and leather dyeing. On cotton it is used extensively for khaki shades.

Production in 1914 of fustic extract was 4,509,943 pounds, valued at \$222,804; and in 1919 (preliminary figures) 3,896,000 pounds, valued at \$355,000.

Import statistics of fustic extract are not available, but it is understood that this extract is not imported to any extent. Imports of fustic wood during 1909-1915 ranged from 2,466 to 7,121 tons. The maximum import was 17,469 tons in 1916. Fustic wood imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|--------------|-----------|-------------|
| | <i>Tons.</i> | | |
| 1918..... | 11,866 | \$280,813 | \$23.67 |
| 1919..... | 696 | 15,091 | 21.68 |
| 1920..... | 1,304 | 25,033 | 19.20 |
| 1921 (9 months)..... | 2,378 | 33,876 | 14.25 |

HEMLOCK-BARK EXTRACT.

(See Survey A-8.)

Description and uses.—This extract is obtained from the bark (free under par. 1563) of the eastern hemlock (*Tsuga canadensis*) native to North America. Previous to 1900 hemlock was the most important domestic tanning material; it now ranks second in importance to chestnut. It is used on sole and heavy leather; in combination with oak it produces "Union" tanned leather. The extract is marketed as liquid (25 per cent tannin) and as powder (50 per cent tannin).

Production of extract in 1914 was 18,978,013 pounds, valued at \$340,402, and in 1919 (preliminary figures), 19,706,000 pounds, valued at \$879,400.

Imports of hemlock bark, which originate in Canada, decreased from a maximum of 20,311 cords in 1909 to only 270 in 1918 (fiscal year). Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|---------------|---------|-------------|
| | <i>Cords.</i> | | |
| 1918..... | 670 | \$5,726 | \$8.55 |
| 1919..... | 904 | 10,655 | 11.79 |
| 1920..... | 3,813 | 42,912 | 11.25 |
| 1921 (9 months)..... | 1,434 | 18,044 | 12.58 |

Imports of extract in 1915 were 5,263,296 pounds, valued at \$173,998, chiefly from Canada; in 1920, 45 pounds, valued at \$10; and in 1921, first nine months, 306,557 pounds, valued at \$11,742.

Exports are not separately recorded. It is estimated that total exports of extract before the war (to England, Russia, and Canada) did not exceed 10,000 barrels per year.

Important changes in classification.—Extract of hemlock bark is exempt from duty under the act of 1913 (par. 624).

LOGWOOD EXTRACT.

(See Survey A-8.)

Description and uses.—Logwood (free under par. 1563) is the most important natural dye. This tree (*Hematoxylin campechianum*) is indigenous to Central and South America, Mexico, and West Indies. Extracts are prepared from the wood by hot-water treatment. Extract is sold as a thick liquid of 51° Tw. and as a solid. A chemically different extract is obtained from the liquid by a chemical process in which the coloring matter is oxidized to hematine, of which there are several commercial grades. These include liquid hematine extracts of 42° and 51° Tw., crystalline hematine paste, and solid hematine or hematine crystals; all of these grades are sometimes known as oxidized logwood extracts. The various forms are used for the dyeing of blacks on wool, silk, cotton, leather, hair, straw, and wood. They serve also as a weighting agent in dyeing silk.

Production in 1914 was 28,989,962 pounds, valued at \$1,311,966, and in 1919, 32,727,000 pounds (preliminary figures), valued at \$3,292,500.

Imports of logwood ranged from 30,000 to 39,000 tons per year in the period 1910-1915.

Imports since 1917 of logwood and of logwood and other dyewood extracts are given in the following table:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

LOGWOOD AND OTHER DYEWOOD EXTRACTS.

| | Pounds. | | | | Per cent. |
|----------------------|---------|----------|--------|---------|-----------|
| 1918..... | 277,748 | \$45,895 | \$0.16 | \$1,042 | 2.27 |
| 1919..... | 539,258 | 62,601 | .12 | 2,023 | 3.23 |
| 1920..... | 545,893 | 50,313 | .09 | 2,047 | 4.07 |
| 1921 (9 months)..... | 29,667 | 4,992 | .17 | | |

LOGWOOD.

| | Tons. | | | | |
|----------------------|--------|-----------|---------|--|--|
| 1918..... | 33,168 | \$776,735 | \$23.42 | | |
| 1919..... | 29,022 | 549,835 | 18.95 | | |
| 1920..... | 72,830 | 2,179,891 | 29.93 | | |
| 1921 (9 months)..... | 22,655 | 563,961 | 24.89 | | |

Exports of logwood extracts since 1918 (calendar years) have ranged from \$1,355,936 in 1919 to \$2,605,060 in 1920, and in nine months of 1921 were \$436,849.

MANGROVE.

(See Survey A-8.)

Description and uses.—Mangrove bark (free under par. 1563) on account of its abundance, wide distribution, rapid growth, and low cost is one of the world's most important tanning materials. The mangrove tree occurs in the tidal swamps of tropical countries. The bark is brown, hard, and heavy. It has a tannin content up to 48 per cent; the average of commercial grades is about 35 per cent. The extract known as "mangrove extract" and "mangrove catch," imported in large blocks, is of a reddish-brown color, and has a tannin content of about 55 per cent. Liquid extracts contain 25 per cent tannin. Extract is manufactured in East Africa, Madagascar, East Indies, Venezuela, and Colombia.

Imports of mangrove extract in 1914 (only year statistics are available) were 1,981,266 pounds, valued at \$59,899. During the period 1909-1913 imports of mangrove bark ranged from 12,200 to 23,700 tons. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|---------|-------------|
| | Tons. | | |
| 1918..... | 2,363 | 895,857 | \$40.99 |
| 1919..... | 2,533 | 87,899 | 34.53 |
| 1920..... | 6,312 | 265,656 | 41.30 |
| 1921 (9 months)..... | 2,198 | 115,398 | 5.01 |

Exports.—Not recorded.

Important changes in classification.—Mangrove extract is exempt from duty under paragraph 624, act of 1918.

MYROBALAN EXTRACT.

(See Survey A-8.)

Description and uses.—Myrobalans (free under par. 1563) are the dried fruit of different species of *Terinmalia* growing in India and China. The most important variety is the Chebullic or black myrobalan. The dried fruit is hard, about 1 inch in length, and resembles a slightly shriveled plum. The peel surrounding the kernel contains most of the tannin. The extracts are used in tanning and to a limited extent in dyeing. The liquid extracts contain 25 and 30 per cent tannin, and the solid extract about 50 per cent tannin.

Production statistics are not separately given.

Imports of myrobalans (fruit) for 1909-1918 averaged 25,302,519 pounds, valued at \$284,442, chiefly from India. Figures since 1917 are given in the following table:

| Calendar year. | Quantity. | Value. | Unit value. |
|---|------------|---------|-------------|
| | Pounds. | | |
| Myrobalans (fruit): | | | |
| 1918..... | 3,863,382 | 890,798 | \$0.02 |
| 1919..... | 30,898,549 | 721,153 | .02 |
| 1920..... | 47,766,473 | 728,208 | .02 |
| 1921 (9 months)..... | 16,944,725 | 126,592 | .01 |
| Myrobalan extract and valonia extract: | | | |
| 1918..... | 831,923 | 19,070 | .02 |
| 1919..... | 2,221,201 | 53,221 | .02 |
| 1920..... | 3,010,209 | 53,891 | .03 |
| 1921 (9 months)..... | 1,028,990 | 18,920 | .02 |

Exports.—None recorded.

Important changes in classification.—Myrobalan extract is exempt from duty under the act of 1918 (par. 624).

OAK EXTRACT.

(See Survey A-8.)

Description and uses.—Oak bark (free under par. 1563) is one of the oldest tanning materials used for sole and heavy leathers. In the eastern United States oak extract is made chiefly from the bark of the chestnut-oak (*Quercus prinus*), while on the Pacific coast extract is prepared from the tan bark oak (*Quercus densiflora*). Barks of other domestic oaks are used to a limited extent. The extract is marketed as a liquid extract, containing 25 per cent tannin, and as a solid extract.

Production of oak extract in 1914 was 8,797,218 pounds, valued at \$192,844. Consumption in 1918 was 8,815,056 pounds of solid oak extract and 34,380,396 pounds of liquid oak extract. The production in 1919 (preliminary figures) was 27,726,000 pounds, valued at \$1,390,000.

Imports of bark are not separately given. Imports of oak bark extract in 1914 were 143,094 pounds, valued at \$6,539; and in 1915, 65,293 pounds, valued at \$2,828. There were no imports of oak extract 1918-1919. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1920..... | 50,165 | \$3,560 | \$0.07 |
| 1921 (9 months)..... | 1,556,267 | \$7,101 | .06 |

Exports are not shown separately.

Important changes in classification.—Oak extract is exempt from duty under the act of 1913 (par. 624).

PERSIAN BERRY EXTRACT.

(See Survey A-8.)

Description and uses.—Persian berries (free under par. 1563) are the half dried fruit of different buck-thorn (*Rhamnus*) species. The berries are yellowish green in color, about the size of a pea and possess an intensely bitter taste. They are gathered in France, Spain, Italy, Hungary, and Asia Minor. The extract made by water treatment of the berries is used as a dye in cotton printing. It is also used to a small extent as a stain and for an artist's pigment.

Imports during 1910-1917 averaged 70,677 pounds per year, valued at \$8,112, yielding an average annual revenue of \$1,015. Imports of extract after 1918 are given in the following table:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|-------------------------|----------------|---------|-------------|-------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919 ¹ | 5,209 | \$2,601 | \$0.52 | \$20 | 0.73 |
| 1920..... | 11,357 | 3,631 | .32 | 43 | 1.17 |
| 1921 (9 months)..... | 2,671 | 426 | .16 | | |

¹ No imports of persian berry extract in 1918.

Exports.—None recorded.

QUEBRACHO.

(See Survey A-8.)

Description and uses.—Quebracho extract is prepared from a hardwood tree belonging to the genus *Quebrachia*, found in Argentina, Paraguay, and Uruguay. This wood (free under par. 1563) is a natural monopoly of South America. The heart wood is dark red, dense, and is one of the hardest known woods. A cubic foot weighs about 78 pounds. The wood averages about 22 per cent tannin. It is one of the world's most important tanning assets. In 1914 quebracho constituted 38 per cent of the total tanning agents consumed. Liquid quebracho extract contains 35 per cent and the solid extract about 65 per cent tannin. The extracts are sold as untreated and as chemically treated. The latter process increases the solubility.

Production of extracts of quebracho averaged in the period 1914-1917, 48,400,000 pounds per year, based on imports of logs. In 1919 the output was 71,412,000 pounds (preliminary figures), valued at \$7,123,800. As only 3,962 tons of logs were imported, this probably includes the imported extract, which was dissolved or chemically treated in this country.

Imports of quebracho logs in the period 1908-1918 ranged from 49,000 to 107,000 tons per year. Imports of extract in the period 1908-1918 varied from 62,000,000 to 125,000,000 pounds per year. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------|-----------|--------|-------------|
|----------------|-----------|--------|-------------|

QUEBRACHO LOGS.

| | Tons. | | |
|----------------------|--------|-----------|---------|
| 1918..... | 23,966 | \$373,188 | \$15.66 |
| 1919..... | 3,962 | 53,679 | 13.55 |
| 1920..... | 50,064 | 850,284 | 15.17 |
| 1921 (9 months)..... | 6,547 | 106,119 | 16.51 |

QUEBRACHO EXTRACT.

| | Pounds. | | |
|----------------------|-------------|-------------|--------|
| 1918..... | 131,264,979 | \$5,698,618 | \$0.04 |
| 1919..... | 144,496,648 | 6,902,947 | .05 |
| 1920..... | 108,897,440 | 6,700,216 | .06 |
| 1921 (9 months)..... | 118,900,294 | 5,397,612 | .04 |

Exports of quebracho extract are chiefly small shipments to Canada.

Important changes in classification.—Quebracho extract is exempt from duty under paragraph 624, act of 1913.

VALONIA EXTRACT.

(See Survey A-8.)

Description and uses.—Valonia consists of the acorn cups and beards (free under par. 1563) of certain species of oak. Smyrna, Greece, and Asia Minor export large amounts of valonia. The solid extract is imported and contains about 60 per cent tannin. Valonia and valonia extracts are used in tanning high-grade leathers of light color.

Imports of valonia extract are combined with myrobalan (see p. 110).

Imports of valonia during 1912-1915 ranged from 1,200,000 pounds to 6,300,000 pounds annually. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|-------------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1919 ¹ | 1,508,840 | \$87,096 | \$0.06 |
| 1920..... | 19,760,940 | 749,171 | .04 |
| 1921 (9 months)..... | 17,495,490 | 320,303 | .02 |

¹ No imports of valonia in 1918.

Exports.—Not recorded.

Important changes in classification.—Valonia extract is exempt from duty under the act of 1913 (par. 624).

WATTLE EXTRACT.

(See Survey A-8.)

Description, uses, and production.—The wattle barks (free under par. 1563) are of abundant occurrence and are obtained from a variety of trees in Australia and South Africa. This tanning agent is of comparatively recent development and promises to be of considerable importance. The solid extracts imported contain 60 per cent of tannin.

Imports of wattle bark and extract are not separately given.

Exports.—None recorded.

Important changes in classification.—New specific provision.

OTHER EXTRACTS—REDWOODS.

(See Survey A-8.)

Description and uses.—The redwoods are divided into "soluble," as Brazil, Peach, Sapan, Pernambuco, and Lima wood. Brazil wood, the most important of this class, is imported from South America; the extract known as hypernic is sold as a liquid of 51° and as a solid. It is principally used in leather dyeing and to a small extent in textile dyeing.

The insoluble redwoods include sanders, cam, bar, calistur, and are of small importance in textile dyeing.

Production of Brazil and other redwood extracts in 1919 (preliminary figures) was 1,553,000 pounds, valued at \$246,000.

Imports and exports.—Statistics are not available.

OTHER EXTRACTS—SUMAC.

(See Survey A-8.)

*Description and uses.—Among "other extracts" is included one of importance prepared from the dried leaves and leaf stems of sumac (free under par. 1563), a plant embracing several species of the *Rhus*, of wide distribution. Italy, United States, Greece, and Spain are large producers of sumac. The domestic harvest is gathered in Vir-*

ginia, West Virginia, North Carolina, Maryland, and Pennsylvania. Domestic leaf has an average tannin content of about 22 per cent. The imported leaf (ground and unground) comes from Sicily and yields a lighter colored extract. Extracts occur as liquids of 42° and 51°, containing about 22 and 26 per cent tannin. Sumac extracts are used as a mordant in textile dyeing and as a tanning agent.

Production in 1914 of sumac extract (from both domestic and foreign leaf) was 4,512,361 pounds, valued at \$129,631; and in 1919 (preliminary figures), 3,507,000 pounds, valued at \$253,100.

Imports of sumac "ground" varied from about 10,000,000 to 20,000,000 pounds per year during the period 1909-1919. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|------------------------|----------------|-----------|-------------|-------|--------------------------------|
| GROUND SUMAC. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 9,495,500 | \$385,201 | \$0.04 | | |
| 1920..... | 10,702,849 | 343,424 | .03 | | |
| 1921 (9 months)..... | 2,161,500 | 70,643 | .02 | | |
| UNGROUND SUMAC. | | | | | |
| 1918..... | 5,717,268 | 196,872 | \$0.03 | | |
| 1919..... | 5,029,031 | 173,276 | .04 | | |
| 1920..... | 2,298,762 | 85,098 | .04 | | |
| 1921 (9 months)..... | 1,241,246 | 28,867 | .02 | | |
| SUMAC EXTRACT. | | | | | |
| 1918..... | 23,706 | 2,616 | \$0.11 | \$39 | 3.40 |
| 1920..... | 44,049 | 3,273 | .07 | 165 | 5.05 |
| 1921 (9 months)..... | 1,386 | 203 | .11 | | |

Suggested changes.—Sumac extract is an extract of sufficient importance to be specifically mentioned, as it has been for upward of half a century. Its place in paragraph 36 is between "quebracho" and "valonia."

ALL OTHER EXTRACTS.

(See Survey A-8.)

Description and uses.—Two important natural dyes of domestic origin are quercitron and osage orange. Quercitron and the related dye—flavine—are prepared from the bark of the black oak (*Quercus velutina*), found in the Appalachians. Osage orange extracts are derived from the wood of the osage orange or bowwood tree (*Toxylon pomiferum* or *Maclura pomiferum*) occurring in Oklahoma, Arkansas, and Texas. These natural extracts are used chiefly in textile and leather dyeing.

Production of quercitron in the period 1916 to 1919 varied from 7,600,000 to 15,900,000 pounds (51° extract). The production of osage orange extract in 1919 was 4,827,701 pounds (51° extract). The output of "other natural dye extracts" in 1919 (preliminary figures) was 896,000 pounds, valued at \$425,000, and of "other vegetable tanning extracts" 34,805,000 pounds, valued at \$3,124,000.

Imports of "extracts for tanning, not containing alcohol," since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|-------------|----------|------------------|
| ALL OTHER EXTRACTS OF VEGETABLE ORIGIN SUITABLE FOR DYING, ETC. (CHLOROPHYLL, LOGWOOD, AND OTHER DYEWOODS, NUTGALLS, PERSIAN BERRIES, AND SUMAC ARE SHOWN SEPARATELY). | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,890,865 | \$234,375 | \$0.08 | \$10,837 | 14.62 |
| 1919..... | 443,749 | 90,079 | .18 | 1,664 | 12.08 |
| 1920..... | 381,537 | 75,613 | .20 | 1,431 | 11.89 |
| 1921 (9 months)..... | 390,767 | 27,243 | .07 | | |

EXTRACTS OF BARK OTHER THAN HEMLOCK.

| | | | | | |
|-------------------------|-----------|-----------|--------|--|--|
| 1918 ¹ | 6,729,118 | \$191,584 | \$0.03 | | |
| 1919..... | 1,762,578 | 92,270 | .05 | | |
| 1920..... | 4,497,530 | 256,037 | .06 | | |
| 1921 (9 months)..... | 5,554,257 | 305,138 | .06 | | |

EXTRACTS OF WOODS OTHER THAN DYEWOODS.

| | | | | | |
|----------------------|-----------|----------|--------|--|--|
| 1918..... | 1,668,942 | \$67,890 | \$0.04 | | |
| 1919..... | 2,145,120 | 122,204 | .06 | | |
| 1920..... | 859,379 | 48,624 | .06 | | |
| 1921 (9 months)..... | 87,508 | 2,013 | .03 | | |

OTHER EXTRACTS FOR TANNING, N. S. P. F.

| | | | | | |
|----------------------|-----------|---------|--------|---------|----|
| 1918..... | 224,224 | \$7,423 | \$0.03 | \$1,113 | 15 |
| 1919..... | 26,354 | 2,372 | .09 | 356 | 15 |
| 1920..... | 134,840 | 12,830 | .10 | 1,925 | 15 |
| 1921 (9 months)..... | 8,353,654 | 160,413 | .02 | | 15 |

¹ Equivalent ad valorem rate.¹ Includes hemlock bark.

Exports of "All extracts for tanning" since 1918 ranged from \$3,125,842 in 1918 to \$5,598,134 in 1919. During the first 9 months of 1921 they were valued at \$807,325.

OTHER DYEWOODS AND CRUDE TANNING MATERIALS.

Imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|--|-----------|--------|-------------|
| DYEWOODS, OTHER THAN LOGWOOD AND FUSTIC WOOD. | | | |

| | | | |
|----------------------|--------------|-----------|--------|
| | <i>Tons.</i> | | |
| 1918..... | 15,966 | \$401,190 | \$2.55 |
| 1919..... | 922 | 23,286 | 2.53 |
| 1920..... | 2,653 | 51,904 | 1.96 |
| 1921 (9 months)..... | 1,258 | 29,936 | 2.38 |

ALL OTHER ARTICLES IN A CRUDE STATE USED IN TANNING (HEMLOCK BARK, MANGROVE BARK, MYROBOLANS FRUIT, QUEBRACHO WOOD, AND VALONIA, EXCEPTED).

| | | | |
|----------------------|----------------|-----------|--------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$48,925 | |
| 1919..... | 31,748,511 | 737,367 | \$0.02 |
| 1920..... | 48,602,728 | 1,188,968 | .02 |
| 1921 (9 months)..... | 8,353,654 | 160,413 | .02 |

Exports of barks for tanning since 1918 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|----------|----------|----------|---------------------|
| Quantity (tons)..... | 513 | 668 | 300 | 231 |
| Value..... | \$18,907 | \$47,741 | \$18,237 | \$13,305 |

Important changes in classification.—Lac dye, exempt from duty under the act of 1913 (par. 526), is not mentioned in H. R. 7456. If imported it will probably fall under paragraph 36.

PARAGRAPH 37.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 37. Flavoring extracts and natural or synthetic fruit flavors, fruit esters, oils, and essences, all the foregoing not containing alcohol, and not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

PAR. 3. * * * chemical compounds, mixtures * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

PAR. 21. * * * fruit ethers, oils, or essences, one dollar per pound; * * *.

ACT OF 1913.

PAR. 49. * * * flavoring extracts, * * * 20 per centum ad valorem.

PAR. 5. * * * chemical * * * compounds, * * * mixtures * * * not specially provided for in this section, 15 per centum ad valorem.

PAR. 46. * * * fruit ethers, oils, and essences, * * * not specially provided for in this section, 20 per centum ad valorem: * * *.

FLAVORING EXTRACTS, ETC.

(See Survey A-14.)

Description and uses.—Flavoring extracts have been defined by the United States Department of Agriculture as alcoholic solutions of the flavoring and odorous principles of plants. They are extracted from the fruits, seeds, leaves, and roots by using alcohol or by dissolving essential oils in strong alcohol. A second class of extracts consists of solutions of different synthetic aromatic chemicals which possess odors and flavors similar to the natural products. The Department of Agriculture requires that the latter extracts be labeled "imitations" or "substitutes." These synthetic chemicals may be coal-tar products (dutiable under par. 26), such as coumarin (the flavoring principle of tonka beans), or methyl salicylate (artificial oil of wintergreen) or benzaldehyde (artificial oil of bitter almonds), or they may be similar synthetic chemicals prepared from natural products isolated from essential oils. Other products, especially the so-called "fruit esters and essences," are made from fusel oil and other alcohols.

The two most important flavoring extracts are vanilla and lemon, and it has been estimated by the Department of Agriculture that they represent more than 95 per cent of the domestic consumption. Vanilla extract alone probably constitutes between 80 and 90 per cent of the total.

In addition to the well-known uses of flavoring extracts in the home these products are extensively employed in the manufacture of ice creams and ices, confectionery of all kinds, fruit sirups and beverages, patent medicines and medicinal compounds, perfumery, and cosmetics, jellies and gelatin, and in many other manufactured food products.

Alcoholic flavoring extracts are dutiable under paragraph 22, according to their alcoholic content rather than under this paragraph.

Production.—It is not known that any natural nonalcoholic flavoring extracts are manufactured in this country. Large amounts, however, are manufactured from the so-called fruit esters, and the United States is one of the largest, if not the largest, producer of flavoring extracts. The production of all flavoring extracts was valued at \$11,380,423 in 1914. Census figures for 1919 are not as yet available. Domestic production of coal-tar flavors during 1917–1919 has averaged about 600,000 pounds annually, valued at about \$2,000,000.

Imports of all alcoholic flavoring extracts totaled only about \$4,000 for the six-year period 1914–1919, or less than 1 per cent of the exports.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|---------|-------------|---------|------------------|
| NONALCOHOLIC FLAVORING EXTRACTS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,353 | \$5,889 | \$2.93 | \$1,378 | 20 |
| 1919..... | 4,364 | 10,002 | 2.29 | 2,000 | 20 |
| 1920..... | 10,235 | 18,704 | 1.83 | 3,741 | 20 |
| 1921 (9 months)..... | 42,116 | 24,210 | .57 | | 20 |
| NONALCOHOLIC FRUIT OILS OR ESSENCES, N. S. P. F. | | | | | |
| 1918..... | 122 | \$347 | \$2.84 | \$69 | 20 |
| 1919..... | 207 | 6,049 | 29.22 | 1,210 | 20 |
| 1920..... | 4,423 | 8,347 | 1.89 | 1,660 | 20 |
| 1921 (9 months)..... | 1,928 | 3,429 | 1.78 | | 20 |

Exports of both alcoholic and nonalcoholic flavoring extracts, chiefly to Canada, England, and Cuba, were valued at \$967,421, \$1,341,656, \$1,428,262, and \$705,852 in 1918, 1919, 1920 (calendar years), and the first nine months of 1921, respectively.

Important changes in classification.—Flavoring extracts not containing alcohol have been transferred from paragraph 49 (act of 1913) and given a new provision in this paragraph along with "fruit ethers, oils, and essences" (par. 46, act of 1913). The term "fruit ethers" has been changed to "fruit esters," which is a more proper designation of these compounds. It is impossible commercially to prepare flavoring extracts from certain common fruits, and it is necessary to reproduce these flavors by artificial means. Therefore, a provision has been inserted in this paragraph for "natural or synthetic fruit flavors." (Reclassification Report, p. 74.)

PARAGRAPH 38.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 38. Formaldehyde solution or formalin, solid formaldehyde or paraformaldehyde, and hexamethylenetetramine, 25 per centum ad valorem.

ACT OF 1909.

PAR. 65. * * * medicinal preparations not specially provided for in this section, twenty-five per centum ad valorem: * * *

ACT OF 1913.

PAR. 32. Formaldehyde solution containing not more than 40 per centum of formaldehyde, or formaline, 1 cent per pound.

PAR. 5. * * * medicinal * * * preparations, * * * not specially provided for in this section, 15 per centum ad valorem.

FORMALDEHYDE.

(See Survey A-2.)

Description and uses.—Formaldehyde at ordinary temperatures and pressures is a gas, but enters commerce (1) as formalin, a water solution containing about 40 per cent formaldehyde, and (2) as paraformaldehyde, a solid form containing about 95 per cent. It is used as an antiseptic, disinfectant, and preservative; as a reducing agent in the silvering of mirrors; and, with hexamethylenetetramine (made from formaldehyde), industrially in the manufacture of synthetic resinlike products (Bakelite, Condensite, Redmanol).

Production of formaldehyde by three firms in 1914 was 8,426,247 pounds, valued at \$655,174. Production was stimulated during the war, and in 1919 had increased to 19,663,800 pounds, valued at \$3,938,300 (preliminary figures). Formaldehyde is made by passing a mixture of air and wood alcohol over a heated copper gauze, a very pure grade of wood alcohol being used, an adequate supply of which is available in the United States from the wood distillation industry. The principal manufacturers of formaldehyde are at Niagara Falls, N. Y., and in New Jersey.

Imports prior to and during the war were sporadic and negligible, less than 1 per cent of domestic production. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 148,798 | \$25,548 | \$0.17 | \$1,488 | 5.82 |
| 1919..... | 502 | 118 | .23 | 5 | 4.44 |
| 1920..... | 428,444 | 210,191 | .49 | 4,284 | 2.04 |
| 1921 (9 months)..... | 85,769 | 16,547 | .19 | | |

The maximum import since the war (1920) is equivalent to slightly more than 2 per cent of the domestic output.

Exports in 1918 were valued at \$866,038, about 50 per cent going to France and the remainder largely to the United Kingdom, Italy, and Japan. They increased to \$2,640,225 in 1920 (calendar year), about

50 per cent going to England. The first nine months of 1921 show a decrease to \$275,901. The 1919 exports were one-third the value of the domestic output for the same year.

Important changes in classification.—There is no apparent necessity for the restricting clause "containing not more than 40 per cent of formaldehyde" in connection with formaldehyde solution (par. 32, act of 1913). For technical reasons it is not feasible to make a solution of formaldehyde containing more than 40 per cent by weight of formaldehyde. Hence the phrase was omitted. The proper trade name "formalin" was substituted for "formaline."

Paraformaldehyde, or solid formaldehyde, is another important commercial form of formaldehyde. Because of the additional cost of manufacturing the solid formaldehyde from formaldehyde solution, the value of the solid formaldehyde is three or four times that of the solution. That commodity was specially provided for. (Reclassification Report, p. 46.)

HEXAMETHYLENETETRAMINE.

Description and uses.—Hexamethylenetetramine is an organic compound obtained by treating formaldehyde (see p. 118) with ammonia. When first introduced it was used under various trade names as an important medicinal chemical. In recent years it has assumed commercial importance for accelerating the vulcanization of rubber and as a raw material in the manufacture of the synthetic resin "Redmanol."

Production.—Hexamethylenetetramine is obtained as a white crystalline product by evaporating a solution of formaldehyde which has been saturated with ammonia. Statistics of output are not available, but it is known that production has increased greatly in recent years.

Imports are available for 1914 only, when they were 11,470 pounds, valued at \$21,136—49 per cent from Germany and 42 per cent from Switzerland.

Exports.—Statistics not available.

Important changes in classification.—Hexamethylenetetramine, because of its industrial importance, is mentioned specifically.

PARAGRAPH 39.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 39. Gelatin, glue, and glue size, 20 per centum ad valorem and 1½ cents per pound; manufactures, wholly or in chief value of gelatin; casein glue; isinglass, and other fish sounds, cleaned, split, or otherwise prepared, and agar-agar, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 23. Gelatin, glue, isinglass or fish glue, including agar-agar or Japanese isinglass, and all fish bladders and fish sounds other than crude or

PAR. 34. Gelatin, glue, and glue size, valued not above 10 cents per pound, 1 cent per pound; valued above 10 cents per pound and not above 25 cents per

dried or salted for preservation only, valued at not above ten cents per pound, two and one-half cents per pound; valued at above ten cents per pound and not above thirty-five cents per pound, twenty-five per centum ad valorem; valued above thirty-five cents per pound, fifteen cents per pound and twenty per centum ad valorem; gelatin in sheets, emulsions, and all manufactures of gelatin, or of which gelatin is the component material of chief value, not specially provided for in this section, thirty-five per centum ad valorem; glue size, twenty-five per centum ad valorem.

pound, 15 per centum ad valorem; valued above 25 cents per pound, 25 per centum ad valorem; manufactures of gelatin or manufactures of which gelatin is the component material of chief value, 25 per centum ad valorem; isinglass and prepared fish sounds, 25 per centum ad valorem; agar-agar, 20 per centum ad valorem.

GELATIN, GLUE, ISINGLASS, AND AGAR-AGAR.

(See Survey A-9.)

Description and uses.—Glue and gelatin are extracted from properly prepared animal tissues, such as hide cuttings and bones of animals, and the skins and heads of fish. Glue and gelatin resemble each other closely in chemical nature, the distinction between them being chiefly a matter of quality. Broadly speaking, glue is impure gelatin, or gelatin is high-grade glue.

Commercial supplies may be classified as follows:

(a) Fish glues, made from fish skins, bones, and heads, usually sold in liquid form.

(b) Bone glues, made from bones of cattle, usually sold in solid form.

(c) Hide glue, made from untanned trimmings of skins and hides, ears, tails, etc. Hide glues have greater adhesive power than the other grades. The better grades of hide glue can hardly be distinguished from technical gelatin.

(d) Technical gelatin, a high-grade product, usually made from hide.

(e) Edible gelatin, made usually from hide, and conforming to the specifications of the Bureau of Chemistry promulgated under the Pure Food and Drugs Act, which require that the gelatin shall be clean and free from odor, that only traces of heavy metals, such as arsenic, copper, and zinc shall be present, and that the manufacture shall be carried out in a sanitary manner.

(f) Photographic or emulsion gelatin, suitable for use in the manufacture of photographic plates and films. The requirements for photographic gelatin are more exacting than for any other use, requiring greater care in manufacture, so that the cost of manufacture and selling price of photographic gelatin exceeds even that of food gelatin.

Glues are used primarily as an adhesive in the manufacture of furniture, toys, and many other articles, plywoods and veneers, leather belts, for the sizing of paper, for bookbinding, for fastening emery, sand, or other abrasives in the manufacture of abrasive paper and cloths. Glue is also an essential ingredient in the composition of match heads. Gelatin is used for stiffening straw hats and cloths, in the manufacture of ice cream and other food preparations, in the

manufacture of capsules for the administration of medicine, and in court-plasters, inks, and photographic plates, and for many other purposes.

Other preparations with adhesive properties like glue are loosely called glues—for example, marine glue, which is a resinous preparation; starch and dextrin glues; and casein glues. The casein glues are the strongest competitor of gelatin glues.

Glue size is made by dissolving solid glue in water, or it may be the water solution of glue obtained by treating the animal matter with water. It is used chiefly for sizing paper.

Isinglass is a preparation of the "sound" or swimming bladder of the sturgeon and other fish. The principal ingredient of isinglass is converted into gelatin on boiling with water. Russian isinglass is the most valued kind. It has been used chiefly for clarifying wine, beer, and other liquids.

Agar-agar, commonly called Bengal or Japanese isinglass, is a dried seaweed obtained largely from Singapore. It is soluble in hot water, and on cooling the solution forms a thick gelatinous jelly. It is used chiefly as a culture media for bacteria. Agar-agar differs from other products in paragraph 39 in that it is a vegetable, not an animal product.

Casein glue is prepared from casein (par. 1598). It is of recent introduction, being used largely during the war on airplanes because of its water-resisting properties. The strength of casein glue is equal to that of medium grade animal glues.

Production.—The material used in the manufacture of glue may be divided into three classes—hide, bone, and fish stock. The glue made from fish stock is always sold in liquid form, and is obtained from these prepared materials by extraction with hot water. The glue solution is clarified, concentrated if necessary, and allowed to cake or "jell" in rectangular tanks. These cakes are then cut into the desired sizes and dried in an oven. The dried glue is cut, broken, or pulverized as desired.

The capital of 57 establishments engaged primarily in the manufacture of glue in 1914 was \$17,162,000; output was valued at \$18,733,000. Of this value 80 per cent was produced in Illinois, Massachusetts, New York, and Pennsylvania. Glue to the value of \$5,992,879 was produced by firms engaged in other manufactures, making a total of \$19,725,879 in 1914. The present output is estimated at 10,000,000 pounds annually. Of the output of glue in 1914, slaughtering and meat-packing concerns produced 15.7 per cent and fertilizer manufactures 5.75 per cent. The production supplies at least 85 per cent of the domestic consumption. In 1919, according to preliminary figures, the output of 61 establishments was valued at \$32,084,000, or about double the 1914 production.

Imports of glue for 1910 to 1913, inclusive, have been between 6,000,000 and 8,000,000 pounds, increasing sharply to over 22,000,000 in 1914. The imports decreased to about 2,000,000 pounds in 1918 (fiscal year). The import of gelatin prior to 1914 averaged a little over 1,000,000 pounds per year. In 1914 and 1915 over 2,000,000 pounds were imported. The combined import of glue and gelatin in 1914 was in value 18 per cent of the domestic production.

Imports of glue during the calendar year 1920 were largely in the classes "valued at not above 10 cents per pound" and "valued above

25 cents per pound," the imports in each class being about 1,000,000 pounds. Imports of gelatin since 1918 have been almost wholly in the class valued above 25 cents per pound. In recent years imports of glue were chiefly from Belgium, Chile, and India, and imports of gelatin from the Netherlands, Belgium, and France.

Imports of glue since 1918 have been negligible.

Imports of isinglass and other fish sounds between 1914 and 1918 ranged from 11,906 pounds in 1915 to 85,896 pounds in 1914. Those of agar-agar from 1915 to 1918 averaged per year about 330,000 pounds, valued at a little more than \$100,000.

Imports of manufactures of which gelatin is the component material of chief value reached a maximum of \$492,493 in 1913. During the war they were valued at less than \$100,000. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

GLUE.

| | Pounds. | | | | Per cent. |
|----------------------|-----------|-----------|--------|----------|-----------|
| 1918..... | 741,778 | \$173,498 | \$0.57 | \$37,778 | ..... |
| 1919..... | 900,047 | 211,789 | .68 | 44,370 | ..... |
| 1920..... | 2,463,976 | 560,232 | .66 | 130,748 | ..... |
| 1921 (9 months)..... | 2,518,666 | 486,229 | .62 | ..... | ..... |

GELATIN.

| | | | | | |
|----------------------|-----------|-----------|--------|---------|-------|
| 1918..... | 80,075 | \$31,768 | \$0.62 | \$7,940 | ..... |
| 1919..... | 447,585 | 240,446 | .71 | 60,043 | ..... |
| 1920..... | 2,143,805 | 1,144,798 | .78 | 286,640 | ..... |
| 1921 (9 months)..... | 1,333,611 | 650,420 | .70 | ..... | ..... |

ISINGLASS AND OTHER FISH SOUNDS.

| | | | | | |
|----------------------|--------|---------|--------|---------|----|
| 1918..... | 14,477 | \$5,955 | \$0.41 | \$1,491 | 25 |
| 1919..... | 26,118 | 28,885 | .99 | 6,471 | 25 |
| 1920..... | 38,021 | 31,465 | .83 | 7,666 | 25 |
| 1921 (9 months)..... | 6,730 | 6,285 | .98 | ..... | 25 |

AGAR-AGAR.

| | | | | | |
|----------------------|---------|-----------|--------|----------|----|
| 1918..... | 261,594 | \$109,457 | \$0.42 | \$21,891 | 20 |
| 1919..... | 483,897 | 264,923 | .55 | 52,985 | 20 |
| 1920..... | 271,440 | 148,539 | .55 | 26,708 | 20 |
| 1921 (9 months)..... | 276,447 | 107,577 | .39 | ..... | 20 |

MANUFACTURES OF WHICH GELATIN IS THE COMPONENT MATERIAL OF CHIEF VALUE.

| | | | | | |
|----------------------|--|----------|-------|---------|----|
| 1918..... | | \$11,341 | ..... | \$2,835 | 25 |
| 1919..... | | 19,372 | ..... | 4,843 | 25 |
| 1920..... | | 77,490 | ..... | 19,373 | 25 |
| 1921 (9 months)..... | | 23,086 | ..... | ..... | 25 |

Exports.—The export of glue from 1910 to 1915, inclusive, averaged about 2,600,000 pounds per year, and during 1916–1918 were between 4,000,000 and 5,000,000 pounds. It was in value 1.3 per cent

of the domestic production of glue and gelatin in 1914. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------|-------------|-------------|-------------|--------------------|
| Quantity (pounds) | 5,809,605 | 8,496,167 | 13,565,481 | 1,526,061 |
| Value..... | \$1,110,837 | \$1,480,777 | \$2,414,657 | \$300,075 |

Exports in recent years have been chiefly to Canada, England, and Germany.

Important changes in classification.—Casein glue has been mentioned specifically for the first time.

In the act of 1913 (par. 34) the duty on glue and gelatin is based on the value of the imported product. During the times of fluctuating prices this specification causes a change in the tariff treatment of the various grades and is a temptation to undervalue imports. It is impracticable to write a definition suitable for incorporation in the tariff law which would distinguish glue and gelatin. It was therefore suggested by the Tariff Commission that no attempt be made to distinguish glue from gelatin and that a compound rate of duty be applied to these products. This suggestion was incorporated in H. R. 7456.

The phrase "prepared fish sounds" in paragraph 34, act of 1913, was changed to "fish sounds, cleaned, split, or otherwise prepared" in order to include fish sounds so treated, which had been held exempt from duty under paragraph 419, act of 1913 (*United States v. Brown*, 10 Ct. Cust. Appls., 47, of 1920). (Reclassification Report, p. 48.)

PARAGRAPH 40.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 40. Glycerin, crude, 1 cent per pound; refined, 3 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 24. Glycerin, crude, not purified, one cent per pound; refined, three cents per pound.

PAR. 35. Glycerin, crude, not purified, 1 cent per pound; refined, 2 cents per pound.

GLYCERIN.

(See Survey A-9.)

Description and uses.—Glycerin is a heavy, sweet, sirupy liquid. The tariff classification recognizes two grades—crude and refined. There are, however, several divisions of these grades in commerce. The most important grades of the crude are "soap-lye crude glycerin," containing about 80 per cent of glycerin, and "crude saponification glycerin," containing about 85 to 90 per cent. The two important grades of the refined are "dynamite glycerin" and

"chemically pure glycerin." The dynamite grade has a slightly yellowish color and is obtained from crude glycerin by one purification or distillation. The chemically pure grade is water white and has been purified by repeated distillation. The largest use of glycerin is in the manufacture of nitroglycerin for making dynamite. It is used as a solvent, preservative, medicinal, sweetening agent, in nonfreezing liquids, and in the arts.

Production.—Glycerin is obtained exclusively as a by-product of the soap, candle, and stearic-acid industries. The raw material for these industries (fats and fatty oils) contain glycerin in chemical combination with fatty acids.

The domestic production of refined glycerin in 1914 was 60,944,799 pounds, of which 59,810,405 pounds were sold at \$10,779,204. The domestic production of crude glycerin is less than one-half the output of the refined. The marketed crude glycerin in 1914 was 16,568,920 pounds, valued at \$2,278,976. This does not include the quantity refined in the plants where produced. The marketed production in 1919 (preliminary figures) was: Refined glycerin, 64,342,800 pounds, valued at \$20,724,000, and crude glycerin, 21,304,300 pounds, valued at \$2,961,600.

Imports.—The normal imports of crude glycerin have been between 30,000,000 and 40,000,000 pounds annually, 50 per cent coming from England and France. Since the war the imports of crude glycerin have decreased to 1,875,531 pounds in 1918. From 1910 to 1918 the imports of refined glycerin were very small, amounting to less than 500,000 pounds per year. This indicates that with the existing differential in the duties on the two grades it is cheaper to import crude glycerin and do the refining in this country than to import the refined. The imports of crude glycerin are supplementary to, rather than competitive with, the domestic product, as the demand is much larger than the domestic output. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| CRUDE. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,087,163 | \$467,418 | \$0.43 | \$10,872 | 2.33 |
| 1919..... | 3,564,237 | 417,774 | .12 | 35,642 | 8.53 |
| 1920..... | 22,272,236 | 2,912,430 | .13 | 222,722 | 7.65 |
| 1921 (9 months)..... | 2,575,315 | 375,345 | .15 | | |
| REFINED. | | | | | |
| 1918..... | 137,826 | \$78,467 | \$0.57 | \$2,757 | 3.51 |
| 1919..... | 39,059 | 4,471 | .11 | 781 | 17.47 |
| 1920..... | 5,381,737 | 1,170,030 | .22 | 107,635 | 9.20 |
| 1921 (9 months)..... | 510,171 | 95,104 | .19 | | |

Exports in 1918, the first recorded, were 21,045,991 pounds, valued at \$10,587,531, 90 per cent going to Italy. This was chiefly a war condition, as shown in the following table which gives statistics for calendar years.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|--------------|-------------|-----------|---------------------|
| Quantity.....pounds.. | 21,754,728 | 3,963,392 | 1,742,708 | 1,156,146 |
| Value..... | \$11,766,636 | \$1,190,984 | \$429,116 | 198,417 |

In postwar years exports were chiefly to Japan, Canada, China, and Cuba.

PARAGRAPH 41.

H. E. 7456.

SENATE AMENDMENTS.

PAR. 41. Ink, and ink powders not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 26. Ink and ink powders, twenty-five per centum ad valorem.

PAR. 37. Ink and ink powders, 15 per centum ad valorem.

INK AND INK POWDERS.

(See Survey A-9.)

Description and uses.—The most important ink is black printing ink used in newspaper and book printing. It is composed of finely divided lampblack ground in a varnish composed of linseed oil, rosin oil, a drier, a thinner, and other materials such as soap. In colored inks for printing and lithographing the lampblack is replaced by a color lake, a pigment derived from a coal-tar dye, or in the case of some blues, by a mineral pigment such as Prussian blue. Black writing inks are usually composed of tannate of iron and a gum dissolved in water. Blue writing inks or fluids are usually composed of a mineral pigment such as Prussian blue (which has been chemically treated to make it water soluble) dissolved in water and oxalic acid. Writing inks, other than blacks and most blues, are composed of a coal-tar dye and a gum dissolved in water. In inks used for fountain pens the gum is usually omitted. Ink powders or tablets are soluble coal-tar dyes, and upon the addition of water form a writing fluid. These powders may also be used in other products where a soluble color is required.

Production of writing inks in 1914 amounted to over \$2,500,000, and printing inks valued at approximately \$14,000,000 were also produced by American manufacturers. In 1919, according to preliminary figures, the output of writing inks was \$6,434,000 and of printing ink \$26,238,000.

Imports.—The average annual import of writing inks for 1910-1918 was valued at \$21,983 (revenue of \$4,402) and of printer's ink, for the same period, at \$11,155 (revenue \$1,899). The import of

writing and printing inks in 1914 was less than one-tenth of 1 per cent of domestic production. Later statistics follow:

| Calendar year. | Value. ¹ | Duty. | Ad valorem rate. |
|---------------------------------------|---------------------|---------|------------------|
| WRITING AND COPYING INKS. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$13,363 | \$2,004 | 15 |
| 1919..... | 15,116 | 2,267 | 15 |
| 1920..... | 15,506 | 2,326 | 15 |
| 1921 (9 months)..... | 3,006 | ..... | 15 |
| PRINTERS' INK. | | | |
| 1918..... | \$4,154 | \$623 | 15 |
| 1919..... | 199 | 30 | 15 |
| 1920..... | 15,228 | 2,284 | 15 |
| 1921 (9 months)..... | 4,596 | ..... | 15 |
| ALL OTHER INKS AND INK POWDER. | | | |
| 1918..... | \$6,342 | \$961 | 15 |
| 1919..... | 8,143 | 1,221 | 15 |
| 1920..... | 10,657 | 1,509 | 15 |
| 1921 (9 months)..... | 9,176 | ..... | 15 |

¹ Quantity is not given.

Exports of printing ink for 1910-1918 have averaged \$525,106, and the average export of all other inks for the same period was valued at \$242,418. Later statistics follow:

| Calendar year. | Printing inks. | All other inks and ink powder. |
|----------------------|----------------|--------------------------------|
| 1918..... | \$1,040,832 | \$448,181 |
| 1919..... | 1,712,926 | 856,217 |
| 1920..... | 1,802,762 | 996,719 |
| 1921 (9 months)..... | 775,127 | 355,214 |

Exports of printing inks are chiefly to China, Argentina, and Brazil, and of all other inks chiefly to Cuba, the Philippines, and Canada.

Important changes in classification.—Ink powders have been limited to those not specially provided for; those of coal-tar origin are provided for in paragraph 26.

PARAGRAPH 42.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 42. Iodine, resublimed, 20 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 27. Iodine, resublimed, twenty cents per pound.

PAR. 515. Iodine * * * resublimed [Free].

IODINE.

(See Survey A-9.)

Description and uses.—Iodine, a nonmetallic element, is a grayish or purplish-black solid which volatilizes easily, giving off a violet-colored vapor. It does not occur free in nature, but its salts are widely distributed in small amounts and are always present in sea water and in some mineral springs. The principal source of iodine is found in sodium nitrate beds of Chile. Iodine is used directly and in the form of iodine compounds in medicine. The compounds are also employed in photography. About 80 per cent of the domestic consumption is probably made into sodium and potassium iodides. Crude iodine is provided for in paragraph 1588, page 1335.

Production of iodine is not commercially important in the United States, although small amounts have been produced from kelp on the Pacific coast. Exports of iodine from Chile prior to the war were about 1,000,000 pounds, increasing to a maximum of 3,000,000 pounds in 1916 and then decreasing to 2,000,000 pounds in 1918. Chile's potential production as a by-product of nitrate refining is three to four times these amounts. Output in Japan tripled from 1913 to 484,138 pounds in 1917.

Imports of crude iodine are chiefly from Chile. These increased from 195,030 pounds in 1914 to 1,726,728 pounds in 1917, but dropped to 200,448 pounds in 1918. Imports from Japan were 1,500 pounds in 1915, but increased to 53,092 pounds in 1918. Recent statistics of imports of crude iodine follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 391,783 | \$793,719 | \$2.03 |
| 1919..... | 1,251,086 | 2,385,226 | 1.91 |
| 1920..... | 291,171 | 547,679 | 1.88 |
| 1921 (9 months)..... | 630,186 | 1,411,533 | 2.21 |

Imports of resublimed iodine have been negligible; the maximum was 15,550 pounds in 1918 (calendar year), valued at \$49,583.

Exports.—Statistics not available.

Important changes in classification.—Resublimed iodine is exempt from duty under the act of 1913 (par. 515).

PARAGRAPH 43.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 43. Bromine and all bromine compounds not specially provided for, 10 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 3. * * * chemical compounds, * * * and salts. * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 433. Bromin [Free].
PAR. 5. * * * chemical * * * compounds, * * * not specially provided for in this section, 15 per centum ad valorem.

BROMINE AND BROMINE COMPOUNDS.

(See Survey FI-8.)

Description and uses.—Bromine is one of the chemical elements. It is a dark reddish-brown, highly corrosive liquid, giving off heavy, irritating vapors. It is produced here almost entirely from natural brine in connection with the salt industry. Bromine is used in the manufacture of certain coal-tar dyes and bromine compounds; the latter are employed principally in photography and medicine. During the World War bromine and some of its compounds were used in gas warfare.

Owing to the corrosive nature of bromine and consequent dangers attending transportation, it enters commerce largely in the form of its salts—sodium bromide, potassium bromide, and ammonium bromide.

Production of bromine in the United States in 1913 was 572,000 pounds, increased to a maximum of 1,854,971 pounds, valued at \$1,234,969, in 1919, and then decreased to 1,160,584 pounds, valued at \$745,381, in 1920. Germany is the only other important producer and prior to the war ranked first, with an output in 1912 of 1,909,184 pounds. Domestic figures include bromine content of various bromine compounds, such as sodium and potassium bromide. Production in the United States is as a by-product of the salt industry, and in Germany a by-product of refining potash salts at Stassfurt.

The output of sodium bromide from 1918 to 1920 has been around 500 short tons, valued at \$500,000. It is produced by absorbing free bromine in a solution of sodium carbonate. The production of potassium bromide in 1918 was 666,119 pounds, of which 616,232 pounds, valued at \$551,079, were sold.

Import statistics of bromine and its compounds are not available except for 1914, when only 361 pounds of potassium bromide, valued at \$200, were imported.

Exports.—Large quantities of bromine were exported to Great Britain, France, and Italy in 1918 during the war, at which time these countries were largely dependent on the United States.

Important changes in classification.—Bromine is provided for specifically in the free list of the act of 1913 as "bromin" (par. 433). Because of its corrosive nature, bromine is usually shipped in the form of its various compounds. The provision for bromine was broadened by amendment on the floor of the House of Representatives so as to include the various compounds of bromine.

 PARAGRAPH 44.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 44. Lead: Acetate, white, 3½ cents per pound; acetate, brown, gray, or yellow, 2½ cents per pound; nitrate, 2½ cents per pound; arsenate, resinate, and all other lead compounds not specially provided for, 80 per centum ad valorem.

ACT OF 1909.

PAB. 58. Lead: Acetate of, white, three cents per pound; brown, gray, or yellow, two cents per pound; nitrate of, two and one-fourth cents per pound; * * *

PAB. 3. * * * chemical compounds, * * * and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAB. 57. Lead, acetate of, white, and nitrate of, $1\frac{1}{2}$ cents per pound; acetate of, brown, gray, or yellow, 1 cent per pound; all other lead compounds not specially provided for in this section, 20 per centum ad valorem.

LEAD COMPOUNDS.

(See Survey A-15.)

LEAD ACETATE.

Description and uses.—Lead acetate, often called sugar of lead, is the most soluble of the common lead salts. It is on the market as (1) "white" or pure acetate of lead and (2) "brown" (also "gray" or "yellow") acetate of lead, an impure grade of the lead salt. White acetate of lead is also known and sold as "crystals," while the brown grade is called "granular." Other qualities of both the white and brown acetate of lead are sold as "broken" or "broken cakes." Lead acetate is one of the most important of lead salts. It is used in the manufacture of pigments and in the preparation of alum mordants for dyeing cloth and some fibers; in medicine, in the preparation of insecticides, and in chemical laboratories as a reagent. The basic lead acetate is used to some extent for weighting silk.

Production.—Lead acetate is usually made by the action of acetic acid upon litharge. In the production of "brown" sugar of lead, pyroligneous acid (crude acetic acid or wood vinegar) is used. The brown color is due to the dissolved impurities in pyroligneous acid. Lead acetate may also be made directly from metallic lead or white lead. Basic lead acetate is prepared by dissolving litharge in acetic acid. The output in 1919 (preliminary figures) was 4,183,600 pounds, valued at \$552,400.

Imports of lead acetate prior to the war were sporadic and negligible compared with domestic production. They reached a maximum of 128,433 pounds in 1914. During the war and through the first nine months of 1921 there were practically no imports of lead acetate.

Exports.—Statistics not available.

LEAD NITRATE.

Description and uses.—Lead nitrate is the compound formed by the action of nitric acid on litharge, and usually costs more than lead acetate, due to the higher cost of nitric acid. It is used in dyeing and calico printing, for the production of mordants, in insecticides, in the manufacture of matches and lead chromate pigments.

Production.—Lead nitrate is made by dissolving some form of lead, usually litharge, in dilute nitric acid and crystallizing the lead nitrate from the solution. Statistics are combined with "all other lead compounds," page 180.

Imports of lead nitrate prior to the war were less than 200,000 pounds, and during the war years practically ceased. Since the war, the maximum import has been about 4,000 pounds during the first nine months of 1921.

Exports.—Statistics not available.

LEAD ARSENATE.

Description and uses.—Lead arsenate is a white, crystalline compound, which is extremely poisonous, and hence is used chiefly in the manufacture of insecticides.

Production.—It is made by the action of a soluble lead salt on a solution of sodium arsenate, with subsequent concentration and crystallization. Domestic production in 1914 amounted to 8,641,900 pounds, valued at \$511,700. In 1919 (preliminary figures) the output was 11,465,800 pounds, valued at \$2,090,300.

Imports and exports.—Statistics not available.

Important changes in classification.—Mentioned specifically for the first time.

LEAD RESINATE.

Description and uses.—Lead resinate is one of the most important of the paint and varnish driers. It is a yellowish white, poisonous paste, and is used also as a drier in printing inks. Contrasted with manganese and cobalt driers, lead resinate gives toughness of film with no darkening effect, rather than speed in drying. There are two grades, precipitated and fused.

Production.—The precipitated grade is made by heating a solution of lead acetate and rosin oil. The fused grade is made by heating litharge and rosin. Since the war domestic manufacturers have been able to fill all demands.

Imports in 1914 were 61,107 pounds of precipitated lead resinate, valued at \$1,099, and 56,560 pounds of the fused resinate, valued at \$4,799. Imports for recent years are not available, but the quantity has not been large.

Exports.—Statistics not available.

Important changes in classification.—New specific provision.

ALL OTHER LEAD COMPOUNDS.

Forty-six different lead compounds were imported during 1914, but only 13 of these in amounts greater than \$100 in value. There are a few salts of lead not specially provided for in the act of 1913 which are commercially important. Lead salts are used as reagents in chemical laboratories, in paint driers, and for the manufacture of rubber, but the quantities required are usually small.

Production in the United States of lead acetate, lead nitrate, and other lead compounds for the calendar year 1914 was 7,290,936 pounds, valued at \$474,430. In 1919 (preliminary figures) the output of lead salts (exclusive of arsenate and acetate) was valued at \$335,500. Germany, Great Britain, Belgium, and France manufacture lead salts and other lead components in considerable quantities.

Imports of all other lead compounds in 1914 were 102,899 pounds, valued at \$9,348. Imports decreased greatly during the war, and since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 4,510 | \$242 | \$0.05 | \$48 | 20 |
| 1919..... | 6,970 | 1,039 | .14 | 208 | 20 |
| 1920..... | 14,063 | 2,307 | .16 | 461 | 20 |
| 1921 (9 months)..... | 276 | 61 | .22 | ..... | 20 |

Exports.—Statistics not available.

PARAGRAPH 45.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 45. Licorice, extracts of, in pastes, rolls, or other forms, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 29. Licorice, extracts of, in paste, rolls, or other forms, two and one-half cents per pound.

PAR. 40. Licorice, extracts of, in pastes, rolls, or other forms, 1 cent per pound.

LICORICE EXTRACT.

(See Survey A-10.)

Description and uses.—Licorice extract is a dried decoction of licorice root. It is sold as a "paste" in cases of 250 to 400 pounds and as stick or roll licorice in small cylinders 6 to 9 inches long and one-half to 1 inch in thickness. The paste is used almost entirely in chewing tobacco, and the roll and stick forms in pharmacy and confectionery.

Production.—Licorice extract is extensively produced in Italy. Lesser amounts are manufactured in Russia, Spain, Turkey, and other European countries. It is also extensively manufactured in America from the imported root, and it is prepared chiefly by tobacco manufacturers for their own use. American production is characterized by a higher type of mechanical process than that used abroad, which is chiefly dependent upon cheap hand labor. The root yields about one-fifth of its weight in extract. The production of extract in the United States may be estimated from the root imported to be about 17,000,000 pounds annually. Imports of licorice extract are usually of a high grade, and are used mainly in pharmacy.

Imports come chiefly from Spain. They have continued to increase under the successively decreasing rates of recent acts. Trade in this product has also grown at the expense of that of licorice root, owing to the greater bulk of the latter and the shipping restrictions imposed

under war conditions. During the year 1909, when it was dutiable at 4½ cents a pound, 520,446 pounds of licorice extract entered. For the years 1910–1913, at 2½ cents a pound, the average annual amount was 820,205 pounds. During the years 1915–1918, when it was dutiable at 1 cent per pound, the average annual imports increased to 1,162,437 pounds. Revenues have decreased with the diminution in rate. For 1909–1913 they averaged \$22,244 annually; for 1915–1918, \$11,624. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-----------|-------------|---------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 399,146 | \$159,698 | \$0.40 | \$3,991 | 2.50 |
| 1919..... | 871,178 | 581,909 | .67 | 8,712 | 1.50 |
| 1920..... | 1,798,358 | 730,793 | .41 | 17,984 | 2.46 |
| 1921 (9 months)..... | 802,468 | 225,078 | .28 | ..... | ..... |

Exports.—Statistics not available.

PARAGRAPH 46.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 46. Lime, citrate of, 7 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 613. Lime, citrate of [Free].

PAR. 41. Lime, citrate of, 1 cent per pound.

CITRATE OF LIME.

(See Survey A-1.)

Description and uses.—Citrate of lime is an intermediate substance obtained in the manufacture of citric acid from the juice of lemons or other citrus fruits. It is used only for the manufacture of citric acid.

Domestic production.—Citrate of lime is produced in California from cull lemons, but in amounts much below imports. (See par. 1, p. 13.)

Imports for the fiscal year 1913 amounted to 5,526,954 pounds, valued at \$756,309. Imports increased in 1916 to 8,127,364 pounds, valued at \$1,763,652, and yielding a revenue of \$81,273. Imported citrate of lime comes almost entirely from Sicily. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,981,395 | \$773,812 | \$0.26 | \$29,614 | 3.83 |
| 1919..... | 3,864,330 | 1,568,261 | .41 | 38,643 | 2.44 |
| 1920..... | 12,490,196 | 3,027,823 | .24 | 124,902 | 4.13 |
| 1921 (9 months)..... | 784,966 | 116,157 | .16 | ..... | ..... |

Exports.—Statistics not available.

Suggested changes.—The rates of duty between citrate of lime (7 cents per pound) and citric acid in paragraph 1 (12 cents per pound) are maladjusted. Citrate of lime is a raw material used for the manufacture of citric acid, 2 pounds of citrate of lime being required to produce 1 pound of citric acid; hence a duty of 7 cents per pound on citrate of lime is equivalent to 14 cents per pound on the citric-acid content, which is 2 cents greater than the duty provided for citric acid. Therefore manufacturers engaged in converting citrate of lime into citric acid are placed at a disadvantage of 2 cents per pound in purchasing their raw material, as compared with imported citric acid.

PARAGRAPH 47.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 47. Magnesium: Carbonate, precipitated, 2½ cents per pound; chloride, three-fourths of 1 cent per pound; sulphate or Epsom salts, one-half of 1 cent per pound; oxide, medicinal, 7 cents per pound; calcined magnesia not suitable for medicinal use and calcined magnesite, including dead burned and grain, three-fourths of 1 cent per pound; and magnesite, crude or ground, one-half of 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 31. Magnesia and carbonate of, medicinal, three cents per pound; calcined, medicinal, seven cents per pound; sulphate of, or Epsom salts, one-fifth of one cent per pound.

PAR. 3. * * * chemical compounds, * * * and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 618. Magnesite, crude or calcined, not purified [Free].

PAR. 42. Magnesia: Calcined, 3½ cents per pound; carbonate of, precipitated, 1½ cents per pound; sulphate of, or Epsom salts, 1½ cent per pound.

PAR. 5. * * * chemical * * * compounds, * * * and salts, * * * not specially provided for in this section, 15 per centum ad valorem.

PAR. 539. Magnesite, crude or calcined, not purified [Free].

MAGNESIUM COMPOUNDS.

(See Survey A-10.)

MAGNESIUM CARBONATE, PRECIPITATED.

Description and uses.—Magnesium carbonate is a white insoluble substance. The pure product is used in medicine, in tooth and face powders, metal and glass polishes, and in some paints. Crude carbonate is used extensively as an insulating covering for furnaces and steam pipes.

Production in 1919 (preliminary figures) was 2,064,700 pounds, valued at \$85,700.

Imports in 1914 were 58,683 pounds, chiefly from England. They decreased during the war, and since then have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 5,094 | \$1,101 | \$0.22 | \$76 | 6.94 |
| 1919..... | 14,930 | 1,512 | .10 | 224 | 14.81 |
| 1920..... | 15,172 | 1,701 | .11 | | |
| 1921 (9 months)..... | | | | | |

Exports.—Statistics not available.

MAGNESIUM CHLORIDE.

Description and uses.—Magnesium chloride—an important magnesium compound—is used as a raw material for the manufacture of metallic magnesium, which is fast becoming of great industrial importance. It is also used along with calcined magnesia in making oxychloride cement, which serves for floors, artificial marble, and stucco work.

Production.—It was not produced in this country prior to the war. Our needs were supplied by imports from Germany, where it is obtained as a by-product in the purification of potash salts at Stassfurt. A large production was developed in the United States during the war, chiefly as a by-product of the salt industry, particularly from the salt brines in Michigan. Statistics of production are not available.

Imports for 1914 were as follows: Commercial crystals, 2,515,752 pounds, valued at \$11,233, 75 per cent from Germany; chemically pure crystals, 3,030,936 pounds, valued at \$34,180, and chemically pure anhydrous, 35,438 pounds, valued at \$1,513, all from Germany. Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 13,076 | \$1,619 | \$0.12 | 243 | 15 |
| 1919..... | 11,200 | 537 | .05 | 81 | 15 |
| 1920..... | 454,334 | 7,098 | .01 | 1,065 | 15 |
| 1921 (9 months)..... | 4,263,941 | 48,518 | .01 | | 15 |

Exports.—Statistics not available.

Important changes in classification.—Because of its importance for industrial uses and the fact that it was imported in large quantities prior to the war, magnesium chloride was specially provided for.

MAGNESIUM SULPHATE (EPSOM SALTS).

Description and uses.—Magnesium sulphate (Epsom salts) is a white, crystalline salt which is readily soluble in water. It is used extensively for sizing cotton goods and for weighting silks, paper,

and leather. The purified magnesium sulphate is used in the manufacture of laxative mineral water and for medicinal uses.

Production in 1914 was 29,265,115 pounds, valued at \$297,000. The 1919 production was double that of 1914, or 58,696,000 pounds, valued at \$1,497,000 (preliminary figures). Some natural deposits of Epsom salts, which before the war could not compete with the imported product, are now being worked. Germany produces enormous quantities as a by-product from the Stassfurt potash deposits.

Imports in 1914 were 18,549,599 pounds, chiefly from Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|---------------|--------|-------------|-------|------------------------|
| | <i>Pounds</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,045 | \$196 | \$0.10 | \$2 | 1.05 |
| 1919..... | 17,647 | 1,473 | .08 | 18 | 1.20 |
| 1920..... | 1,803,799 | 66,944 | .04 | 1,804 | 2.69 |
| 1921 (9 months)..... | 8,282,870 | 69,221 | .01 | | |

Exports.—Statistics not available.

MAGNESIUM OXIDE AND CALCINED MAGNESIA.

Description and uses.—The term magnesia refers to magnesium oxide. The term calcined magnesia is sometimes confused with calcined magnesite because of similar chemical composition. Strictly speaking, calcined magnesia is restricted to those grades of magnesium oxide obtained from other magnesium salts, or by chemical processing of dolomite rather than to the more impure product obtained by calcination of magnesite (see calcined magnesite, p. 136). Magnesium oxide, medicinal, is prepared by calcination of precipitated magnesium carbonate and must conform to specifications of the United States Pharmacopoeia. Technical calcined magnesia is used largely as an insulating material.

Production of magnesium oxide, calcined, in 1919 (preliminary figures) was 9,031,600 pounds, valued at \$1,176,860. It is likely that this production was chiefly from magnesite.

Imports of calcined magnesia before the war ranged between 60,000 and 110,000 pounds per year. They decreased greatly during the war to about 12,000 pounds in 1918 (fiscal year). Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 423 | \$312 | \$0.74 | \$15 | 4.74 |
| 1919..... | 22,637 | 11,358 | .50 | 792 | 6.98 |
| 1920..... | 26,850 | 9,093 | .34 | 940 | 10.34 |
| 1921 (9 months)..... | 18,992 | 5,042 | .26 | | |

Exports.—Statistics not available.

Important changes in classification.—Calcined magnesia (par. 42, act of 1913) was changed to "magnesium oxide, medicinal," because of the difficulty in distinguishing the technical grades of calcined magnesia from calcined magnesite, which is free of duty under para-

graph 539, act of 1913. Under the act of 1909, calcined magnesia was restricted to the medicinal grade. Because of their similar chemical composition, calcined magnesia and calcined magnesite have been given the same tariff treatment. (Reclassification Report, pp. 52, 53.)

Suggested changes.—Page 16, paragraph 47, line 21: Insert "or calcined magnesia" after "oxide," so as to provide specifically for both the medicinal and the nonmedicinal forms.

Page 16, paragraph 47, line 22: Insert "oxide or" before "calcined magnesia not suitable."

MAGNESITE, CRUDE, GROUND, AND CALCINED.

(See Survey FL-24.)

Description and uses.—Magnesite is a natural carbonate of magnesium. When pure it contains 52.4 per cent carbon dioxide (CO₂) and 47.6 per cent magnesia (MgO). It is harder and heavier than limestone, which it most nearly resembles. Calcined magnesite is a highly refractory material which has no thoroughly satisfactory substitute in the open-hearth process for making steel. Caustic magnesite is the calcined product which still contains 3 to 8 per cent of carbon dioxide. It is used chiefly with magnesium chloride (see *supra*) in oxychloride cement for floors, artificial marble, and stucco work. Dead-burned magnesite has had all traces of carbon dioxide removed. It comes in the form of brick and grains and is used as lining for furnaces. We consume the largest amount, having used 50 per cent of the world output in 1913.

Production.—Before the war fully 90 per cent of the domestic supply of crude magnesite was imported. In 1917 the domestic consumption was over 355,000 tons, valued at more than \$3,700,000. Eighty-nine per cent was of domestic origin, valued at \$2,899,818 at the mines. A new industry was developed in Washington, while that of California was greatly expanded. Production in 1919 decreased to 162,000 tons, due to competition from Canada, and a more general use of substitutes, notably burnt dolomite, in metallurgical plants and even in the paper-pulp trade. In 1920 there was an increase to 275,000 tons.

Imports of crude magnesite are from Canada, Austria-Hungary, Greece, Mexico, and Venezuela. Prior to the war they were fairly constant at about 16,000 tons annually, but in 1917 they reached a maximum of 89,646 tons, valued at \$748,951. Imports of calcined magnesite prior to the war reached a maximum of 172,661 tons, valued at \$1,731,443. They decreased to only 4,724 tons in 1917. Statistics since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------------|--------------|----------|-------------|
| Crude magnesite: | Tons. | | |
| 1918..... | 4,319 | \$71,871 | \$16.64 |
| 1919..... | 8,697 | 103,311 | 18.13 |
| 1920..... | 29,955 | 406,204 | 13.56 |
| 1921 (9 months)..... | 37,789 | 412,930 | 10.93 |
| Calcined magnesite: | | | |
| 1918..... | 17,539 | \$55,384 | 48.77 |
| 1919..... | 8,456 | 270,721 | 32.02 |
| 1920..... | 13,196 | 373,165 | 28.28 |
| 1921 (9 months)..... | 4,697 | 179,561 | 38.23 |

Exports.—Statistics not available.

Important changes in classification.—(See magnesium oxide and calcined magnesia, p. 135.)

Suggested changes.—Magnesite in any form is an earthy or mineral product and not a chemical, as are the other products in this paragraph. Provision for "calcined magnesite, including dead-burned and grain [rate]; and magnesite, crude or ground [rate]," might therefore be transferred to Schedule 2 and given a separate paragraph to follow paragraph 204.

MANGANESE COMPOUNDS.

Suggested changes.—Manganese resinate, of which 351,809 pounds, valued at \$8,593, were imported during 1914, is a paint drier of considerably more importance than lead resinate (par. 44), and is not mentioned in H. R. 7456. It is manufactured by a large number of domestic concerns. Manganese sulphate, crude, was imported in 1914 to the extent of 37,981 pounds, valued at \$1,448, and is not mentioned in the proposed tariff. Manganese borate, of which 176,384 pounds, valued at \$15,733, were imported in 1914, is also not mentioned in H. R. 7456.

It is suggested that the following paragraph covering manganese salts be inserted to follow paragraph 47, covering magnesium compounds:

Manganese borate, [rate]; manganese resinate, [rate]; manganese sulphate, [rate]; and other manganese compounds and salts, not specially provided for, [rate].

PARAGRAPH 48.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 48. Menthol, 25 per centum ad valorem; camphor, crude, natural, 1 cent per pound; camphor, refined or synthetic, 6 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 65. * * * medicinal preparations * * * twenty-five per centum ad valorem: * * *

PAR. 43. Menthol, 50 cents per pound.

PAR. 12. Camphor, refined, and synthetic camphor, six cents per pound.

PAR. 36. Gums: * * * camphor, crude, natural, 1 cent per pound; camphor, refined and synthetic, 5 cents per pound; * * *

PAR. 527. Camphor, crude, natural [Free].

MENTHOL.

(See Survey A-10.)

Description and uses.—Menthol, or peppermint crystals, is a medicinal obtained from peppermint oil. The pure product is sold as colorless crystals; these have the odor and taste of peppermint. Menthol is employed chiefly in solution, including its use in various throat and nasal sprays, as a salve (when mixed with petrolatum or other greases), and in cough drops.

Production.—Most of the menthol used in the United States is imported from Japan, notwithstanding the fact that the United States produces over half of the world's supply of peppermint oil. Japanese peppermint oil contains a larger proportion of menthol than the American and European oils and is, therefore, used for menthol production rather than for flavoring purposes. Japanese production of menthol has increased rapidly from 149,135 pounds, valued at \$275,540, in 1910, to a maximum of 497,318 pounds, valued at \$958,259, in 1915, and since then (through 1918) has exceeded 400,000 pounds annually. The total exports of menthol from Japan for 1910–1917 averaged 304,764 pounds a year. The United States has been the largest consumer.

Imports.—Before 1913 menthol was not specifically provided for in the tariff, but was dutiable at 25 per cent under one of the general clauses. In the act of 1913 a specific duty of 50 cents per pound was imposed. This duty was equivalent to an ad valorem rate of only 16.66 per cent in 1914, and this reduction in rates was followed by a striking increase in the imports. From 1910 to 1913 the imports had averaged only 43,801 pounds per year and had yielded an average revenue of \$40,987. For 1914–1918 imports averaged 145,873 pounds, and the average annual revenue for the same period was \$74,804. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 150,579 | \$412,448 | \$2.73 | \$75,440 | 18.29 |
| 1919..... | 296,179 | 1,583,430 | 5.34 | 148,090 | 9.35 |
| 1920..... | 203,911 | 1,564,982 | 7.60 | 102,956 | 6.58 |
| 1921 (9 months)..... | 119,686 | 661,488 | 4.99 | ..... | ..... |

Exports.—Statistics not available.

CAMPHOR.

(See Survey A-9.)

Description and uses.—Camphor is a chemical compound derived either from the distilled wood or other parts of the camphor tree, or by synthetic processes from turpentine. The act of 1913 recognizes the classes described as follows:

Crude camphor is obtained by the first distillation of camphor wood; it contains camphor oil and other impurities and is redistilled or sublimed to produce refined camphor and camphor oil. Synthetic camphor is usually produced from pinene, the chief constituent of turpentine oil.

Camphor is used chiefly in the manufacture of pyroxylin plastics and allied products, such as photograph films; it is also employed in pharmacy and medicine, and achieved an extraordinary consumption during the influenza epidemic.

Production.—Commercial camphor is chiefly produced by the Japanese in Formosa through a Government monopoly which practically

controls the world trade. Formerly much exported in a crude condition, it is now usually refined in Formosa or Japan. Annual exports of Japanese camphor in recent years are estimated at between 5,000,000 and 7,000,000 pounds, of which about five-sixths is from Formosa. Camphor is also commercially produced in China, but wasteful methods have diminished its supply. The camphor tree has been introduced into India, Java, southern Europe, and also into Florida, but without important commercial results in camphor production. Refining is carried on in this country chiefly by the manufacturers of pyroxylin plastics, the principal consumers. Camphor oil, a by-product of refining, is important in perfume manufacture. Synthetic camphor has been rather extensively manufactured in Germany, and about 1907 was also produced here; but the fall of camphor prices eliminated the American industry and probably damaged that abroad. Production of synthetic camphor in this country was established again during the war, but was discontinued following the signing of the armistice, due to low prices of natural camphor. It is now reported (December, 1921) that production will be resumed again.

Imports of crude camphor, 1909-1913, averaged 2,875,396 pounds, valued at \$861,029. During 1915-1918 an average of 4,658,483 pounds, valued at \$1,427,311, is reported. Imports of refined camphor, 1909-1913, averaged 425,403 pounds, valued at \$148,112; and for 1915-1918, 2,281,035 pounds, valued at \$996,145. Insignificant amounts of synthetic camphor were imported in 1915 and 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|---------------------------|----------------|-------------|-------------|----------|--------------------------------|
| CRUDE CAMPHOR. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 3,474,282 | \$1,547,180 | \$0.44 | \$34,743 | 2.25 |
| 1919..... | 2,679,320 | 2,468,884 | .92 | 26,793 | 1.09 |
| 1920..... | 3,716,937 | 5,012,782 | 1.34 | 37,190 | .74 |
| 1921 (9 months).... | 961,543 | 718,713 | .75 | | |
| REFINED CAMPHOR. | | | | | |
| 1918..... | 1,082,184 | \$863,381 | \$0.79 | \$54,109 | 6.27 |
| 1919..... | 1,809,684 | 3,079,986 | 1.70 | 90,484 | 2.94 |
| 1920..... | 941,103 | 1,913,282 | 2.03 | 47,055 | 2.46 |
| 1921 (9 months).... | 553,224 | 672,403 | 1.22 | | |
| SYNTHETIC CAMPHOR. | | | | | |
| 1920 ¹ | 120,320 | \$234,690 | \$1.95 | \$5,016 | 2.56 |
| 1921 (9 months).... | 120,496 | 17,608 | .15 | | |

¹ No imports of synthetic camphor in 1918 and 1919.

Exports.—Statistics not available.

PARAGRAPH 49.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 49. Oils, animal: Sod, herring, and menhaden, 8 cents per gallon; whale, seal, and sperm, 10 cents per gallon; cod and cod-liver, 12½ cents per gallon; and all fish oils, not specially provided for, 20 per centum ad valorem; wool grease, crude, including that known commercially as degreas or brown wool grease, one-half of 1 cent per pound; wool grease, not crude, including adeps lanæ, hydrous and anhydrous, 1 cent per pound; all other animal oils and greases, not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

PAR. 40. Seal, herring, whale, and other fish oil including sod oil, not specially provided for in this section, eight cents per gallon.

PAR. 290. * * * wool grease, including that known commercially as degreas or brown wool grease, crude and not refined, or improved in value or condition, one-fourth of one cent per pound; refined, or improved in value or condition, and not specially provided for in this section, one-half of one cent per pound.

PAR. 3. * * * rendered oils * * * and all greases, not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 34. Cod-liver oil, fifteen cents per gallon.

PAR. 580. Grease, * * * and oils (excepting fish oils), such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather, and which are fit only for such uses, and not specially provided for in this section [Free].

ACT OF 1913.

PAR. 44. Oils, rendered: Sod, seal, herring, and other fish oil, not specially provided for in this section, 3 cents per gallon; whale oil, 5 cents per gallon; sperm oil, 8 cents per gallon; wool grease, including that known commercially as degreas or brown wool grease, crude and not refined or improved in value or condition, ¼ cent per pound; refined or improved in value or condition, and not specially provided for in this section, ½ cent per pound; lanolin, 1 cent per pound; all other animal oils, rendered oils and greases, and all combinations of the same, not specially provided for in this section, 15 per centum ad valorem.

PAR. 561. Oils: * * * cod, cod liver, * * * [Free].

PAR. 498. Grease, * * * and oils (excepting fish oils), not chemically compounded, such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather, not specially provided for in this section [Free].

OILS AND FATS.

(See Survey A-11.)

GENERAL.

The "rendered oils" (animal) in paragraph 49 resemble in chemical composition and use the "expressed oils" (vegetable) in paragraph 50. Therefore a general discussion of these two paragraphs and of paragraph 1626 of the free list is desirable.

There is no essential difference between a vegetable oil and a fat. Both are mixtures of chemical compounds known as glycerides, which are a combination of glycerin with various fatty acids, such as stearic, oleic, palmitic, and others. Those combinations which are liquid at ordinary temperatures are known as oils, while those which

are solid at ordinary temperatures are known as fats. Although most of the so-called oils are obtained either from the fruit or the seed of plants (for example, olive, peanut, and linseed oils), not all vegetable glycerides are oils; some are solid fats or butters, as cacao and nutmeg butter and palm-kernel and coconut oil, which, although liquid in tropical countries, whence they come, are fairly solid in the Temperate Zones. On the other hand, animals as a rule produce fats which are hard at ordinary temperatures (for example, lard, suet, and wool grease). There are, however, exceptions to this generalization, as fish and whale oils are liquid. The differences between the various fats and fatty oils are due primarily to the variation in the relative proportions of the fatty acids present. These fats and fatty oils have the following general properties and uses:

(1) If of a good quality, most of them are edible, and, in fact, are an essential part of the diet of man and the food of animals.

(2) Soap and glycerin are formed by the action of caustic soda or caustic potash on fats and fatty oils.

(3) Some of the fatty oils when spread out in a thin layer absorb oxygen from the air, thereby being converted into a hard, elastic, waterproof film. This property accounts for the large use of oils in the manufacture of paint and varnish, oilcloth, linoleum, patent leather, and various waterproofing coatings.

(4) The liquid oils when treated with hydrogen under suitable conditions combine chemically with the hydrogen and are thereby converted into solid fats, which are more suitable than the original oils for soap making and for food purposes, as lard substitutes, or in the manufacture of butter substitutes. (The manufacture of such "hydrogenated" or hardened oils has developed on a large scale in the past decade, both vegetable and fish oils being used.)

(5) Other minor uses include the softening of leather, lubrication, burning for illumination, tempering steel, manufacture of "vulcanized oils" used by the rubber industry, the manufacture of textiles, and in medicine.

The relation between the duty on the raw material (seeds) and the duty on the finished product (oils) should be given attention when considering duties on these products.

All fish oils of American fisheries are admitted free of duty under that portion of paragraph 1624 which reads: "* * * Spermaceti, whale, and other fish oils of American fisheries, and all fish and other products of such fisheries."

SOD OIL.

Description and uses.—Chamois and similar leathers are saturated with whale or fish oil during manufacture, allowed to ferment, and part of the oil pressed out. The oil remaining in the leather is removed with alkali and then liberated with an acid. This recovered oil is known as sod oil, and in Europe as *degras*. It is in great demand for treating leather.

Production.—Statistics not available.

Imports and exports.—Combined with "other fish oils," pages 145 and 146.

HERRING OIL.

Description and uses.—Herring oil is obtained from several species of herring, found principally in the North Sea, near Japan, and to some extent in American waters. Its uses are somewhat like those of menhaden oil, such as a substitute for linseed oil in the manufacture and stuffing of leather and similar products.

Production of herring oil since 1912 has been as follows:

| Year. | Pounds. | Gallons. ¹ | Year. | Pounds. | Gallons. ¹ |
|-----------|-----------|-----------------------|------------------------------------|-----------|-----------------------|
| 1912..... | 1,888,000 | 245,200 | 1918..... | 774,000 | 100,520 |
| 1914..... | 1,512,000 | 196,870 | 1919..... | 1,431,230 | 185,874 |
| 1916..... | 1,476,000 | 191,690 | 1920..... | 2,852,840 | 370,500 |
| 1917..... | 1,637,000 | 212,600 | 1921 (9 months) ² | 1,512,073 | 196,373 |

¹ Converted at 7.7 pounds per gallon.

² Preliminary figures subject to revision.

Imports and exports are combined with "other fish oils," pages 145 and 146.

MENHADEN OIL.

Description and uses.—Menhaden oil is the principal fish oil produced in this country along the Atlantic coast. The fish is cooked with water or steam and then pressed to separate the oil. The residual press cake is sold as fertilizer. Menhaden oil is used in tempering steel and as a substitute for linseed oil in the manufacture of paints, patent leather, and similar products.

Production of menhaden oil since 1912 has been as follows:

| Year. | Pounds. | Gallons. ¹ | Year. | Pounds. | Gallons. ¹ |
|-----------|------------|-----------------------|------------------------------------|------------|-----------------------|
| 1912..... | 33,009,000 | 4,287,000 | 1918..... | 12,370,000 | 1,606,500 |
| 1914..... | 16,265,000 | 2,112,000 | 1919..... | 12,827,641 | 1,666,000 |
| 1916..... | 20,598,000 | 2,675,000 | 1920..... | 27,573,401 | 3,581,000 |
| 1917..... | 18,640,000 | 2,421,000 | 1921 (9 months) ² | 21,111,135 | 2,742,000 |

¹ Converted at 7.7 pounds per gallon.

² Preliminary figures subject to revision.

Import and export figures are combined with "other fish oils," pages 145 and 146.

WHALE OIL.

Description and uses.—Whale oil is used for illumination, making leather dressing, and when hydrogenated produces edible and soap fats. In Norway hydrogenated whale oil is of great importance and is used in the manufacture of olemargarine. In pressing whale oil a by-product of stearin is obtained, which is used principally in the manufacture of soap and as a lubricant.

Production of whale oil in the United States since 1912 has been as follows:

| Year. | Pounds. | Gallons. ¹ | Year. | Pounds. | Gallons. ¹ |
|-----------|-----------|-----------------------|------------------------------------|------------|-----------------------|
| 1912..... | 931,000 | 120,910 | 1918..... | 431,000 | 55,975 |
| 1914..... | 632,000 | 82,080 | 1919..... | 8,712,308 | 1,132,000 |
| 1916..... | 1,691,000 | 219,620 | 1920..... | 23,051,811 | 2,994,000 |
| 1917..... | 1,193,000 | 154,940 | 1921 (9 months) ² | 1,018,820 | 132,315 |

¹ Converted at 7.7 pounds per gallon.

² Preliminary figures subject to revision.

Imports in 1914 were 373,500 gallons (including some sperm oil), nearly 75 per cent coming from Canada. Imports increased to 1,134,021 gallons in 1918. Imports of whale oil alone since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-----------|-------------|----------|------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 318,609 | \$285,347 | \$0.89 | \$15,930 | 5.58 |
| 1919..... | 521,035 | 572,747 | 1.09 | 26,052 | 4.55 |
| 1920..... | 83,788 | 75,176 | .86 | 4,339 | 5.77 |
| 1921 (9 months)..... | 366,277 | 135,212 | .37 | | |

Exports are combined with "other fish oils," page 146.

SEAL OIL.

Description and uses.—Seal oil is obtained from the blubber of various species of seal. It is used as a lubricant, as illuminating oil in lighthouses, and as an adulterant of cod-liver oil. Poorer qualities are used in the manufacture of soft soaps and in the leather industry.

Production is small in the United States. There are legal restrictions on the killing of seals.

Imports have been somewhat irregular. In 1914 the import, chiefly from Newfoundland, was 179,734 gallons; for 1915–1917 the average was about 500,000 gallons. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-----------|-------------|----------|------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 625,839 | \$647,785 | \$1.03 | \$18,775 | 2.90 |
| 1919..... | 23,121 | 21,598 | .93 | 694 | 3.21 |
| 1920..... | 13,083 | 11,761 | .90 | 393 | 3.34 |
| 1921 (9 months)..... | 399,010 | 109,357 | .27 | | |

Exports.—Statistics combined with "other fish oils," page 146.

SPERM OIL.

Description and uses.—Sperm oil is obtained from the blubber and head cavity of the sperm whale. The head oil is considered more valuable than the body oil, but the two are frequently mixed. On standing, a solid portion separates, which is pressed out and sold as spermaceti.

Arctic sperm oil is obtained from the bottlenose whale. This oil gums more easily than sperm oil, and therefore does not command so high a price. Sperm oil, because of its great viscosity, is valuable as a lubricant for light, rapid-running machinery; it is also used for illumination, for leather dressing, and for tempering steel.

Production of sperm oil in the United States since 1912 has been as follows:

| Year. | Pounds. | Gallons. ¹ | Year. | Pounds. | Gallons. ¹ |
|-----------|-----------|-----------------------|------------------------------------|-----------|-----------------------|
| 1912..... | 4,083,000 | 559,320 | 1918..... | 743,000 | 101,782 |
| 1914..... | 2,495,000 | 341,790 | 1919..... | 649,701 | 89,000 |
| 1916..... | 4,560,000 | 624,660 | 1920..... | 3,125,525 | 428,163 |
| 1917..... | 3,567,000 | 468,632 | 1921 (9 months) ² | 52,421 | 7,181 |

¹ Converted at 7.3 pounds per gallon.

² Preliminary figures subject to revision.

Imports during 1914 were 157,142 gallons, not including that listed as whale oil under the old law. Imports decreased to 48,178 gallons in 1917 and 60,288 gallons in 1918. Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|-----------------|----------|-------------|---------|--------------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 60,238 | \$70,223 | \$1.16 | \$4,819 | 6.06 |
| 1919..... | 124,747 | 124,511 | .99 | 9,980 | 8.02 |
| 1920..... | 93,783 | 98,083 | .98 | 7,963 | 8.14 |
| 1921 (9 months)..... | 1,739 | 637 | .37 | | |

Exports.—Combined with “other fish oils,” page 146.

COD AND COD-LIVER OILS.

Description and uses.—Genuine cod and cod-liver oils are derived from the liver of the cod, a fish found chiefly along the coasts of Norway, Scotland, North America, Japan, and Siberia. The best grades of oil are medicinal, and known as cod-liver oil; inferior grades, known simply as cod oil, are used in currying leather and for other purposes.

Production.—To recover the medicinal oil the livers are treated with live steam in tin-lined vessels, causing the oil to exude. The large demand for oil of unobjectionable taste induced this modern method. These oils are by-products of the food-fish industry. The production of cod and cod-liver oil since 1912 has been as follows:

| Year. | Pounds. | Gallons. ¹ | Year. | Pounds. | Gallons. ¹ |
|-----------|---------|-----------------------|----------------------|-----------|-----------------------|
| 1912..... | 372,000 | 48,320 | 1918..... | 712,000 | 92,468 |
| 1914..... | 394,000 | 51,170 | 1919..... | 968,339 | 125,778 |
| 1916..... | 367,000 | 47,663 | 1920..... | 1,470,812 | 191,015 |
| 1917..... | 439,000 | 57,013 | 1921 (9 months)..... | 236,207 | 30,546 |

¹ Converted at 7.7 pounds per gallon.

² Preliminary figures subject to revision.

Imports of cod and cod-liver oils in 1914 were 14,198,000 pounds; in 1916, 10,973,000 pounds; in 1917, 16,618,000 pounds. Imports of cod oil in 1913 were 466,494 gallons, valued at \$135,969, with a revenue of \$37,319. This increased in 1918 to 1,747,791 gallons, valued

at \$1,526,382. Imports of cod-liver oil in 1918 were 262,516 gallons, valued at \$137,872, with a revenue of \$39,377. Imports are chiefly from Newfoundland, Labrador, and Canada. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|-----------------------|-----------------|-------------|-------------|
| COD OIL. | | | |
| | <i>Gallons.</i> | | |
| 1918..... | 1,007,506 | \$1,172,397 | \$1.16 |
| 1919..... | 1,152,252 | 1,107,221 | .96 |
| 1920..... | 1,044,624 | 979,891 | .94 |
| 1921 (9 months)..... | 952,060 | 361,348 | .38 |
| COD-LIVER OIL. | | | |
| 1918..... | 184,390 | \$459,840 | \$2.49 |
| 1919..... | 236,805 | 666,080 | 2.82 |
| 1920..... | 445,167 | 802,965 | 2.01 |
| 1921 (9 months)..... | 214,473 | 174,537 | .81 |

Exports.—Included in statistics of "other fish oils," page 146.
Important changes in classification.—Cod and cod-liver oils are exempt from duty under the act of 1913 (par. 561).

OTHER FISH OILS.

Description and uses.—Other fish oils include chiefly sardine and salmon oils, which are obtained principally as by-products of the fish-canning industry. The various fish oils are used extensively in the leather industry, some for adulterating linseed oil and others are hydrogenated to produce a solid fat, which may be used in the manufacture of soap.

Production of "all other fish oils" since 1912 has been as follows:

| Year. | Pounds. | Gallons. ¹ | Year. | Pounds. | Gallons. ¹ |
|-----------|-----------|-----------------------|------------------------------------|-----------|-----------------------|
| 1912..... | 1,001,000 | 130,000 | 1918..... | 954,000 | 123,900 |
| 1914..... | 1,333,000 | 173,190 | 1919..... | 8,332,412 | 1,082,132 |
| 1916..... | 1,931,000 | 250,780 | 1920..... | 7,952,464 | 1,032,788 |
| 1917..... | 3,078,000 | 399,740 | 1921 (9 months) ² | 3,076,388 | 399,530 |

¹ Converted at 7.7 pounds per gallon.

² Preliminary figures, subject to revision.

Imports of herring and other fish oils, including sod oil, in 1914 were 386,743 gallons, chiefly from Great Britain and Canada. Imports increased to 2,280,013 gallons in 1917, and decreased to 1,532,512 gallons in 1918. Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-------------|-------------|----------|------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,763,045 | \$1,197,239 | \$0.68 | \$52,891 | 4.42 |
| 1919..... | 542,112 | 437,836 | .81 | 16,263 | 3.71 |
| 1920..... | 575,842 | 402,335 | .70 | 17,375 | 4.39 |
| 1921 (9 months)..... | 149,308 | 45,634 | .30 | | |

Exports.—Exports of all fish oils since 1917, principally to Scotland, Canada, and Cuba, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-----------|-----------|-----------|---------------------|
| Quantity (gallons)..... | 566,763 | 1,065,551 | 423,292 | 47,972 |
| Value..... | \$638,757 | \$976,831 | \$406,966 | \$46,708 |

WOOL GREASE (DEGRAS) AND ADEPS LANAE.

Description and uses.—Wool grease is the fatty substance which is present in raw wool. It may be recovered either by extraction with naphtha or from the wool scouring by means of either centrifugal or acid treatment. In this country the centrifugal process is the one used in most plants. In the United States crude, brown wool grease is also known as degreas.

Lanolin, a highly purified wool grease, is a yellowish white mass which takes up water readily. It is used principally in pharmacy as a basis for salves, ointments, emulsions, and cosmetics. Crude wool grease is used principally for dressing leather; sometimes as a lubricating grease; also, to some extent, in making printing ink and in the varnish industry.

Production.—Complete figures for the production of wool grease in the United States are not available, but partial figures indicate the annual production to be about 10,000,000 pounds.

Imports of crude wool grease in 1914 were 12,284,248 pounds. Imports of partly refined wool grease have decreased from 2,691,591 pounds in 1914 to 31,268 pounds in 1918. Imports of lanolin have been quite variable. In 1914 they were 91,477 pounds; in 1916, 13,342 pounds.

Practically all of the lanolin and most of the wool grease imported in 1914 came from Germany, while England sent more crude wool grease than any other country. In the European wool-scouring mills purification of the effluent is required by law; wool grease is one of the products of this process.

Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------|-----------|--------|-------------|-------|--------------------------------|
|----------------|-----------|--------|-------------|-------|--------------------------------|

WOOL GREASE, CRUDE.

| | Pounds. | | | | Per cent. |
|----------------------|-----------|-----------|--------|---------|-----------|
| 1918..... | 1,051,118 | \$135,507 | \$0.13 | \$3,628 | 1.94 |
| 1919..... | 249,320 | 27,562 | .11 | 623 | 2.26 |
| 1920..... | 4,067,303 | 214,588 | .05 | 10,168 | 4.74 |
| 1921 (9 months)..... | 1,953,578 | 66,955 | .04 | ..... | ..... |

WOOL GREASE, REFINED OR IMPROVED IN CONDITION.

| | | | | | |
|----------------------|--------|-------|--------|-------|-------|
| 1918..... | 50 | \$3 | \$0.06 | ..... | 8.33 |
| 1919..... | 44,685 | 1,702 | .03 | \$223 | 12.13 |
| 1920..... | 20,402 | 1,332 | .06 | 102 | 7.66 |
| 1921 (9 months)..... | 57,874 | 3,370 | .06 | ..... | ..... |

LANOLIN.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,310 | \$316 | \$0.24 | \$13.00 | 4.15 |
| 1919..... | 18 | 7 | .30 | .18 | 2.57 |
| 1920..... | 2,881 | 604 | .21 | 29.00 | 4.79 |
| 1921 (9 months)..... | 1,544 | 244 | .16 | | |

Exports.—Statistics not available.

Important changes in classification.—The act of 1913, in addition to a provision for “wool grease, crude,” contains two other provisions for “refined or improved in value or condition” and “lanolin.” The provision for the intermediate grade between crude wool grease and lanolin has been omitted, as it is of small commercial importance. The term “adepts lanae, hydrous and anhydrous,” has been substituted for “lanolin,” which was found to be too restricted in its application to include all the highly purified forms of wool grease used in the pharmaceutical trade. (Reclassification Report, pp. 55, 56.)

OTHER ANIMAL OILS AND GREASES.

Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

OTHER RENDERED OILS AND COMBINATIONS.

| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
|----------------------|-----------------|----------|--------|---------|------------------|
| 1918..... | 20,518 | \$20,107 | \$0.98 | \$3,016 | 15 |
| 1919..... | 11,350 | 8,452 | .74 | 1,268 | 15 |
| 1920..... | 3,447 | 2,081 | .60 | 312 | 15 |
| 1921 (9 months)..... | 816 | 1,688 | 2.07 | | 15 |

OTHER GREASES, N. S. P. F.

| | | | | | |
|----------------------|--------|----------|--------|---------|----|
| 1918..... | | \$43,262 | | \$6,489 | 15 |
| 1919..... | 2,700 | 620 | \$0.23 | 93 | 15 |
| 1920..... | 9,076 | 1,708 | .20 | 256 | 15 |
| 1921 (9 months)..... | 27,511 | 2,146 | .08 | | 15 |

Exports.—Statistics not available.

Important changes in classification.—The provision for all combinations of animal oils (par. 44, act of 1913) has been omitted from this paragraph and given separate treatment in paragraph 53, H. R. 7456. Grease and oils such as are commonly used in soap making and wire drawing or for stuffing or dressing leather, exempt from duty under the act of 1913 (par. 498), will probably fall under the provision in this paragraph for “other animal oils and greases.”

Suggested changes.—Add “fats” to the last provision, making it read “all other animal oils, greases, and fats.”

PARAGRAPH 50.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 50. Oils, expressed or extracted: Castor oil, $4\frac{1}{2}$ cents per pound; cottonseed oil, coconut oil, and soya-bean oil, 2 cents per pound; hempseed oil, $1\frac{1}{2}$ cents per pound; linseed or flaxseed oil, raw, boiled, or oxidized, $2\frac{1}{2}$ cents per pound; olive oil, weighing with the immediate container less than forty-four pounds, $7\frac{1}{2}$ cents per pound on contents and container; olive oil, not specially provided for, $6\frac{1}{2}$ cents per pound; peanut oil, $2\frac{1}{2}$ cents per pound; poppy-seed oil, raw, boiled, or oxidized, 2 cents per pound; rapeseed oil, $1\frac{1}{2}$ cents per pound; all other expressed and extracted oils, not specially provided for, 20 per centum ad valorem.

ACT OF 1900.

PAR. 33. Castor oil, thirty-five cents per gallon.

PAR. 35. Flaxseed, linseed, and poppyseed oil, raw, boiled, or oxidized, fifteen cents per gallon of seven and one-half pounds weight.

PAR. 37. Hempseed oil, ten cents per gallon; rapeseed oil, ten cents per gallon.

PAR. 38. Olive oil, not specially provided for in this section, forty cents per gallon; in bottles, jars, kegs, tins, or other packages, containing less than five gallons each, fifty cents per gallon.

PAR. 293. * * * refined deodorized cocoanut oil, * * * three and one-half cents per pound.

PAR. 639. Oils: * * * cocoanut (not refined and deodorized), cottonseed, * * * nut oil or oil of nuts, soya-bean, * * * [Free].

PAR. 3. * * * expressed oils, * * * and all combinations of the foregoing, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

PAR. 580. * * * oils (excepting fish oils), such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather, and which are fit only for such uses, and not specially provided for in this section [Free].

ACT OF 1913.

PAR. 45. Oils, expressed: * * * castor oil, 12 cents per gallon; flaxseed and linseed oil, raw, boiled, or oxidized, 10 cents per gallon of $7\frac{1}{2}$ pounds; poppy-seed oil, raw, boiled, or oxidized, rapeseed oil, and peanut oil, 6 cents per gallon; hempseed oil, 3 cents per gallon; * * * olive oil, not specially provided for in this section, 20 cents per gallon; olive oil, in bottles, jars, kegs, tins, or other packages having a capacity of less than five standard gallons each, 30 cents per gallon; all other expressed oils and all combinations of the same, not specially provided for in this section, 15 per centum ad valorem.

PAR. 232. * * * refined deodorized cocoanut oil, * * * $3\frac{1}{2}$ cents per pound.

PAR. 561. Oils: * * * cocoanut, * * * cottonseed, * * * soya-bean, * * * [Free].

PAR. 498. * * * oils (excepting fish oils), not chemically compounded, such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather, not specially provided for in this section [Free].

* Emergency tariff act of 1921, par. 11: 26 cents per gallon.

† Emergency tariff act of 1921, par. 11: 40 cents per gallon in bulk, 50 cents per gallon in containers of less than 5 gallons.

‡ Emergency tariff act of 1921, par. 11: 20 cents per gallon.

EXPRESSED OR EXTRACTED OILS.

(See Survey A-11.)

(For a general discussion of Oils and Fats see p. 140.)

CASTOR OIL.

Description and uses.—Castor oil is obtained from castor beans, which are assessed a duty of one-half cent per pound (par. 760). On large-scale crushing about 45 per cent of the weight of the seed is obtained as castor oil.

The principal use of castor oil prior to the war was in the manufacture of alizarin assistants. It is also used as a purgative in medicine, in the manufacture of transparent soaps, and as a leather dressing. In India the oil is largely employed as a lubricant for locomotive bearings. It is also used for lubricating marine engines, for the manufacture of blended lubricating oils, and during the war it was in great demand for use as a lubricant for high-speed airplane motors.

In the preparation of the medicinal oil the outer shell of the bean is removed, and the kernels which remain are cold pressed. The cake from this expression is pressed a second and third time, and the oil obtained is used for technical purposes. The cake or meal, known as castor pomace, contains a poisonous substance, preventing its use for cattle feed, but it is a good fertilizer.

Domestic production from 1912 has been as follows:

| Year. | Pounds. | Year. | Pounds. |
|-----------|------------|-----------------------------------|------------|
| 1912..... | 23,350,000 | 1918..... | 14,184,000 |
| 1913..... | 20,423,000 | 1919..... | 24,637,203 |
| 1914..... | 22,766,000 | 1920..... | 24,187,085 |
| 1917..... | 22,902,000 | 1921 ¹ (9 months)..... | 13,966,449 |

¹ Preliminary, subject to revision.

Imports were less than 10,000 gallons prior to 1914, but increased in that year to about 190,000 gallons, valued at about \$88,000, yielding a revenue of about \$23,000. Since 1915 the imports have increased gradually until in 1918 (fiscal year) they reached 1,175,064 gallons, valued at \$1,366,573, and yielded a revenue of \$141,008. The imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-------------|-------------|-----------|------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,067,544 | \$1,518,042 | \$1.38 | \$131,706 | 8.66 |
| 1919..... | 375,033 | 504,969 | 1.34 | 45,004 | 8.91 |
| 1920..... | 171,482 | 209,384 | 1.22 | 20,578 | 9.83 |
| 1921 (9 months)..... | 16,183 | 24,128 | 1.49 | | |

Exports.—Statistics not available.

COTTONSEED OIL.

Description and uses.—Cottonseed oil is the most widely used vegetable oil, due to its suitability for both table and cooking purposes and to the fact that it forms the bulk of lard substitutes and is used in large quantities in oleomargarine, in soap, and for other technical purposes. In 1917 the lard-substitutes industry consumed 1,069,214,000 pounds; the soap industry, 126,390,000 pounds; and the oleomargarine industry, 68,652,000 pounds of cottonseed oil. Its use for lard substitutes represented about 80 per cent of the total output in 1917.

Production of cottonseed oil depends on the cotton crop and not on the demand for the oil. To secure the oil the seed is first screened and sieved to remove foreign material and passed through delinters to remove short cotton hairs. These linters are sold to mattress makers, paper makers, or guncotton manufacturers. The seeds are then hulled to separate the outer shell, thus liberating the soft oil-containing meats, which are heated and pressed in either hydraulic or expeller presses. The residual cake is a valuable cattle feed and fertilizer. Production since 1912 has been as follows:

| Year. | Pounds. | Year. | Pounds. |
|-----------|---------------|------------------------------------|---------------|
| 1912..... | 1,435,401,000 | 1918..... | 1,283,823,000 |
| 1914..... | 1,789,777,000 | 1919..... | 1,430,002,962 |
| 1916..... | 1,492,430,000 | 1920..... | 1,141,399,742 |
| 1917..... | 1,343,849,000 | 1921 (9 months) ¹ | 779,049,528 |

¹ Preliminary, subject to revision.

Imports of cottonseed oil in 1914 were 17,293,201 pounds, valued at \$1,044,834, about 54 per cent from China. Imports since 1917, chiefly from China, Japan, Hongkong, and Canada, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value |
|----------------------|----------------|-------------|------------|
| | <i>Pounds.</i> | | |
| 1918..... | 18,967,857 | \$2,282,441 | \$0.12 |
| 1919..... | 27,805,784 | 3,672,984 | .13 |
| 1920..... | 9,437,924 | 1,305,154 | .14 |
| 1921 (9 months)..... | 658,356 | 88,166 | .09 |

Exports have been from seven to ten times the imports. Exports in 1912 were 28 per cent and in 1918 about 8 per cent of domestic production. Normal prewar exports reached over 300,000,000 pounds in 1913; they were 192,963,079 pounds in 1914; 318,366,525 pounds, valued at \$21,872,948 in 1915. Forty per cent of the 1918 exports went to Canada; normally, the bulk goes chiefly to Europe. Exports since 1917, for calendar years, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|---------------------|
| Quantity (pounds)..... | 119,067,376 | 193,133,201 | 184,753,821 | 220,275,089 |
| Value..... | \$23,184,329 | \$40,890,268 | \$34,574,790 | \$21,503,175 |

Important changes in classification.—Cottonseed oil was on the free list of the act of 1913 (par. 561); it is now dutiable under the emergency tariff act of 1921 (par. 11).

COCONUT OIL.

Description and uses.—Coconut oil, extracted from the kernel of the coconut, at ordinary temperature is a solid fat, but melts to an oil with a slight increase of temperature. The dried kernel is known as copra. This is shipped in large quantities and the oil then extracted. The coconut palm flourishes in most tropical countries. Coconut oil goes mainly into soap, and is also used as a food in certain butter substitutes and cooking fats. It is also used in pharmacy as a substitute for cod-liver oil and as a base for ointments. The pulp from which the oil has been expressed is a cattle feed.

Production.—Large quantities of oil are extracted from imported copra, which comes chiefly from the Dutch East Indies, the Straits Settlements, and the Philippines. The output since 1912 has been as follows:

| Year. | Pounds. | Year. | Pounds. |
|-------------------------|-------------|-----------------------------------|-------------|
| 1912 ¹ | 31,729,000 | 1918 ¹ | 341,235,000 |
| 1914..... | 38,272,000 | 1919..... | 215,542,187 |
| 1916..... | 104,737,000 | 1920..... | 131,218,048 |
| 1917..... | 188,488,000 | 1921 ² (9 months)..... | 77,400,782 |

¹ Figures from 1912 to 1918 are for edible and inedible oil. Those for later years are for crude coconut oil.

² Preliminary, subject to revision.

Imports of coconut oil have increased greatly since 1914. Preceding 1914 the imports averaged about 50,000,000 pounds annually. In 1914 they were 74,386,213 pounds.

Imports since 1917, chiefly from the Philippine Islands, Dutch East Indies, and Cuba, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|-----------------------|----------------|------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 359,196,590 | 44,562,715 | \$0.12 |
| 1919..... | 281,063,213 | 35,380,099 | .16 |
| 1920..... | 214,014,521 | 32,812,428 | .15 |
| 1921 (9 months.)..... | 77,636,349 | 7,596,708 | .10 |

Exports.—The exports of coconut oil since 1918 have been mainly to Canada, Netherlands, and Belgium, and were as follows:

| | 1919 ¹ | 1920 | 1921 (9 months). |
|------------------------|-------------------|-------------|---------------------|
| Quantity (pounds)..... | 118,611,743 | 25,694,794 | 5,701,005 |
| Value..... | \$24,601,143 | \$4,908,443 | \$341,461 |

¹ Last six months, not previously shown.

Important changes in classification.—Coconut oil was exempt from duty under the act of 1913 (par. 561); it is dutiable under the emergency tariff act of 1921 (par. 11).

SOYA-BEAN OIL.

Description and uses.—This oil is expressed from the seeds of a plant indigenous to China, Manchuria, Korea, Japan, Formosa, and Indo-China. There are many varieties of these beans with varying oil content, but the average is about 18 per cent, the oil extracted ranging from 10 to 13 per cent. Previous to 1908 this oil was not much used here or in Europe. It is a semi-drying oil used in paint either as a substitute for or mixed with linseed oil. Its greatest use is in soap making, for which it has largely replaced cottonseed oil, but the purified oil is edible. After the oil is expressed the cake becomes a feed for dairy cattle or a fertilizer.

Production of soya beans has increased greatly, but only a small portion of the crop is used for oil. In 1915 approximately 100,000 bushels of American-grown beans were pressed for oil. The domestic output of oil (inedible and edible) increased from 2,764,000 pounds in 1914 to 42,074,000 pounds in 1917 and 79,861,000 pounds in 1918. Reports of the Bureau of the Census show that no crude soya-bean oil has been produced either from domestic or imported beans in this country from 1919 to September 30, 1921, inclusive. The oil is imported in the crude state and refined in this country.

Imports have increased from 16,360,452 pounds in 1914 to 336,824,646 pounds in 1918, the great bulk coming from China and Japan. Imports since 1917, almost wholly from Kwangtung, China proper, and Japan, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|--------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 343,358,948 | \$39,300,261 | \$0.11 |
| 1919..... | 196,808,421 | 24,019,226 | .12 |
| 1920..... | 112,549,075 | 13,767,917 | .12 |
| 1921 (9 months)..... | 16,742,321 | 677,228 | .04 |

Exports.—Exports since 1918, chiefly to Italy, France, and Austria, have been as follows:

| Calendar year. | Quantity. | Value. |
|---------------------------|----------------|-------------|
| | <i>Pounds.</i> | |
| 1919 (last 6 months)..... | 27,714,704 | \$6,097,692 |
| 1920..... | 43,511,862 | 9,412,431 |
| 1921 (9 months)..... | 1,933,746 | 176,296 |

Important changes in classification.—Soya-bean oil was exempt from duty under the act of 1913 (par. 561); it is dutiable under the emergency tariff act of 1921 (par. 11).

HEMPSEED OIL.

Description and uses.—This oil is obtained from the seeds of the hemp plant, cultivated in France, Belgium, Germany, northern Italy, Turkey, Algeria, North America, India, Manchuria, and Japan. The yield is about 30 per cent. Hempseed oil is used principally in paint. It is a drying oil, but does not have the pronounced drying properties of linseed oil. It is also used for making a soft soap of a dark-

green color. The low-grade oils are used for certain varnishes. The press cake contains sharp bits of shell which make it unfit for cattle feed.

Production.—Figures for the domestic production of hempseed oil are not available. Some hemp is raised in this country, principally for its fiber; probably little of the oil is expressed.

Imports in 1910 were 471,002 gallons, valued at \$154,866; they were insignificant for 1914–1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|-----------------|-----------|-------------|---------|--------------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1916..... | 124,401 | \$120,589 | \$0.97 | \$3,732 | 3.09 |
| 1919..... | 183,928 | 173,539 | .94 | 5,518 | 3.18 |
| 1920..... | 61,010 | 61,008 | 1.00 | 1,890 | 3.00 |
| 1921 (9 months)..... | 8 | 13 | 1.62 | | |

Exports.—Statistics not available.

LINSEED OR FLAXSEED OIL.

Description and uses.—Linseed oil belongs to the class known in the paint and varnish industry as drying oils. It is very satisfactory for the purpose, and this accounts for the fact that in the calendar year 1914 that industry alone consumed 24,481,623 gallons of linseed oil, costing over \$12,000,000. Linseed oil is also used in the manufacture of soaps, lithographic inks, linoleum, oilcloth, and patent leather. It is the best oil for making putty and enters into the manufacture of the so-called "vulcanized oils." Cold-pressed linseed oil has a pleasant taste, and considerable quantities are used for edible purposes in Russia, Hungary, Germany, and India.

Boiled linseed oil is one to which certain quantities of lead or manganese oxides have been added and dissolved by heat. Other substances, such as resinates, oleates, and linoleates of various metals, are also used.

High prices during the war induced the substitution of other drying oils for linseed oil, especially in the paint industry, where soya bean, menhaden, perilla, and China-wood oil have been used to an appreciable extent, the last-named most extensively as an improvement on linseed oil in certain varnishes.

Production.—Flaxseed, from which linseed oil is obtained, and flax fiber, from which linen is made, are both from the flax plant. It can not, however, be grown for both fiber and seed at the same time. If harvested at a time to yield fiber, the seeds are immature and useless for oil production. If harvesting is delayed until the seeds are ripe enough to yield oil, the stalks are no longer suitable for the recovery of the fiber. The principal countries in which the flax plant is grown for the seed are Argentina, India, the United States, Canada, and Russia. The oils expressed from the Russian and Indian seeds are superior to those obtained from the American and Argentine seeds. However, seed grown in Canada from imported Russian flaxseed yields an oil equal in quality to the Russian oil.

The oil is obtained by three different methods known as hot-pressed, cold-pressed, and extraction. All of the flaxseed oil produced in the United States is hot-pressed in hydraulic presses. The oil obtained by the pressing process is usually refined by treatment with strong sulphuric acid. The refined oil is similar to the crude oil in its properties, except that it is less viscous and lighter colored. The press cake or residue is a valuable cattle feed.

The average yield is about 2.5 gallons of oil per bushel of seed. The duty on flaxseed under H. R. 7456 is 25 cents per bushel of 56 pounds. This is equivalent to a duty of 1.33 cents per pound ($7\frac{1}{2}$ pounds per gallon) on the oil content as against $2\frac{1}{2}$ cents per pound on linseed oil. This gives a differential of $1\frac{1}{2}$ cents per pound of oil in favor of the domestic crusher.

The domestic production of linseed oil since 1912 has been as follows:

| Year. | Pounds. | Year. | Pounds. |
|-----------|-------------|------------------------------------|-------------|
| 1912..... | 461,636,070 | 1918..... | 375,452,000 |
| 1914..... | 507,422,000 | 1919..... | 452,927,798 |
| 1916..... | 531,586,900 | 1920..... | 485,271,517 |
| 1917..... | 482,196,000 | 1921 (9 months) ¹ | 345,263,876 |

¹ Preliminary, subject to revision.

Imports of linseed oil prior to the war decreased from 3,958,961 gallons in 1911 to 172,522 gallons in 1913. The maximum imports between 1913 and 1918 were 535,601 gallons in 1915, valued at \$248,344, and yielding a revenue of \$53,560. Imports since 1917, chiefly from England, Netherlands, Japan, and Belgium, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|-----------|-------------|---------|------------------------|
| | Gallons. | | | | Per cent. |
| 1918..... | 45,620 | \$51,876 | \$1.14 | \$4,562 | 8.79 |
| 1919..... | 2,135,706 | 3,018,725 | 1.41 | 213,571 | 7.07 |
| 1920..... | 4,663,410 | 6,483,817 | 1.39 | 669,341 | 7.23 |
| 1921 (9 months)..... | 2,114,411 | 1,589,249 | .51 | | |

Exports of linseed oil since 1914 have been about 1,200,000 gallons, with the exception of 1916, when the export was only about 700,000 gallons. Previously the export was only about 200,000 gallons per year, except in 1918, when over 1,700,000 gallons were exported. The quantity of exported linseed oil made from imported flaxseed and on which a drawback is paid has varied greatly. In 1915 a drawback of \$115,649 was paid on 533,023 bushels of imported flaxseed, from which were produced and exported 1,685,081 gallons of linseed oil. Exports (for calendar years) since 1917, mainly to Cuba, Mexico, and Canada, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|-------------|------------------|
| Quantity (gallons)..... | 774,192 | 1,502,178 | 715,450 | 376,651 |
| Value..... | \$1,162,064 | \$2,006,885 | \$1,239,633 | \$334,393 |

OLIVE OIL.

Description and uses.—Olive oil is the oil obtained from the fruit of the olive tree. Its chief use is as a salad oil, but large quantities of inferior grades and second pressings (olive-oil foots) are used for making castile soap.

Production.—California produces practically the entire domestic supply of olive oil, and this supply—966,000 pounds in 1912 and 1,461,000 pounds in the record year, 1916—is only about 2 per cent of the consumption. Approximately 40 per cent of the olive crop is crushed for oil, nearly all of the balance being subjected to the pickling process, which produces the familiar ripe olive. Special varieties are cultivated for pickling and for oil, the latter usually being grown without irrigation. The culls and injured stock of the pickling varieties are also used for oil. While the area in olives in the year 1916 (36,800 acres) was about double that of four years before, this increase is almost entirely in the pickling varieties. According to testimony submitted by growers at hearings before the Tariff Commission (1918) the average price received for oil olives on trees was \$42.50 per ton for the period 1915–1917, and the price received for pickling olives was \$110 per ton. This is offset by a considerable difference in costs of production. Partly because of fluctuation in the quality of the crop, and also because the olive tree usually alternates heavy and light yields, the annual output varies considerably.

Processes.—The fleshy part of the olive contains the oil. The fruit is ground, usually pits and all, and the oil expressed by hydraulic pressure. The residue is again ground and pressed for an inferior grade of oil, and the pomace sometimes subjected to a third pressing, which produces "foots oil," used in the United States for industrial purposes, and provided for in the free list of the tariff act of 1913 (par. 561). The edible oil is then placed in tanks and cured in order to eliminate the tannic acid with which it is highly charged. While two or three years are generally allowed for the curing process in Europe, in California it has not been profitable to age the product for more than a year. This difference in the aging or curing process gives rise to differences in quality, the heavier foreign oils being usually preferred to the more bitter domestic product. Ordinarily the domestic oils are not shipped east of Chicago, because of freight charges and the competition of the foreign oils. In California the pickling of ripe olives and oil processing is carried on by specially equipped packing plants; in the Mediterranean countries olives are usually grown in small groves and cured or pressed on a household basis, the product being sold to brokers at gathering stations.

Imports of edible olive oil have increased rapidly, in 1907 amounting to over 3,100,000 gallons (of 7.56 pounds), and in 1917 to over 7,700,000 gallons. The duties collected ranged between \$1,500,000 and \$2,200,000 annually. In 1907 about 75 per cent of the imports were dutiable at the higher rate applying on shipments in containers of less than 5 gallons; by 1917 this proportion had dwindled to about 40 per cent. Imports since 1917, chiefly from Spain, Italy, France, and Belgium, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad- valorem. |
|---|-----------------|-----------|-------------|----------|---------------------------------|
| IN BOTTLES, ETC., CONTAINING LESS THAN 5 GALLONS. | | | | | |
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 125,138 | \$291,463 | \$2.33 | \$37,541 | 12.58 |
| 1919..... | 1,061,684 | 2,611,723 | 2.51 | 318,505 | 11.83 |
| 1920..... | 1,616,209 | 5,273,582 | 3.26 | 484,963 | 9.19 |
| 1921 (9 months)..... | 2,211,704 | 5,229,375 | 2.36 | | |

ALL OTHER OLIVE OIL.

| | | | | | |
|----------------------|-----------|------------|--------|-----------|-------|
| 1918..... | 81,707 | \$214,741 | \$2.54 | \$16,041 | 7.89 |
| 1919..... | 7,240,206 | 13,676,263 | 1.89 | 1,448,041 | 10.69 |
| 1920..... | 2,454,810 | 6,292,861 | 2.56 | 490,962 | 7.80 |
| 1921 (9 months)..... | 2,751,545 | 4,858,357 | 1.77 | | |

Exports.—Statistics not available.

PEANUT OIL.

Description and uses.—This oil, which is also known as arachis oil, earthnut oil, and groundnut oil, is obtained from the peanut. The nuts contain from 38 to 50 per cent of oil, and yield about 30 per cent on pressing. The United States and China probably lead in the production of peanuts, although large quantities are also produced in Africa, Argentina, the East Indies, Japan, Java, Sicily, and Spain.

The finest oil is cold pressed, though a much larger yield can be obtained by hot pressing. The cold-pressed oil needs no refining if made from good, clean nuts. It is used as a salad oil, as an adulterant for olive oil, as an ingredient of margarine, and for soap making. The cake from which the oil is expressed makes an excellent cattle feed; if high-grade blanched nuts are used, it can be ground and used with wheat flour for certain kinds of bread.

Production.—The cultivation of peanuts and the expression of edible oils are increasing in the United States, especially in districts where ravages of the cotton boll weevil have been especially severe. More peanuts are crushed and more oil extracted in Marseille, France, than elsewhere in the world, about 15,500,000 gallons of edible oil and 23,000,000 gallons of inedible oil being produced in 1912.

The output in the United States since 1911 has been as follows:

| Year. | Pounds. | Year. | Pounds. |
|-------------------------|------------|------------------------------------|------------|
| 1912 ¹ | 454,000 | 1918 ¹ | 95,934,000 |
| 1914..... | 1,006,000 | 1919..... | 87,606,814 |
| 1916..... | 28,531,000 | 1920..... | 13,083,262 |
| 1917..... | 50,499,000 | 1921 (9 months) ² | 28,291,836 |

¹ Figures for 1912-1918 are for edible and inedible oil. Those for later years are for "Virgin and crude" peanut oil.

² Preliminary, subject to revision.

Imports prior to 1915 far exceeded the domestic production. The imports for 1914 were 1,332,108 gallons, France supplying more than any other country, Germany ranking second. In 1916 imports amounted to 1,466,048 gallons and in 1917 to 3,018,468 gallons. Lately China has entered the market and is shipping large quantities of a rather poor grade to this country. Imports since 1917, chiefly from Japan, China, Hongkong, and the Philippines, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|-----------------|-------------|-------------|-----------|--------------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 9,110,901 | \$5,498,308 | \$0.93 | \$546,654 | 4.43 |
| 1919..... | 20,520,958 | 21,994,678 | 1.07 | 1,231,257 | 5.60 |
| 1920..... | 12,676,743 | 16,091,731 | 1.34 | 760,605 | 4.48 |
| 1921 (9 months)..... | 259,078 | 209,148 | .81 | | |

Exports of peanut oil, which since 1918 have gone largely to Eng-land, France, and Norway, have been, by calendar years, as follows:

| | 1919 ¹ | 1920 ¹ | 1921 (9 months) |
|------------------------|-------------------|-------------------|--------------------|
| Quantity (pounds)..... | 4,341,803 | 1,425,225 | 1,253,999 |
| Value..... | \$1,043,117 | \$291,257 | \$132,379 |

¹ Last 6 months.

POPPY-SEED OIL.

Description and uses.—Poppy-seed oil is obtained from the seed of two different varieties of the plant. The seeds are dutiable at 32 cents per 100 pounds (par. 760, H. R. 7456).

There are two grades of poppy-seed oil on the market. One, a cold-drawn oil obtained from the first pressing of the seeds, is almost colorless and is known in commerce as white poppy-seed oil; the other, which is obtained from a second pressing of the seed at a higher temperature, is inferior in quality and is known commercially as red poppy-seed oil. The best grade is used for edible purposes, chiefly as salad oil, and in the preparation of the finest artist's paint. The lower grade is used in the manufacture of potash soaps and is added to olive oil in manufacturing castile soap to make it "softer." Poppy-seed oil is often adulterated with sesame oil, and in turn is used to adulterate olive oil and bitter-almond oil.

Production.—The poppy plant is grown to a large extent in Asia Minor, Persia, India, Egypt, the southern part of Russia, and in the north of France. The Levant seeds are preferred to the Indian seeds, as they yield, when pressed twice on a large scale, 39 to 40 per cent of oil as against 36 to 38 per cent from the Indian seeds. The oil is produced in a manner similar to other vegetable oils. By far the largest quantity of seed is crushed in France, although poppies are cultivated in California for this purpose.

Imports.—The maximum import of poppy-seed oil was in 1911 and amounted to 18,686 gallons, valued at \$14,071, yielding a revenue of \$2,802. Imports decreased to an average of about 9,000 gallons per year for 1912-1915. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|-----------------|---------|-------------|-------|--------------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,297 | \$1,956 | \$1.51 | \$78 | 3.98 |
| 1919..... | 259 | 1,067 | 4.20 | 16 | 1.43 |
| 1920..... | 716 | 1,897 | 2.65 | 43 | 2.95 |
| 1921 (9 months)..... | 776 | 1,173 | 1.51 | | |

Exports.—Statistics not available.

RAPSEED OIL.

Description and uses.—Rapeseed or colza oil is obtained from the seeds of the plant *Brassica campestris*, which is grown in almost all European countries, particularly in East India. The soap industry in 1917 consumed 5,972,000 pounds of rapeseed oil. Smaller quantities are used for lubricating purposes and for quenching steel. It is used as a food in India.

Production since 1912 from imported seed has been as follows:

| Year. | Pounds. | Year. | Pounds. |
|-----------|---------|------------------------------------|-----------|
| 1912..... | 90,000 | 1918..... | 139,000 |
| 1914..... | 19,000 | 1919..... | 1,236,743 |
| 1916..... | 223,000 | 1920..... | 408,840 |
| 1917..... | 232,000 | 1921 (9 months) ¹ | 127,905 |

¹ Preliminary figures, subject to revision.

The maximum production in 1919 was only about 15 per cent of the imports for the same year.

Imports in 1913 were 1,564,659 gallons (about 12,000,000 pounds), valued at \$784,750, yielding a revenue of \$156,465. Imports since 1917, chiefly from Japan, England, Hongkong, and China, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|-----------------|-------------|-------------|-----------|--------------------------------|
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 3,073,045 | \$3,096,827 | \$1.01 | \$184,683 | 5.96 |
| 1919..... | 1,116,696 | 1,306,306 | 1.17 | 67,002 | 5.13 |
| 1920..... | 1,721,006 | 1,921,679 | 1.12 | 103,280 | 5.37 |
| 1921 (9 months)..... | 600,347 | 533,702 | .89 | | |

Exports.—Statistics not available.

ALL OTHER EXPRESSED AND EXTRACTED OILS.

Imports since 1917, chiefly from Japan, Kwantung, Brazil, and France, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$302,246 | | \$30,337 | 13 |
| 1919..... | 891,066 | 148,539 | \$0.17 | 22,281 | 15 |
| 1920..... | 552,034 | 109,368 | .19 | 15,945 | 15 |
| 1921 (9 months)..... | 296,558 | 44,124 | .15 | | 16 |

Exports since 1918 (calendar years), chiefly to Canada, Italy, and Mexico, reached \$18,507,128 in 1919 and then decreased to \$448,811 during the first nine months of 1921.

PARAGRAPH 51.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 51. Alizarin assistant, Turkey red oil, sulphonated castor or other sulphonated animal or vegetable oils, soaps made in whole or in part from castor oil, and all soluble greases; all of the foregoing in whatever form, and used in the processes of softening, dyeing, tanning, or finishing, not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 82. Alizarin assistant, sulphuric acid, and ricinoleic acid, and soaps containing castor oil, any of the foregoing in whatever form, in the manufacture of which fifty per centum or more of castor oil is used, thirty cents per gallon; in the manufacture of which less than fifty per centum of castor oil is used, fifteen cents per gallon; all other alizarin assistants and all soluble greases used in processes of softening, dyeing or finishing, not specially provided for in this section, thirty per centum ad valorem.

PAR. 45. Oils, expressed; Alizarin assistant, sulphuric acid, and ricinoleic acid, and soaps containing castor oil, any of the foregoing in whatever form, and all other alizarin assistants and all soluble greases used in the processes of softening, dyeing, or finishing, not specially provided for in this section, 25 per centum ad valorem; * * *

ALIZARIN ASSISTANTS AND SOLUBLE GREASES.

(See Survey A-11.)

Description and uses.—The wording in this paragraph describing alizarin assistants, soaps, and soluble greases used in the processes of softening, dyeing, and finishing covers a variety of products manufactured from vegetable and animal oils and used by the textile industry. In dyeing cotton with alizarin dyes the use of a fatty acid or alizarin assistant increases the brilliancy of the dye, in the case of unbleached cotton producing a more level and uniform shade. The most widely used alizarin assistant is turkey-red oil, which was originally made by treating olive oil with sulphuric acid. It was soon found that an alizarin assistant produced from castor oil gave better results, and the bulk of the alizarin assistants are now made from

that oil. Some are made also from olive, peanut, and cottonseed oils. The group of alizarin assistants made by treating oils with sulphuric acid is also known as sulphated or sulphonated oils.

Other soluble greases, which are really oil soaps, are used in various processes in the textile industry. They are usually potash or soda soaps prepared from vegetable oils, although tallow soaps can be used for some purposes. They are used in scouring raw wool, woolen yarns, in the scouring and milling or fulling of woolen cloth; in degumming silk; and in treating cotton fabrics in three operations—cleansing before, during, and after dyeing—and in calico printing. Some of the so-called soluble oils are turkey-red oil, others are soaps dissolved in water.

Production.—These products are manufactured by various firms in this country specializing in chemicals used in the textile industry and by the large textile manufacturers. The production of turkey-red oil in 1914 was 11,681,884 pounds (about 1,370,000 gallons), valued at \$820,491.

Imports of alizarin assistants have shown a gradual increase prior to the war from 97,097 gallons, valued at \$38,600, in 1910, to 186,234 gallons, valued at \$72,430, in 1914. The imports since then have decreased until in 1918 only 24 gallons were imported. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|--|-----------------|----------|-------------|---------|------------------|
| Alizarin assistants and turkey-red oil: | | | | | |
| | <i>Gallons.</i> | | | | |
| 1919..... | 46,915 | \$32,124 | \$0.69 | \$6,031 | 25 |
| 1920..... | 282 | 204 | .72 | 51 | 25 |
| 1921 (9 months)..... | 1,229 | 718 | .58 | | 25 |
| Other soluble greases, etc.: | | | | | |
| | <i>Pounds.</i> | | | | |
| 1918..... | 4,330 | 598 | .13 | 150 | 25 |
| 1919..... | 575 | 108 | .18 | 27 | 25 |
| 1921 (9 months)..... | 651 | 67 | .10 | | 25 |

Exports.—Statistics not available.

Important changes in classification.—These products differ widely from the expressed oils with which they are combined in paragraph 45 (act of 1913), and therefore they have been given a separate paragraph in H. R. 7456. The phrase “sulphoricinoleic acid and ricinoleic acid” was omitted because these terms are not used in the trade. “Alizarin assistant” is all inclusive, and therefore the provision for “all other alizarin assistants” in paragraph 45 (act of 1913) was omitted. (Reclassification Report, p. 60.)

Suggested changes.—Attention is called to the adjustment of rates between alizarin assistant, the duty on which is 25 per cent ad valorem in this paragraph, and castor oil, the raw material, upon which the duty is 4½ cents per pound in paragraph 50. Castor oil, No. 3, in barrels, was quoted at 10½ cents per pound on December 12, 1921, and has not been quoted at less than 8 cents during 1921. The duty on castor oil is therefore equivalent to about 45 per cent ad valorem, as against a duty of 25 per cent ad valorem on alizarin assistant, which is 80 to 90 per cent castor oil.

In order to adjust these rates it is also necessary to know the relation between the rates on castor oil and castor beans, upon which there is a duty of one-half cent per pound under paragraph 760. In crushing about 45 per cent of the weight of the bean is obtained as castor oil. Therefore the duty on castor beans is equivalent to slightly more than 1 cent per pound on the oil contained therein. This gives a differential between castor beans and castor oil of somewhat less than 8½ cents per pound in favor of the oil.

PARAGRAPH 52.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 52. Hydrogenated or hardened oils and fats, and other oils and fats, the composition and properties of which have been changed by vulcanizing, oxidizing, chlorinating, nitrating, or any other chemical process, and not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

CHEMICALLY TREATED OILS AND FATS.

GENERAL.

This paragraph covers a variety of products obtained by chemical treatment and processing of various oils and fats, the most important of which are the hydrogenated or hardened oils. These products may be distinguished from those made by compounding various fats and oils, by the fact that the chemical composition and properties of the original oil or fat have been altered by chemical means.

HYDROGENATED OILS AND FATS.

Description and uses.—Hydrogenated or hardened oils are obtained by treating chiefly vegetable oils with hydrogen in the presence of a nickel catalyst; the hydrogen combines with the oil increasing the density and is usually carried to a point where a solid fat is formed. Hydrogenated oils are used chiefly in the manufacture of lard substitutes for which purpose principally cottonseed and coconut oils are used. It is possible by hydrogenation of fish oils to convert them into odorless solid fats suitable for the manufacture of soaps.

Production.—The production of hydrogenated oils and fats is an industry of recent establishment, the hydrogenation of oils having been introduced in the United States in about 1907. Since 1912 the industry has grown rapidly to a large size. The manufacture involves the production of hydrogen on a large scale either by electrolysis of water or by passing steam over red-hot iron filings. The combination of hydrogen with the oil is effected by means of a nickel catalyst which, however, does not enter into the finished product. In 1915 patent litigation was begun, which was of far-reaching impor-

tance and resulted in 1920 in the declaration that the basic United States patents were invalid. Thus, the manufacture of hydrogenated oils became public property.

Statistics of production are not available prior to 1919, when the output was 120,444,589 pounds and increased to more than 180,000,000 pounds in 1920. The output for the first 9 months of 1921 was 159,000,000 pounds. These figures may be regarded as the minimum production since hydrogenated oil is confounded by some manufacturers and reported as vegetable stearin to the Bureau of the Census.

Imports and exports are not shown.

Important changes in classification.—New specific provision. (Re-classification Report, p. 60.)

OTHER CHEMICALLY TREATED OILS AND FATS.

Description and use.—Probably the next most important class of chemically treated oils and fats included in this paragraph is the vulcanized oils, which are used as rubber substitutes. These products are obtained by vulcanizing various vegetable oils by means of sulphur monochloride. Vulcanization results in a slightly elastic rubbery mass, which is used to adulterate cheap mechanical rubber goods, and as a filler in the manufacture of pneumatic tires. These vulcanized oils are also known as "factice," two varieties of which "white" and "brown or black" are produced.

The industrial use of chlorinated oils has been only slightly developed. They are claimed to be used in conjunction with calcium aluminate in the manufacture of paints, and it is believed that a small quantity of chlorinated cottonseed oil is used as a rubber substitute.

Nitrated oils are obtained by treating linseed or castor oil with a nitrating mixture of sulphuric and nitric acids. The most important use of nitrated oils is that of mixing with nitrocellulose to produce a product resembling ebonite. Acetone solutions of nitrated oils have been used as varnishes, as a basis for paint, and for enameling leather. It is not known definitely that any nitrated oils are produced in the United States.

Production in 1914 of rubber substitutes was valued at \$428,600, and in 1919 (preliminary figures) at \$1,456,000. It is not known that chlorinated or nitrated oils are produced in this country.

Imports and exports.—Statistics not available.

Important changes in classification.—New specific provision.

PARAGRAPH 53.

H. R. 7456.

SENATE AMENDMENTS.

PAB. 53. Combinations and mixtures of animal, vegetable, or mineral oils or of any of them (except combinations of essential or distilled oils or both), with or without other substances, and not specially provided for, 25 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

PAR. 3. * * * oils, and all combinations of the foregoing, * * * twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 44. * * * and all combinations of the same [animal oils, rendered oils, and greases], not specially provided for in this section, 15 per centum ad valorem.

PAR. 45. * * * all combinations of the same [expressed oils], not specially provided for in this section, 15 per centum ad valorem.

COMBINATIONS AND MIXTURES OF OILS, N. S. P. F.

Description and uses.—This paragraph includes a great variety of oil mixtures which are compounded for special purposes, and comprise lubricating greases and oils, tanning greases, stuffing greases, and polishing compounds.

Production, imports, and exports.—Statistics not available.

Important changes in classification.—This is a new specific provision. It replaces the provision for combinations of animal oils (par. 44, act of 1913), and for combinations of expressed oils (par. 45, act of 1913), and includes combinations of these with other oils.

Suggested changes.—Page 18, paragraph 53, line 14: Change "of" to "containing," after "combinations," to agree with paragraph 56, page 19, line 24.

Page 18, paragraph 53, line 13: Insert "or mixtures" after "combinations" to agree with line 12.

Page 18, paragraph 53, line 14: Strike out "or both" after "oils."

PARAGRAPH 54.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 54. Oils, distilled or essential: Lemon and orange, 20 per centum ad valorem; clove, eucalyptus, peppermint patchouli, sandalwood, and all other essential and distilled oils not specially provided for, 25 per centum ad valorem: *Provided*, That no article mixed or compounded or containing alcohol shall be classified for duty under this paragraph.

ACT OF 1909.

PAR. 3. * * * distilled oils, essential oils, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 39. Peppermint oil, twenty-five cents per pound.

PAR. 639. Oils: * * * amber, crude and rectified ambergris, * * * cajuput, * * * cedrat, chamomille, * * * civet, * * * fennel, * * * juglandium, juniper, * * * lemon, * * * mace, * * * valerian; * * * [Free].

ACT OF 1913.

PAR. 46. Oils, distilled and essential: Orange and lemon, 10 per centum ad valorem; peppermint, 25 cents per pound; mace oil, 6 cents per pound; * * * amber; ambergris¹; * * * camomille; * * * cedrat; * * * civet¹; fennel; * * * juniper; * * * valerian; all the foregoing oils, * * * and essential and distilled oils, * * * not specially provided for in this section, 20 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

PAR. 561. Oils: Birch tar, cajuput, * * * juglandium. * * * [Free].

¹ Oils of ambergris and civet are not articles of commerce.

OILS, DISTILLED OR ESSENTIAL.

(See Survey A-12.)

GENERAL.

Description and uses.—A scientific definition of the term “essential or distilled oils” is not possible, but the oils may be described as substances of an oily nature obtained, as a rule, from vegetable sources, possessed usually of an agreeable odor, characteristic of or resembling that of the plants yielding the oils. They are generally liquid, although sometimes semisolid at ordinary temperatures, and volatile without decomposition. Essential oils are used as flavors and perfumes, while a few possess medicinal properties.

Production.—The essential oils occur in various parts of the plant; in some instances distributed throughout the plant, in others restricted to a particular portion—for example, in the petal of the flower, as in the rose; in the bark and leaves, as in the cinnamon; and in the flower and rind of the fruit, as in the orange and lemon.

The methods of producing essential oils may be divided into three principal classes: (1) Distillation of the plant or of an oleo-resinous exudation. (2) Mechanical processes. (3) Extraction by solvents.

Distillation.—This method is used in the preparation of most of the essential oils. The usual procedure is to pass steam through the material, suitably arranged on trays, since all of the essential oils are readily volatile by means of steam. Many are distilled under reduced pressure, which enables the distillation to be carried out at a much lower temperature, thus avoiding decomposition of the oils. The distillation of an oleo-resin is illustrated in the manufacture of turpentine and copaiba.

Mechanical production.—Mechanical processes are employed in the preparation of lemon, orange, bergamot, grapefruit, and lime oils, which are obtained from the peel or rind of the fruit. The most primitive example of this method is employed in Sicily in the preparation of orange and lemon oils. The peel is removed from the fruit and is pressed by hand against a sponge, which absorbs the oil. Various other mechanical processes are employed in Italy and France for the production of these oils, especially that of bergamot. Orange oil and lemon oil are produced from cull fruit in California. The whole fruit is shredded by a machine and the juice and oils are separated from this pulp by presses. The oils are then separated from the juice of the fruit by a centrifugal machine.

Extraction by solvents.—This method of extraction is employed for the preparation of delicate floral essences, which would be decomposed by distillation. This process is used in preparation of jasmine and tuberose. Three kinds of extraction processes are used: (1) Those in which a volatile solvent is used; (2) those in which a non-volatile oil or fat is employed; (3) those in which a current of moist air is used.

Volatile solvents commonly used are alcohol, benzene, ether, chloroform, light petroleum oil, carbon disulphide, acetone, and tetrachlorethane. The simplest form of extraction is to allow the solvent to percolate either cold or hot over the crude material. On the removal of the solvent a mixture of oil, resin, and coloring matter is

obtained from which "absolute floral essences" or "concretes" are prepared by extraction with alcohol.

The extraction by nonvolatile solvents is known as the "enfleurage process." This is both a hot and a cold process. In the hot process a pure neutral fat, such as purified lard, is melted in trays; the flowers are placed in the melted grease, which is kept at about 65° C. This mixture is then pressed, which separates the grease pomade containing the essential oil from the flower petals. In the cold process the flowers are placed on wire netting over which a grease-covered glass plate is suspended. The flowers and plates are placed in alternate layers. The first flowers after a time are removed and replaced by more fresh flowers until the fat has become saturated with the oils. The fat containing the oil is removed and sold as "pomades," which are employed in the manufacture of perfume.

In the moist-air process hot air is passed through a series of wet sponges, then over the flower, and then into a volatile solvent. The solvent retains the perfume and is afterwards removed, leaving a perfume which contains only the oil and no coloring matter or resins.

The domestic production of essential oils in 1914 was valued at \$1,289,482. About 50 per cent of this value is represented by peppermint oil. In addition to the oils mentioned above, there were produced other essential oils, amounting in value to \$348,552, which includes sassafras, cedar, pennyroyal, tansy, sandalwood, camphor, cloves, parsley, patchouli, lemon, and orange. In 1919, according to preliminary figures, the output was valued at \$4,411,776.

Imports of all essential and distilled oils prior to the war had increased from \$2,118,102 in 1910 to \$4,905,157 in 1913. The imports declined until 1916, from which time they show a gradual increase to \$3,948,059 in 1918. Of the total imports of essential oils in 1913, about 70 per cent is represented by seven oils—citronella, lemon grass, lemon, orange, bergamot, attar of roses, and lavender or aspic. These same oils in 1918 represented 56.5 per cent of the value of the total imports of essential and distilled oils. The value and percentage of the total imports of each of these for 1913 and 1918 are shown in the following table:

| | 1913 | | 1918 | |
|--|------------------|-------------|------------------|-------------|
| | Value. | Per cent. | Value. | Per cent. |
| Citronella and lemon grass..... | \$855,846 | 18.1 | \$900,853 | 22.8 |
| Lemon..... | 794,215 | 16.2 | 404,508 | 10.2 |
| Attar of roses..... | 791,370 | 16.1 | 89,049 | 2.2 |
| Bergamot..... | 310,835 | 6.3 | 241,465 | 6.1 |
| Orange..... | 155,299 | 3.2 | 330,506 | 8.4 |
| Lavender or aspic..... | 482,779 | 9.8 | 373,466 | 6.9 |
| Total of 7 oils..... | 3,420,344 | 69.7 | 2,239,907 | 56.6 |
| Total essential and distilled oils..... | 4,905,157 | | 3,948,059 | |

LEMON AND ORANGE OILS.

Production.—The lemon and the orange are usually cultivated in the same localities. The greater part of both lemon oil and orange oil is produced in Sicily, chiefly in the district of Messina. These oils are produced in the United States, chiefly in California, from cull fruits.

Imports of lemon oil prior to the war were constant at a little over 400,000 pounds, but the value shows an increase from about \$300,000 in 1911 to nearly \$800,000 in 1913. The import decreased somewhat in 1914, but has shown an increase to 577,600 pounds, valued at \$404,568, yielding a revenue of \$40,456, in 1918.

Imports of orange oil have been much less than those of lemon oil, in 1913 being 79,797 pounds, valued at \$155,299, and yielding a revenue of \$38,824. In 1918 there was an increase to 196,846 pounds, valued at \$330,506, and yielding a revenue of \$33,050. Later statistics follow :

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| LEMON OIL. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 535,868 | \$387,475 | .72 | \$38,748 | 10 |
| 1919..... | 503,758 | 494,223 | .98 | 49,422 | 10 |
| 1920..... | 662,565 | 900,914 | 1.36 | 90,091 | 10 |
| 1921 (9 months)..... | 483,616 | 435,444 | .90 | ..... | 10 |
| ORANGE OIL. | | | | | |
| 1918..... | 172,832 | \$278,974 | \$1.61 | \$27,897 | 10 |
| 1919..... | 227,453 | 491,822 | 2.16 | 49,182 | 10 |
| 1920..... | 192,675 | 914,863 | 4.75 | 91,466 | 10 |
| 1921 (9 months)..... | 160,346 | 397,473 | 2.48 | ..... | 10 |

Imports of lemon oil since 1918 have been chiefly from Italy, France, England, and Turkey in Europe.

Exports.—Statistics not available.

CLOVE OIL.

Description and uses.—Oil of cloves is obtained by the distillation of the buds of the clove tree, which grows abundantly in the East Indies, the West Indies, Madagascar, Zanzibar, and Pamba. Its chief use is in the production of eugenol, which in turn is used to produce artificial vanillin.

Production.—Statistics for the United States are not available, although some is made in this country.

Imports and exports.—Statistics not available.

Important changes in classification.—New specific provision.

EUCALYPTUS OIL.

Description and uses.—Eucalyptus oil is the volatile oil obtained by steam distillation of the leaves of the eucalyptus tree, of which there are many varieties, divided into two general classes: (1) Those valued for their content of eucalyptol. (2) Those valued for their content of phellandrene. The first class is in great demand for pharmaceutical purposes, and the second for separation of metallic sulphides by the flotation process in Australian mines.

Production.—Eucalyptus species were introduced into California, and since that time the distillation of the oil has become of con-

siderable importance in the southern part of the State, though ranking far below the peppermint and turpentine oil industries in importance. Production statistics are not available.

Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 162,538 | \$57,571 | \$0.35 | \$11,514 | 20 |
| 1919..... | 152,284 | 64,734 | .43 | 12,947 | 20 |
| 1920..... | 319,700 | 148,871 | .47 | 29,774 | 20 |
| 1921 (9 months)..... | 63,640 | 27,825 | .44 | ..... | 20 |

Exports.—None recorded.

Important changes in classification.—New specific provision.

PEPPERMINT OIL.

Description and uses.—Oil of peppermint is a volatile oil distilled from the leaves and flowering tops of the peppermint herb. It is a popular flavoring agent and finds an extensive use in chewing gum, confectionery, and pharmaceutical preparations. The Japanese oil is used in the preparation of menthol. (See par. 48, p. 137.)

Production.—Peppermint oil is produced chiefly in the United States, England, Germany, Japan, and Russia. The United States supplies about 50 per cent of the world's production. The domestic output in 1914 was 363,991 pounds, valued at \$601,617. The major part of the crude oil is produced in Michigan and is refined in New York.

Imports have been practically negligible as compared with domestic production, the largest since 1910 being 29,360 pounds, valued at \$28,953, yielding a revenue of \$7,340 in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 59,687 | \$46,768 | \$1.18 | \$9,922 | 21.21 |
| 1919..... | 20,120 | 302,186 | 1.51 | 50,105 | 16.58 |
| 1920..... | 62,426 | 110,703 | 1.77 | 15,607 | 14.10 |
| 1921 (9 months)..... | 8,587 | 10,896 | 1.27 | ..... | ..... |

Exports in 1910 amounted to 110,407 pounds, valued at \$215,845; in 1914, 117,809 pounds, at \$397,050; and in 1918, 76,247 pounds, at \$233,899. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-----------|-----------|-----------|--------------------|
| Quantity (pounds)..... | 59,687 | 97,890 | 61,847 | 64,938 |
| Value..... | \$202,856 | \$664,282 | \$457,366 | \$181,822 |

Since 1918 exports have been chiefly to England, Canada, France, and Germany.

Suggested changes.—Page 18, line 19, paragraph 54, H. R. 7456: Insert a comma after the word peppermint.

PATCHOULI OIL.

Description and uses.—Patchouli oil is a brownish-yellow, viscous, volatile oil of fragrant, persistent odor, used for making certain perfumes. It is derived by distillation of the leaves of *Pogostemon patchouly*, with subsequent purification by rectification. The chief sources of supply are India and the Straits Settlements.

Imports are included in "all other essential or distilled oils," *infra*.

Exports.—Statistics not available.

Important changes in classification.—Mentioned specifically for the first time.

SANDALWOOD OIL.

Description and uses.—Sandalwood oil is a thick, yellow, volatile oil, of spicy taste and aromatic odor, used chiefly in medicine and perfumery. It is derived by distillation of the wood of *Santalum album*. The chief source is French Guiana. West Indian sandalwood oil, which is not a true sandalwood oil, has been substituted for it to a certain extent.

Imports.—Included in "all other essential or distilled oils," *infra*.

Exports.—Statistics not available.

Important changes in classification.—New specific provision.

ALL OTHER ESSENTIAL OR DISTILLED OILS.

Imports are tabulated as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|-----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$740,709 | | \$148,142 | 20 |
| 1919..... | 364,916 | 2,043,050 | \$5.60 | 238,610 | 20 |
| 1920..... | 785,175 | 2,827,464 | 3.60 | 565,493 | 20 |
| 1921 (9 months)..... | 288,350 | 1,148,065 | 3.98 | | 20 |

Exports, chiefly to Canada, England, Cuba, and France, in 1918 (calendar year) amounted to \$744,997, and increased to \$1,571,415 in 1920. During the first nine months of 1921 they amounted to \$419,724.

Important changes in classification.—The provision "that no article mixed or compounded * * * shall be classified for duty under this paragraph" has been inserted and the provision in paragraph 46 (act of 1913) for "all combinations of" essential or distilled oils omitted so as to make such combinations of essential or distilled oils dutiable under paragraph 56, H. R. 7456, as they are intermediate products used in the manufacture of perfumes. (Reclassification Report, p. 65.)

Birch tar, cajeput and juglandium oils (exempt from duty in the act of 1913, par. 561) are not mentioned specifically in H. R. 7456 and therefore fall within the provision for "Other essential and distilled oils" in this paragraph.

PARAGRAPH 55.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 55. Opium containing not less than 8.5 per centum of anhydrous morphine, crude or unmanufactured and not adulterated, \$3 per pound; powdered, or otherwise advanced beyond the condition of crude or unmanufactured, and containing 15 per centum or less of moisture, \$4 per pound; morphine, morphine sulphate, and all opium alkaloids and salts, esters, and other derivatives thereof, \$3 per ounce; cocaine, ecgonine, and salts, esters, and other derivatives thereof, \$2 per ounce; tincture of opium, such as laudanum, and other liquid preparations of opium, not specially provided for, 60 per centum ad valorem; opium containing less than 8.5 per centum of anhydrous morphine, \$6 per pound; *Provided*, That nothing herein contained shall be so construed as to repeal or in any manner impair or affect the provisions of an Act entitled "An Act to prohibit the importation and use of opium for other than medicinal purposes," approved February 9, 1909, as amended by an Act approved January 17, 1914.

ACT OF 1909.

PAR. 41. Opium, crude or unmanufactured, and not adulterated, containing nine per centum and over of morphia, one dollar and fifty cents per pound; opium of the same composition, dried, powdered, or otherwise advanced beyond the condition of crude or unmanufactured, two dollars per pound; morphia or morphine, sulphate of, and all alkaloids of opium, and salts and esters thereof, one dollar and fifty cents per ounce; cocaine, ecgonine, and all salts and derivatives of the same, one dollar and fifty cents per ounce; * * * aqueous extract of opium, for medicinal uses, and tincture of, as laudanum, and other liquid preparations of opium, not specially provided for in this section, forty per centum ad valorem; opium containing less than nine per centum of morphia, six dollars per pound; but preparations of opium deposited in bonded warehouses shall not be removed therefrom without payment of duties, and such duties shall not be refunded; *Provided*, That nothing herein contained shall be so construed as to repeal or in any manner impair or affect the provisions of an Act entitled "An Act to prohibit the importation and use of opium for other than medicinal purposes," approved February ninth, nineteen hundred and nine.

ACT OF 1913.

PAR. 47. Opium, crude or unmanufactured, and not adulterated, containing 9 per centum and over of morphia, \$3 per pound; opium of the same composition, dried to contain 15 per centum or less of moisture, powdered, or otherwise advanced beyond the condition of crude or unmanufactured, \$4 per pound; morphia or morphine, sulphate of, and all alkaloids of opium, and salts and esters thereof, \$3 per ounce; cocaine, ecgonine, and all salts and derivatives of the same, \$2 per ounce; aqueous extract of opium, for medicinal uses, and tincture of, as laudanum, and other liquid preparations of opium, not specially provided for in this section, 60 per centum ad valorem; opium containing less than 9 per centum of morphia, \$6 per pound; but preparations of opium deposited in bonded warehouses shall not be removed therefrom without payment of duties, and such duties shall not be refunded; *Provided*, That nothing herein contained shall be so construed as to repeal or in any manner impair or affect the provisions of an Act entitled "An Act to prohibit the importation and use of opium for other than medicinal purposes," approved February ninth, nineteen hundred and nine.*

* Supplementary acts: Jan. 17, 1914, ch. 9, 38 Stat., 275; Dec. 17, 1914, ch. 7, 38 Stat., 785; Feb. 24, 1919, ch. 16, secs. 1006, 1007, 40 Stat., 1067, 1130, 1132.

OPIUM.

(See Survey A-18.)

Description and uses.—Opium is a drug consisting of the air-dried juices of the poppy plant. It is used in medicine to induce sleep and insensibility to pain, and in the manufacture of alkaloids, of which morphine, heroin, and codeine are of chief importance. One pound of opium supplies about 7,000 medicinal doses.

Production.—Commercial opium, derived mainly from Asiatic Turkey and Persia, has an alkaloid content which is higher than that from other important producing countries, rendering it unfit for smoking purposes. Smoking opium, which is used chiefly or wholly by addicts, contains less than 9 per cent morphine and was formerly produced in large quantities in India and China. East Indian cultivation of the poppy has recently been much restricted. It has also been prohibited in China for some years, although governmental disturbances in that country have aided illicit production. Greece, Bulgaria, and a number of other countries produce small amounts of opium. It has been produced experimentally in the United States also, but the costs of production are at present considered prohibitive. The poppy is extensively raised for seed in California and elsewhere. The seed, which contains no alkaloid, is used for the expression of oil and for culinary purposes. Poppy culture in the tropical possessions of the United States has been discouraged.

The consumption of opium in the manufacture of "druggist preparations and patent medicines and compounds" in 1919 (preliminary figures) was 102,761 pounds, valued at \$956,354.

Imports of opium are tabulated under three classes:

(1) *Crude opium containing 9 per cent or over of morphine.*—This is the chief grade used in medicine and manufacture. For the years 1909-1915 imports averaged 428,634 pounds, valued at \$1,787,162. During three succeeding years imports decreased largely, owing to war conditions. In 1918 only 21,342 pounds of crude opium, valued at \$265,283, are recorded. Since the signing of the armistice, large amounts of opium are understood to have been imported. Since 1918 imports of crude opium containing 9 per cent or more of morphine, chiefly from Turkey in Asia, Turkey in Europe, France, and England, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 15,254 | \$240,738 | \$15.78 | \$45,763 | 19.01 |
| 1919..... | 316,713 | 3,818,725 | 12.06 | 950,139 | 24.88 |
| 1920..... | 224,152 | 1,795,207 | 8.01 | 672,456 | 37.46 |
| 1921 (9 months)..... | 65,231 | 262,768 | 4.02 | ..... | ..... |

(2) *Dried or advanced opium.*—This is normally negligible in amount as compared with the crude grade, but has increased largely during the war, 98,498 pounds, valued at \$1,514,127, being imported in 1918. Imports since then have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent valorem. |
|----------------------|----------------|-------------|-------------|-----------|---------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 137,713 | \$2,337,278 | \$16.97 | \$550,852 | 28.57 |
| 1919..... | 27,702 | 506,408 | 18.24 | 110,808 | 21.92 |
| 1920..... | 1,376 | 5,757 | 4.18 | 5,504 | 95.61 |
| 1921 (9 months)..... | 149 | 436 | 2.93 | ..... | ..... |

(3) *Opium containing less than 9 per cent morphine.*—This grade includes smoking opium. The importation of low-grade opium has been prohibited by act of Congress since 1909. Import revenues from opium and its derivatives greatly exceed those of all other drug products combined. For the years 1909–1916 crude opium yielded an average annual revenue of \$671,969; that dried or advanced beyond the condition of crude, for 1910–1918, an average of \$178,093.

Imports under recent high tariffs have been small as compared with American manufacture and have consisted mainly of the rarer alkaloids and salts. War conditions caused demand for opium products virtually regardless of price, and considerable increase in imports took place in 1917–18. That increase was not larger is doubtless due to universal scarcity and export restrictions of other nations rather than to high prices or present tariff duties. The duty of \$3 per pound on 9 per cent opium is equivalent to a tax of \$2.07 per ounce on the contained alkaloid, leaving a margin in favor of the American manufacturer of 93 cents per ounce. This, together with the profit gained from codeine and other by-products, and the application of legal restrictions beyond the purview of the tariff, considerably hampered foreign competition in the American markets. Imports of morphine fell off under the present tariff rates from an annual average (1910–1913) of 18,004 ounces to (1914–1917) 2,805 ounces. In 1918 imports rose to 25,215 ounces, valued at \$202,263. Other alkaloids have pursued a very irregular course. The maximum (1917) is 34,179 ounces, valued at \$165,028. Imports of laudanum and other preparations have in recent years passed the \$5,000 mark only in 1915. Under the tariff of 1909 opium alkaloids yielded an average annual revenue of \$5,393. The tariff of 1918 has yielded (1915–1918) an annual average of \$49,233.

The only imports recorded since 1918 are 951 pounds, valued at \$4,542, in the first nine months of 1921.

Exports.—Statistics not available.

Important changes in classification.—The United States Pharmacopœia in the most recent revision changed the specifications for opium by stating the morphine content on the basis of anhydrous morphine rather than the crystalline morphine. This necessitated changing the 9 per cent limitation as to morphine content of opium to 8.5 per cent.

The phrase “dried to contain 15 per cent or less of moisture” (act of 1913) has been changed to “containing 15 per cent or less of moisture” in order to obviate the difficulty which customs authorities encountered in determining whether opium had been artificially dried.

The provision for “aqueous extract of opium, for medicinal uses” in paragraph 47 (act of 1913) has been omitted because the Commissioner of Internal Revenue (Int. Rev. T. D. 1982) has ruled that

aqueous extract of opium is smoking opium, and its importation is therefore prohibited by the act of February 9, 1909, as amended by the act of January 17, 1914.

The clause "but preparations of opium deposited in bonded warehouses shall not be removed therefrom without payment of duties, and such duties shall not be refunded," has been omitted, because it is believed that it serves no purpose at the present time. (Reclassification Report, pp. 67, 68.)

MORPHINE AND OTHER OPIUM ALKALOIDS.

(See Survey A-18.)

Description and uses.—The derivatives and preparations of opium are considered for tariff purposes in two categories—(1) opium alkaloids and their derivatives, and (2) medicinal preparations of opium. Morphine, codeine, and heroin, or diacetylmorphine, are the most important of opium alkaloids. Morphine occurs in medicinal opium in amounts of 9 per cent or more; codeine rarely exceeds 3 per cent. Heroin is an artificial product obtained from morphine. These preparations are used in medicine to relieve pain and induce sleep. Morphine is perhaps the most important single agent in the *Materia Medica*, both as regards its legitimate use and in its capacity as a habit-forming drug. The uses of heroin are similar to those of morphine. It was introduced as a nonhabit-forming substitute, but was speedily found to be even more dangerous in this respect than morphine itself. Heroin and cocaine may probably be considered as most subject to vicious misuse of any of the habit-forming drugs. Because of this fact and because heroin possesses no medicinal superiority to morphine, modern therapeutic authorities have advocated the prohibition of its manufacture and traffic. The use of codeine is similar to that of morphine. It is considered less habit-forming than morphine and therefore better suited to repeated administration. The secret use of the opium alkaloids and opium preparations in proprietary remedies has been regulated by the Food and Drugs Act. These materials also come within the scope of the Harrison Narcotic Act. Medicinal preparations, salts, and various combinations of opium are of considerable importance in domestic pharmaceutical manufacture, but the high ad valorem rate (60 per cent) has virtually eliminated them from our imports. Their use is similar to that of opium. Among the principal preparations may be mentioned laudanum, paregoric, and Dover's powder. The consumption of opium alkaloids in 1919 (preliminary figures) in the manufacture of "druggists' preparations and patent medicines and compounds" was: Morphine and salts, 3,984 pounds, valued at \$635,912; heroin and salts, 702 pounds, valued at \$178,585; codeine and salts, 2,312 pounds, valued at \$296,392.

Production.—Opium alkaloids are extensively manufactured in England, Germany, and the United States. England and Germany led in production prior to the war. Germany, in particular, produced a large variety of the rarer alkaloids and salts. Morphine has been extensively manufactured in America for a number of years. No statistics of production are available, but the average annual opium import before the war was equivalent to about 69,000 ounces, or 2,500,000,000 medicinal doses of morphine. Considerable amounts

of opium, however, are not manufactured into the alkaloid. Codeine was formerly produced chiefly in Germany. Under war conditions it has been extensively manufactured in the United States from Persian opium, which contains a comparatively large amount of this alkaloid. Heroin was until recently made only in Germany, but is now manufactured in this country.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem |
|---------------------------------------|----------------|-----------|-------------|-----------|-----------------------|
| MORPHINE OR MORPHINE SULPHATE. | | | | | |
| | <i>Ounces.</i> | | | | <i>Per cent.</i> |
| 1918..... | 30,385 | \$226,349 | \$7.45 | \$91,155 | 40.27 |
| 1919..... | 15,780 | 83,451 | 5.48 | 47,280 | 54.69 |
| 1920..... | 4,000 | 11,445 | 2.86 | 12,000 | 104.85 |
| 1921 (9 months)..... | 951 | 4,542 | 4.78 | | |
| OTHER OPIUM ALKALOIDS. | | | | | |
| 1918..... | 59,270 | \$341,771 | \$5.77 | \$177,810 | 52.03 |
| 1919..... | 31,909 | 189,476 | 5.94 | 95,727 | 50.52 |
| 1920..... | 6,522 | 30,537 | 4.68 | 19,566 | 64.07 |
| 1921 (9 months)..... | 2,180 | 6,093 | 2.79 | | |

Exports.—Statistics not available.

Important changes in classification.—The act of 1913 provided for "alkaloids of opium and salts and esters thereof." The language has been changed so that "thereof" refers to "alkaloids" and not to "opium," since there are no salts and esters of opium. (*Merck v. United States*, 6 Ct. Cust. Appls., 41, of 1915.) The term "derivatives" has been added so as to correspond to the provision for cocaine and ecgonine.

COCAINE, ECGONINE, AND DERIVATIVES THEREOF.

(See Survey A-18.)

Description and uses.—Cocaine is an alkaloid derived from coca leaves. It is used chiefly as a local anesthetic in minor surgical operations and dentistry, and is the most important medicinal of this class. It has other less important legitimate uses. Large quantities are used as an exhilarant by drug addicts. The cocaine habit is considered by medical authorities to be the most vicious and difficult to deal with of any narcotic addiction. Ecgonine and its derivatives are alkaloidal substances occurring with cocaine in coca leaves, and from them cocaine may be derived by chemical processes. They have no recognized medicinal use.

Production.—Cocaine used in the United States is practically all of domestic manufacture. Statistics are lacking, but the normal import of coca leaves is sufficient for the annual production of 100,000 or more ounces. Owing to the habit-forming properties of cocaine, a host of synthetic local anesthetics have been developed as substitutes. These were formerly chiefly imported from Germany, but under the trading with the enemy act a number of German patents have been licensed to American manufacturers. While these products

have attained a considerable vogue, apparently they have not decreased the demand for cocaine. The manufacture of cocaine, like that of most alkaloids, is a specialized industry, requiring a high type of chemical skill, and is carried on by only a few firms. The limitations imposed by the Food and Drugs Act, the Harrison Narcotic Act, and various other laws, have further tended to centralize the industry. Cocaine is also produced commercially in Germany, England, and other European countries. Considerable amounts of the crude product are produced in Peru and exported to Europe for purification.

The consumption of cocaine and salts in the manufacture of "Druggist preparations and patent medicines and compounds" in 1919 (preliminary figures) was 516 pounds, valued at \$90,454, a marked decrease from about 26,000 pounds in 1914.

Imports for the years 1910-1914 have averaged 3,239 ounces per year. After the imposition of the specific rate of \$2 per ounce only insignificant amounts of cocaine entered until 1916 and 1917 when, on account of war conditions, imports rose to 4,275 ounces and 19,388 ounces, respectively. American cocaine imports normally consist largely of rare salts, which are not manufactured in this country. The revenues yielded by cocaine have never been large, reaching a maximum of \$46,933 in 1910, and since then have decreased.

Commodities included in paragraph 55 embrace the chief narcotic and habit-forming drugs. The high rates of duty imposed by previous tariffs were presumably designed to limit imports and consumption rather than to raise revenue, although in the case of opium and its products the revenue has been comparatively large. The testimony brought out in various hearings on narcotic legislation indicates that the average annual amount of opium (and its products) and cocaine consumed within the United States is enormously in excess of medicinal use. Estimates of actual medicinal need of opium have varied from 50,000 pounds to 100,000 pounds annually. Under war conditions imports have been about 120,000 pounds annually, and much of this has been absorbed directly or indirectly by the Army. Recent investigations of opiumism and cocainism indicate that these addictions are on the increase. Legislation has tended to drive illicit trade in narcotic drugs into underground channels, but not to extirpate it. Statistics indicate that past tariff levies have been insufficient to exert any marked influence on the use of or demand for narcotics.

Imports of cocaine, ecgonine, and their salts, esters, etc., since 1917, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad-valorem. |
|----------------------|----------------|----------|-------------|----------|------------------------|
| | <i>Ounces.</i> | | | | <i>Per cent.</i> |
| 1918..... | 18,389 | \$80,652 | \$4.38 | \$36,778 | 45.60 |
| 1919..... | 12,464 | 29,035 | 2.33 | 24,928 | 85.88 |
| 1920..... | 8,642 | 27,324 | 3.16 | 17,284 | 63.26 |
| 1921 (9 months)..... | 6,309 | 16,978 | 2.69 | | |

Exports.—Statistics not available.

PARAGRAPH 56.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 56. Perfume materials: Anethol, citral, geraniol, heliotropin, ionone, rhodinol, safrol, terpineol, vanillin, and all natural or synthetic odoriferous or aromatic chemicals, all the foregoing not mixed and not compounded, and not specially provided for, 85 per centum ad valorem; all mixtures or combinations containing essential or distilled oils, or natural or synthetic odoriferous or aromatic substances, 40 cents per pound, and 40 per centum ad valorem: *Provided*, That only materials not marketable as perfumery, cosmetics, or toilet preparations, and not containing more than 10 per centum of alcohol, shall be classified for duty under this paragraph: *Provided further*, That all of the foregoing materials containing more than 10 per centum of alcohol shall be classified for duty under paragraph 58 as toilet preparations.

ACT OF 1909.

PAR. 83. Vanillin, twenty cents per ounce.

PAR. 3. * * * chemical compounds, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 70. Vanillin, 10 cents per ounce; * * *

PAR. 40. * * * all natural or synthetic odoriferous or aromatic substances, preparations, and mixtures used in the manufacture of, but not marketable as, perfumes or cosmetics; all the foregoing not containing alcohol and not specially provided for in this section, 20 per centum ad valorem.

PAR. 46. * * * all combinations of the same [essential and distilled oils], not specially provided for in this section, 20 per centum ad valorem; * * *

PERFUME MATERIALS.

(See Survey A-14.)

Description and uses.—This provision covers various odorous substances and preparations used in the manufacture of perfumes and cosmetics. The first portion of the paragraph, including the specific mention of various chemicals and the phrase "all natural or synthetic odoriferous or aromatic chemicals," embraces odoriferous chemicals obtained directly from the essential oils (paragraphs 54 and 1624, H. R. 7456), or which are prepared from such products by further chemical treatment.

Other materials used in the manufacture of perfumery and cosmetics, and specially provided for elsewhere in H. R. 7456, include the following: Synthetic odoriferous chemicals of coal-tar origin

(dutiable under paragraph 26); several animal products (free under paragraph 1506); essential oils (some free under paragraph 1625 and others dutiable under paragraph 54); enfleurage greases, floral essences, and floral concretes (free under paragraph 1566); and balsams (dutiable under paragraph 10).

The perfumery business is divided into two distinct branches—(1) manufacturers of and dealers in natural odoriferous materials or synthetic odoriferous chemicals; (2) firms which mix or blend these odoriferous materials with each other and with alcohol, or other material, to make finished perfumery and cosmetic articles in accordance with their own private formulas, and distribute the product to the wholesale or retail trade.

Some foreign manufacturers of perfumery, however, do all of the blending or mixing abroad, except the addition of alcohol, and ship the mixture to agents or branch houses in the United States, who add the necessary alcohol to convert these into finished perfumery, and bottle and distribute it. Since the composition of such mixtures is not disclosed and is very difficult, if not impossible, to ascertain by chemical tests, it is practically impossible for the appraisers to ascertain their dutiable value. Under the existing tariff this is in effect an evasion of the duties intended to be collected on finished perfumes. These complex compounds are covered by the provision in this paragraph for "all mixtures or combinations containing essential or distilled oils, or natural or synthetic odoriferous or aromatic substances," which, in H. R. 7456, are assessed a duty of 40 cents per pound and 40 per centum ad valorem, which is only slightly less than the duty on finished perfumes. (Par. 57.) This arrangement will tend to discourage the importation of such mixtures instead of the pure unmixed and uncompounded perfume materials which are more easily appraised.

Production.—Practically none of the aromatic chemicals, including those made from coal tar (see par. 26, p. 79), were manufactured in this country prior to the war. The domestic consumption was supplied largely by imports from Germany. Anethol is obtained by separation from anise or fennel oils. Citral is separated from lemon grass oil and is the raw material for ionone, which is the basis of synthetic violet perfume. Geraniol is obtained from palma rosa or Indian geranium oil. Rhodinol is a mixture of geraniol, citronellol, and other related alcohols present in oil of rose. Safrol is separated from camphor oil and is converted by oxidation to heliotropin. Terpeneol is made from terpin hydrate (par. 24, H. R. 7456), which is obtained from oil of turpentine. Vanillin is made from eugenol, which is separated from oil of cloves. Vanillin may be made also from coal tar products, although this process is not used in the United States. The domestic output of vanillin in 1914 amounted to 120,649 pounds, valued at \$525,219. Vanillin is also produced in foreign countries, including Switzerland and France. Domestic production of vanillin in 1919 (preliminary figures) was 134,700 pounds, valued at \$1,365,900.

Imports of the articles mentioned specifically (vanillin excepted) are available only for the fiscal year 1914 and are as follows:

| Article. | Quantity. | Value. | Article. | Quantity. | Value. |
|------------------|----------------|--------|----------------|----------------|---------|
| | <i>Pounds.</i> | | | <i>Pounds.</i> | |
| Anethol..... | 495 | \$900 | Ionone..... | 189 | \$1,178 |
| Citral..... | 1,771 | 3,867 | Rhodine..... | 181 | 1,493 |
| Geraniol..... | 2,727 | 6,233 | Safrol..... | 161,194 | 35,001 |
| Hellotropin..... | 10,529 | 5,715 | Terpineol..... | 141,748 | 33,983 |

Imports of vanillin during 1908-1915 averaged per annum 5,408 ounces, valued at \$1,072, with a revenue of \$909. No imports of vanillin are recorded for 1918 and 1919. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Ounces.</i> | | | | <i>Per cent.</i> |
| 1920..... | 20,303 | \$15,341 | \$0.76 | \$3,030 | 2.28 |
| 1921 (9 months)..... | 26,456 | 11,525 | .44 | | |

Imports of "all natural or synthetic odoriferous or aromatic substances, preparations and mixtures" from 1915-1918 have averaged about \$500,000, producing a revenue of about \$100,000 annually. Recent statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|-----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$566,624 | | \$111,323 | 20 |
| 1919..... | 60,870 | 752,033 | \$12.36 | 150,449 | 20 |
| 1920..... | 228,276 | 1,720,213 | 7.60 | 344,043 | 20 |
| 1921 (9 months)..... | 128,401 | 579,912 | 4.52 | | 20 |

Exports.—Statistics not available.

Important changes in classification.—Perfume materials provided for in paragraph 49 (act of 1913) have been separated into two natural groups according to degree of manufacture. The more important aromatic chemicals of noncoal-tar origin have been mentioned specifically in paragraph 56 (H. R. 7456). The provision for "all combinations of" of essential and distilled oils in paragraph 46 (act of 1918) has been combined with this paragraph. (Reclassification Report, p. 72.)

Suggested changes.—Page 20, line 1, of H. R. 7456: Strike out comma after "pound." Page 20, line 7, of H. R. 7456: Change "58" to "57."

Page 19, paragraph 56, line 24: Transpose "combinations" and "mixtures" to agree with paragraph 53.

PARAGRAPH 57.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 57. Perfumery, including cologne and other toilet waters, articles of perfumery, whether in sachets or otherwise, and all preparations used as applications to the hair, mouth, teeth, or skin, such as cosmetics, dentifrices, tooth soaps, pastes, theatrical grease paints, pomades, powders, and other toilet preparations, all the foregoing, if containing alcohol, 40 cents per pound and 60 per centum ad valorem; if not containing alcohol, 60 per centum ad valorem.

ACT OF 1909.

PAR. 67. Perfumery, including cologne and other toilet waters, articles of perfumery, whether in sachets or otherwise, and all preparations used as applications to the hair, mouth, teeth, or skin, such as cosmetics, dentifrices, including tooth soaps, pastes, including theatrical grease paints and pastes, pomades, powders, and other toilet articles, all the foregoing; if containing alcohol, or in the manufacture or preparation of which alcohol is used, sixty cents per pound and fifty per centum ad valorem; if not containing alcohol, or in the manufacture or preparation of which alcohol is not used, sixty per centum ad valorem; * * * not specially provided for in this section, twenty per centum ad valorem.

ACT OF 1913.

PAR. 48. Perfumery, including cologne and other toilet waters, articles of perfumery, whether in sachets or otherwise, and all preparations used as applications to the hair, mouth, teeth, or skin, such as cosmetics, dentifrices, including tooth soaps, pastes, including theatrical grease paints, and pastes, pomades, powders, and other toilet preparations, all the foregoing, if containing alcohol, 40 cents per pound and 60 per centum ad valorem; if not containing alcohol, 60 per centum ad valorem; * * *

PERFUMERY AND COSMETICS.

(See Survey A-14.)

Description and uses.—Perfumes and cosmetics include liquid perfumes, such as toilet waters and cologne, and dry perfumes, such as sachet and talcum. They also include preparations for the care of the skin, such as emulsions, crèmes, and nail powders; for the care of the hair, such as oils, washes, tonics, and pomades; for the care of the mouth, such as tooth pastes and powders; and cosmetics, such as face paints, powders, lip sticks, eyebrow pencils, and theatrical greases and paints. This paragraph covers perfumery and cosmetics in finished form. These products are made by mixing perfume materials (see par. 56) with other substances. The materials are mixed with alcohol in the case of liquid perfume, toilet waters, and hair tonics; with talc in the case of talcum powders; with greases and pigments in the case of face paints; and with many other substances. The manufacture and the sale of these finished articles are, as a rule, by firms other than those dealing in the raw materials.

Production.—France is probably the leading producer of perfume material, finished perfumes, and cosmetics. This is partly due to natural advantages in growing flowers which produce the perfume

odors and to the large use of these commodities by the French people. The domestic production of perfumery and cosmetics in 1914 was valued at \$16,899,000. The State of New York produced nearly one-half of the total output. Illinois and Massachusetts each produced over \$1,000,000 worth; New Jersey ranks with these two States.

In 1919 (preliminary figures) the values of the output of perfumery and cosmetics was \$59,592,000.

Imports of perfumery, cosmetics, and all toilet preparations have shown a steady increase from \$1,214,792 in 1910 to \$3,806,699 in 1917. Between 80 and 90 per cent of the imports have been from France. In 1913 the import of perfumery, cosmetics, and all toilet preparations containing alcohol was 285,553 pounds, valued at \$818,942, and yielded a revenue of \$580,803. The import of perfumery, cosmetics, and all toilet preparations not containing alcohol in 1913 was valued at \$1,025,200, and yielded a revenue of \$615,120. The imports increased to \$1,688,256 in 1917, with a revenue of \$1,012,954. Imports of the above articles since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|-------------|-----------|------------------|
| PERFUMES, INCLUDING COLOGNE AND OTHER TOILET WATERS (ALCOHOLIC). | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 259,068 | \$960,515 | \$3.71 | \$679,936 | 70.79 |
| 1919..... | 356,553 | 1,925,225 | 5.40 | 1,297,756 | 67.41 |
| 1920..... | 725,684 | 5,108,996 | 2.91 | 1,556,671 | 78.76 |
| 1921 (9 months)..... | 364,698 | 1,391,810 | 3.82 | | |

| | | | | | |
|--|-----------|-------------|--------|-----------|-------|
| PERFUMES, INCLUDING COLOGNE AND OTHER TOILET WATERS (NONALCOHOLIC). | | | | | |
| 1918..... | | \$1,537,691 | | \$922,615 | 60.00 |
| 1919..... | 974,197 | 1,893,874 | \$1.94 | 1,136,324 | 60.00 |
| 1920..... | 1,082,763 | 1,175,690 | 1.09 | 705,414 | 60.00 |
| 1921 (9 months)..... | 980,818 | 1,296,052 | 1.32 | | 60.00 |

PREPARATIONS USED AS APPLICATIONS TO HAIR, MOUTH, TEETH, ETC. (ALCOHOLIC).

| | | | | | |
|-------------------------|--------|----------|--------|----------|-------|
| 1918 ¹ | | | | | |
| 1919..... | 19,878 | \$21,048 | \$1.06 | \$20,590 | 97.78 |
| 1920..... | 29,931 | 84,453 | 2.82 | 62,644 | 74.18 |
| 1921 (9 months)..... | 12,082 | 42,193 | 3.49 | | |

PREPARATIONS USED AS APPLICATIONS TO HAIR, MOUTH, TEETH, ETC. (NONALCOHOLIC).

| | | | | | |
|-------------------------|---------|-----------|--------|-----------|-------|
| 1918 ¹ | | | | | |
| 1919..... | 364,529 | \$369,796 | \$0.43 | \$221,872 | 60.00 |
| 1920..... | 914,930 | 529,869 | .66 | 359,921 | 60.00 |
| 1921 (9 months)..... | 665,259 | 542,300 | .78 | | |

¹ Included with perfumes, cosmetics, et c.

Exports of perfumery, cosmetics, and toilet preparations have steadily increased from \$824,460 in 1910 to \$3,965,465 in 1918. England and Canada have been the chief consumers of our exports. Australia, Cuba, and the Philippines have taken a considerable portion in recent years. Exports were valued at \$7,324,422, \$8,739,593, and \$3,515,070 in 1919, 1920, and in the first nine months of 1921, respectively.

PARAGRAPH 58.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 58. Floral or flower waters containing no alcohol, not specially provided for, 20 per centum ad valorem; bay rum or bay water, whether distilled or compounded, 40 cents per pound and 60 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 67. * * * floral or flower waters containing no alcohol, not specially provided for in this section, twenty per centum ad valorem.

PAR. 48. * * * floral or flower waters containing no alcohol, not specially provided for in this section, 20 per centum ad valorem.

PAR. 305. Bay rum or bay water, whether distilled or compounded, of first proof, and in proportion for any greater strength than first proof, one dollar and seventy-five cents per gallon.

PAR. 242. Bay rum or bay water, whether distilled or compounded, of first proof, and in proportion for any greater strength than first proof, \$1.75 per gallon.

FLORAL OR FLOWER WATERS.

(See Survey A-14.)

Description and uses.—Floral or flower waters are obtained as a by-product of the steam distillation process of recovering the essential oils of various flowers. (See par. 54.) The flowers are distilled with steam and the essential oil of the flower separates from the condensed steam or water, but the water is left perfumed with the odor of the flower. An illustration of this is the well-known rose water which is produced in Bulgaria as a by-product of the production of oil of rose.

Imports from 1910 to 1913 were valued at \$31,413. In 1914 the value was \$50,297 and yielded a revenue of \$10,059. Imports decreased to \$22,216 in 1915. Imports since 1917 have been as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|-----------------------|----------|---------|---------------------|
| 1918 | \$33,735 | \$6,747 | <i>Per cent.</i> 20 |
| 1919 | 14,868 | 2,974 | 20 |
| 1920 | 54,334 | 10,877 | 20 |
| 1921 (9 months) | 28,945 | | |

Exports.—Statistics not available.

Important changes in classification.—Floral waters are included with perfumery in paragraph 48 of the act of 1913. Their chief use is other than in perfumery (for flavoring medicines), and therefore they were given a separate paragraph.

BAY RUM.

(See Survey A-14.)

Description.—Bay rum or bay water is a fragrant liquid, usually made by mixing the oil of bay leaves with alcohol and water; it may be obtained by distilling the leaves with rum.

Imports were 483 gallons, valued at \$310 in 1914; nearly all came from France and the Virgin Islands. Imports of raw materials in 1914 were 168,165 pounds of bay leaves, valued at \$5,870; and 1,631 pounds of bay oil, valued at \$2,393, chiefly from France and French West Indies, respectively.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------------|--------|-------------|-------|------------------------|
| | <i>Proof gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 12 | \$34 | \$2.83 | \$21 | 61.76 |
| 1919..... | 18 | 51 | 2.83 | 32 | 61.76 |
| 1920..... | 9,322 | 8,675 | .93 | (1) | |
| 1921 (9 months)..... | 1 | 12 | 12.00 | | |

¹ From the Virgin Islands, free of duty.

Exports.—Statistics not available.

Important changes in classification.—Bay rum is transferred from paragraph 242, schedule H, act of 1913, to this schedule.

PARAGRAPH 59.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 59. Paris green and London purple, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 57. Paris green, and London purple, fifteen per centum ad valorem. PAR. 569. Paris green and London purple [Free].

PARIS GREEN AND LONDON PURPLE.

(See Survey FL-8.)

Description and uses.—Paris green, a compound containing both copper and arsenic, is light green in color, insoluble in water, and very poisonous. It is manufactured from salts of copper and arsenic, and is used principally as an insecticide, but not as much as formerly, being replaced to a great extent by arsenate of lead (par. 44). It is employed also as a pigment. London purple, a by-product of the arsenic-acid method for the manufacture of fuchsine, is essentially calcium arsenite and arsenate colored by fuchsine and is insoluble in water and poisonous. The arsenic-acid method for the manufacture of fuchsine is now little used, hence London purple is nearly obsolete. It formerly served as an insecticide. Calcium arsenate is so used, but is not called London purple.

Imports of Paris green and London purple in 1914 were 32,373 pounds, more than two-thirds from England, the remainder from Germany. Imports decreased during the war and since 1916 have been negligible; the maximum was 772 pounds in 1920 (calendar year).

Exports.—Statistics not available.

Important changes in classification.—These products are exempt from duty under the act of 1913 (par. 569).

PARAGRAPH 60.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 60. Phosphorus, 10 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 59. Phosphorus, eighteen cents per pound.

PAR. 575. Phosphorus [Free].

PHOSPHORUS.

(See Survey FL-1.)

Description and uses.—Phosphorus is one of the nonmetallic elements. As calcium phosphate, it is an important constituent of bones, and its salts are necessary to all plant growth. It appears in commerce as yellow and red phosphorus. The yellow variety takes fire readily in the air and is poisonous, while the red is not nearly so inflammable and is nonpoisonous. Yellow phosphorus was formerly much used in the manufacture of matches, a use practically discontinued because of the imposition of internal-revenue taxes which are, in effect and in intent, prohibitive. The importation and exportation of matches so manufactured are also prohibited. (Act of Apr. 9, 1912, ch. 75, sec. 10, 37 Stat., 81, 83.) Phosphorus sesquisulphide and red phosphorus are both made from yellow phosphorus and are now used in matches in place of the latter. Phosphorus is also employed in the manufacture of phosphor bronze, in rat poison, and in phosphorus compounds, including phosphoric anhydride and phosphorus trichloride.

Production in 1914 was approximately 1,315,000 pounds. Phosphorus is a product of the electric furnace, the raw materials being calcium phosphate, sand, and carbon. During the war production in this country, as well as in Europe, multiplied four or five times, but since the war-time demand has abated, output has declined, leaving idle a large productive capacity.

Imports of phosphorus in 1914 were 605 pounds; in 1917, 4,010 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 584,081 | \$222,250 | \$0.38 |
| 1919..... | 54,916 | 17,283 | .31 |
| 1920..... | 291,747 | 55,077 | .19 |
| 1921 (9 months)..... | 228,962 | 46,000 | .20 |

Exports.—Statistic not available.

Importation changes in classification.—Phosphorus is exempt from duty under the act of 1913 (par. 575).

PARAGRAPH 61.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 61. Plasters, healing or curative, of all kinds, and court-plaster, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 66. Plasters, healing or curative, of all kinds, and court-plaster, twenty-five per centum ad valorem.

PAR. 50. Plaster, healing or curative, of all kinds and court-plaster, 15 per centum ad valorem.

PLASTERS, HEALING OR CURATIVE.

(See Surv., A-14.)

Description and uses.—Healing and curative plasters are intended for external application. They are usually pliable at the temperature of the body. The plastic material may be "lead plaster" (a lead soap made by beating together equal parts of lead oxide, olive oil, and lard), a mixture containing crude rubber, or a mixture of resinous substances with fats and waxes. The substances are spread upon linen, muslin, paper, or leather before using. The active principle used in the plaster depends upon the curative action desired.

Adhesive plasters are used in surgery to keep dressings in place, to cover ulcers, and to strengthen weak muscles. Court-plaster is made by applying to silk a coating of isinglass and tincture of benzoin.

Imports for four years prior to the war averaged a little less than \$5,000 in value. The value of imports was \$10,929 in 1914, and \$8,094 in 1916. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|---------|------------------|
| | | | Per cent. |
| 1918..... | \$7,353 | \$1,103 | 15 |
| 1919..... | 6,137 | 921 | 15 |
| 1920..... | 10,048 | 1,507 | 15 |
| 1921 (9 months)..... | 9,764 | ..... | 15 |

Exports.—Statistics not available.

PARAGRAPH 62.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 62. Paints, colors, and pigments commonly known as artists' paints or colors, whether in tubes, pans, cakes, or other forms, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 58. * * * all paints, colors, and pigments, commonly known as artists' paints or colors, whether in tubes, pans, cakes or other forms, thirty per centum ad valorem.

PAR. 63. * * * all paints, colors, and pigments commonly known as artists' paints or colors, whether in tubes, pans, cakes, or other forms, 20 per centum ad valorem; * * *.

ARTISTS' PAINTS OR COLORS.

(See Survey A-15.)

Description, uses, and production.—The paints commonly known as artists' paints or colors consist of pigments, such as burnt sienna, burnt umber, cobalt oxide, white chromes, etc., ground in oil and put up in tubes for artists' use. No figures have been published for the domestic production of artists' colors, but it is thought that their manufacture does not represent a large industry.

Imports.—The importation in 1915 was \$186,728 and yielded a revenue of \$37,345. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$85,207 | | \$17,041 | 20 |
| 1919..... | 99,993 | 102,987 | \$1.03 | 20,597 | 20 |
| 1920..... | | 205,007 | | 41,001 | 20 |
| 1921 (9 months)..... | | 143,571 | | | |

Exports.—Statistics not available.

Important changes in classification.—The provision in paragraph 63, act of 1913, for artists' colors has been given a separate paragraph.

PARAGRAPH 63.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 63. Pigments, colors, stains, and paints, including enamel paints, whether dry, mixed, or ground in or mixed with water, oil, or solutions other than oil, not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 51. * * * enamel paints made with varnish, thirty-five per centum ad valorem; * * *

PAR. 56. All paints, colors, pigments, stains, lakes, * * * whether crude or dry or mixed, or ground with water or oil or with solutions other than oil, not otherwise specially provided for in this section, thirty per centum ad valorem; * * *

PAR. 63. Enamel paints, and all paints, colors, pigments, stains, * * * whether crude, dry, mixed, or ground with water or oil or with solutions other than oil, not specially provided for in this section, 15 per centum ad valorem; * * * all color lakes, * * * whether dry or in pulp, not specially provided for in this section, 20 per centum ad valorem.

PIGMENTS, COLORS, STAINS, AND PAINTS, N. S. P. F.

(See Survey A-15.)

Description and uses.—Pigments are mineral or organic substances which, when finely ground and mixed with the proper vehicle, will form paint. It is essential that the pigment be insoluble in the

¹¹ Lakes not of coal-tar origin are unprovided for in H. R. 7456 except as colors n. s. p. f.

vehicle and opaque, since these properties determine the body and covering power of the paint. The manufacture of pigments is the most important branch of the paint industry, but considerable quantities are used for other industrial purposes, such as fillers in rubber, paper, linoleum, and oilcloth. Other pigments, especially lampblack and the color lakes, are used in lithographic inks.

The inorganic pigments may be classified according to their origin into three groups: (1) Natural mineral pigments, such as ocher, umber, sienna, hematite, siderite, and ground shale or slate; (2) pigments made directly from ores, e. g., zinc oxide, leaded zinc oxide, and basic sulphates of lead; and (3) chemically manufactured pigments, e. g., basic carbonate white lead, litharge, red lead, Venetian red, lithopone, vermilion, color lakes, and the chromium colors.

The different pigments and related paint materials are discussed under their respective headings in the order and in the groups provided for in H. R. 7456, paragraphs 63 to 74, inclusive.

Enamel paints, consisting of oil varnishes ground with finely divided pigments and thinned with turpentine, are decorative paints. Statistics for the production of enamel paints are not published, but the industry is large. Stains, being thinner than paint, are absorbed by the pores of the material to which applied instead of forming a coating on the surface. Those used for staining shingles usually contain a creosote or pine oil which has the effect of preserving the wood. The stains used for interior decorating, such as floor stains, are of greater commercial importance.

Production.—The products of the domestic paint industry in 1914 were valued at \$112,408,700 and in 1919 (preliminary figures) at \$256,714,300.

Imports of "all other paints, colors, pigments, stains, smalts, and frostings" prior to 1914 averaged about \$500,000 annually. They then decreased steadily to \$43,523 in 1918 (fiscal year). The maximum imports of "enamel paints" from 1910 to 1918 was in 1914 and amounted to about \$17,000. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|----------|-------------|---------|------------------|
| "ALL OTHER PAINTS, COLORS, PIGMENTS, STAINS, SMALTS, AND FROSTINGS." | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$51,507 | | \$7,726 | 15 |
| 1919..... | 548,275 | 109,492 | \$0.20 | 16,424 | 15 |
| 1920..... | | 282,338 | | 42,351 | 16 |
| 1921 (9 months)..... | | 151,908 | | | |

ENAMEL PAINTS.

| | | | | | |
|----------------------|--------|--------|--------|-------|----|
| 1918..... | 1,841 | \$525 | \$0.28 | \$79 | 15 |
| 1919..... | 7,313 | 5,638 | .77 | 846 | 15 |
| 1920..... | 60,478 | 26,127 | .43 | 3,918 | 15 |
| 1921 (9 months)..... | 9,458 | 2,991 | .32 | | |

Important changes in classification.—Smalts, frostings, ceramic and glass fluxes, enamels and colors, now classified in the paragraph with pigments (par. 63, act of 1913), have been transferred to schedule 2 (par. 231), and crayons, including charcoal crayons or fusains, in the same paragraph, have been transferred to schedule 14 (par. 1449, H. R. 7456).

The provision for color lakes (par. 63, act of 1913) has been omitted because all of the more important color lakes are of coal-tar origin and are provided for in paragraph 26 (H. R. 7456); others not of coal-tar origin would fall within the provision for colors in this paragraph. (Reclassification Report, p. 85.)

PARAGRAPH 64.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 64. Barytes ore, crude or unmanufactured, \$4 per ton; ground or otherwise manufactured, \$7.50 per ton; precipitated barium sulphate or blanc fixe, 1 cent per pound.

ACT OF 1909.

PAR. 42. Baryta, sulphate of, or barytes, including barytes earth, unmanufactured, one dollar and fifty cents per ton; manufactured, five dollars and twenty-five cents per ton.

PAR. 44. Blanc-fixe, or artificial sulphate of barytes. * * * one-half of one cent per pound.

ACT OF 1913.

PAR. 51. Baryta, sulphate of, or barytes, including barytes earth, unmanufactured, 15 per centum ad valorem; manufactured, 20 per centum ad valorem; blanc-fixe, or artificial sulphate of barytes, * * * 20 per centum ad valorem.

BARYTES ORE AND GROUND BARYTES.

(See Survey A-4.)

(For a general discussion of Barium Compounds, see p. 49.)

Description and uses.—Barytes ore is also called "barite," "heavy spar," and "tiff." It is usually a white opaque to translucent mineral, but is also found stained pink when containing oxides of iron. The commercial grades of crude barytes contain 90 to 95 per cent of barium sulphate. Of the barytes ore consumed in the United States about one-half goes into the pigment lithopone (see par. 74, p. 209) and the remainder is used in manufacturing ground barytes and barium chemicals (see par. 11, p. 49).

The natural mineral ground fine or crushed is known as unbleached barytes or barytes "off color," and is employed in the preparation of dark-colored paints, and as a filler in the paper industry, chiefly in the manufacture of heavy and stiff materials, such as used for playing cards and bristol board. Bleached ground barytes which has been treated with acid to dissolve out the iron and thereby improve its color is known as "prime white" and "floated" barytes. It is

used in white paints and as a filler in paper and rubber goods where a white product is desired.

Production of crude barytes in the United States since 1912 has been as follows:

| Year. | Quantity (short tons). | Value. | Year. | Quantity (short tons). | Value. |
|-----------|---------------------------|-----------|-----------|---------------------------|-------------|
| 1912..... | 37,478 | \$153,313 | 1917..... | 206,888 | \$1,171,184 |
| 1913..... | 45,298 | 156,275 | 1918..... | 155,368 | 1,044,905 |
| 1914..... | 52,747 | 155,647 | 1919..... | 209,330 | 1,727,822 |
| 1915..... | 108,647 | 381,032 | 1920..... | 228,113 | 2,142,404 |
| 1916..... | 221,952 | 1,011,232 | | | |

Prior to the war practically all of the barytes mined in the United States came from Missouri, and supplied the ground-barytes trade of the Middle West. In 1916 the largest State production of crude barytes was shifted from Missouri to Georgia. This was due to the development of the Georgia deposits by the eastern manufacturers of barium chemicals and lithopone, who had previously depended on Germany for this raw material. Barytes is now mined chiefly in Georgia, Missouri, Tennessee, Kentucky, and Virginia. The mining operations in the East are on a larger scale than those of Missouri, those in the latter State being conducted primarily by individuals on a small scale. This difference is due to the development of the eastern fields by large consumers.

The output of ground barytes from 1915 to 1920 has been between 52,000 and 58,000 short tons, except in 1916 and in 1920 when it was in excess of 65,000 tons.

Foreign production.—Up to the beginning of the war Germany, which has unlimited deposits of barytes of an exceedingly good grade, was one of the largest producers. In 1913, for example, she exported about four times as much as was produced in the United States in the same year. Since the war, however, production in this country has increased until the present output is greater than the exports of Germany previous to 1914. The United Kingdom also has large high-grade deposits.

Imports.—Prior to 1915 from 35 to 45 per cent of our consumption of crude barytes was imported, chiefly from Germany. During the war importation was practically negligible. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|-------------------|---------|-------------|--------|------------------|
| | <i>Long tons.</i> | | | | <i>Per cent.</i> |
| 1919..... | 35 | \$245 | \$7.00 | \$37 | 15 |
| 1920..... | 22,209 | 146,858 | 6.61 | 22,029 | 15 |
| 1921 (9 months)..... | 6,315 | 39,495 | 6.40 | ..... | 15 |

The 1920 importation approaches the prewar figure and is about 11 per cent of the 1920 domestic output.

Imports of ground or manufactured barytes have always been small and practically negligible.

Exports.—Statistics not available.

Important changes in classification.—The term "sulphate of baryta" is inconsistent with correct chemical nomenclature and is not used in commerce to designate barytes. The term "barytes" alone signifies barium sulphate. Barytes ore is usually known as crude barytes, and therefore the term "crude" was used in connection with the unmanufactured product.

Manufactured barytes is crude barytes which has been ground and any color present removed by bleaching with sulphuric acid. This product is sold as "ground barytes." The term "ground" was therefore used in connection with manufactured barytes. (Reclassification Report, p. 75.)

PRECIPITATED BARIUM SULPHATE OR BLANC FIXE.

Description and uses.—Precipitated barium sulphate or blanc fixe refers to barium sulphate which has been precipitated by chemical means from a solution of a soluble barium salt. This is the best grade of barium sulphate on the market and is used as an inert pigment and filler for paints and paper when a white product is desired. A special grade is largely used by the rubber industry. It is also used in the manufacture of printing inks.

Production.—Statistics of the domestic production of blanc fixe are not available prior to 1915. Production increased steadily from 1,229 short tons in 1915 to 9,522 short tons in 1918. The output declined to 5,227 tons in 1919, but was 8,046 tons in 1920.

Blanc fixe is prepared by treating a solution of crude barium sulphide (which is made from barytes by fusion with coal) with sodium sulphate or salt cake; and a by-product of sodium sulphide is obtained. It is also prepared by treating barium chloride with sodium sulphate.

Imports.—Prior to 1914 imports of blanc fixe and satin white or artificial sulphate of lime were between 5,000,000 and 6,000,000 pounds per year. Since then imports declined rapidly to less than 500,000 pounds in 1916 and 1917 and to about 180,000 pounds in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 1,285 | \$90 | \$0.07 | \$18 | 20 |
| 1920..... | 329,299 | 8,485 | .03 | 1,697 | 20 |
| 1921 (9 months)..... | 1,035,452 | 16,652 | .02 | ..... | 20 |

Exports.—Statistics not available.

Important changes in classification.—Precipitated barium sulphate was used to describe blanc fixe, as it is more accurate than artificial sulphate of barytes, the term used in paragraph 51 (act of 1913). Barytes refers to barium sulphate, and therefore the term "sulphate of barytes" is redundant. (Reclassification Report, p. 76.)

PARAGRAPH 65.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 65. Blue pigments and all blues containing iron ferrocyanide or iron ferricyanide, in pulp, dry, or ground in or mixed with oil or water, 12 cents per pound; ultramarine blue, dry, in pulp, or ground in or mixed with oil or water, wash and all other blues containing ultramarine, 3 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 43. Blues, such as Berlin, Prussian, Chinese, and all others, containing ferrocyanide of iron, in pulp, dry or ground in or mixed with oil or water, eight cents per pound.

PAR. 50. Ultramarine blue, whether dry, in pulp, or mixed with water, and wash blue containing ultramarine, three cents per pound.

PAR. 52. Blues, such as Berlin, Prussian, Chinese, and all others, containing ferrocyanide of iron, in pulp, dry or ground in or mixed with oil or water, 20 per centum ad valorem; ultramarine blue, whether dry, in pulp, or ground in or mixed with oil or water, and wash blue containing ultramarine, 15 per centum ad valorem.

FERROCYANIDE AND FERRICYANIDE BLUES.

(See Survey A-15.)

Description and uses.—The terms Berlin blue, Prussian blue, and Chinese blue, used in the act of 1913, are commercial names given to blue pigments made from iron ferrocyanide or iron ferricyanide. Many other names are used commercially for very similar pigments. The name Berlin blue is practically obsolete. These articles are sold in pulp, dry or ground in or mixed with oil or water in varying percentages. Ferrocyanide blues are used as pigments in prepared paints and dry colors; printing, lithographing, and writing inks; japans, enamel paints, soluble laundry blues; and mixed with other pigments, in the manufacture of other dry colors.

Production.—Ferrocyanide blues in general are made by mixing ferrocyanide of potash or soda with a soluble iron salt, such as copperas, and oxidizing the insoluble white product formed with a suitable chemical under carefully controlled conditions. The insoluble blue material formed in the process is then filtered, washed, and dried. Ferrocyanide blues are made on a large scale in the United States, and prior to 1914 the domestic production supplied over 75 per cent of the total needs, but about half of the sodium or potassium ferrocyanide used as a raw material was imported. Over 1,000,000 pounds of Prussian blue, valued at \$387,077, were manufactured in the United States in 1914; and in 1919 (preliminary figures), 944,650 pounds, valued at \$645,200. It is also manufactured in Germany, France, and England.

Imports for the period 1910-1917 have averaged 263,549 pounds, valued at \$76,840, yielding a revenue of \$19,623. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|--------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,923 | \$3,100 | \$1.06 | \$620 | 20 |
| 1919..... | 16,056 | 5,862 | .36 | 1,172 | 20 |
| 1920..... | 465,119 | 204,845 | .44 | 40,966 | 20 |
| 1921 (9 months)..... | 108,093 | 40,908 | .38 | ..... | 20 |

Exports.—Statistics not available.

Important changes in classification.—The blue pigments containing as their essential constituent iron ferrocyanide or iron ferricyanide are sold under various trade names. Those in paragraph 52 (act of 1913) are only a few of the names under which these blue pigments are sold. There was no special reason why those names should be continued. (Reclassification Report, p. 76.)

The phrase "and all blues" was added after "blue pigments" in order to cover articles such as "bleachers' blue," containing iron ferrocyanide, which was held to be dutiable as a nonenumerated manufactured article. (*De Ronde v. United States*, 1 Ct. Cust. Appls., 104 of 1910; Abstract 26014, T. D. 31744, of 1914; and Abstract 40916, of 1917.)

ULTRAMARINE BLUE.

(See Survey A-15.)

Description and uses.—Ultramarine is the commercial name given to the blue pigment obtained from the mineral lapis lazuli and to the artificial product obtained by a chemical process; the artificial process has almost entirely replaced dependence upon the more expensive natural color. Ultramarine is sold as dry powder (which is insoluble in water), in pulp, or ground in or mixed with water or oil. It is used in large quantities in paints, inks, soaps, and paper, and for many other purposes, including the manufacture of laundry blues.

Production.—Artificial ultramarine is made by heating a mixture of clays, soda ash or Glauber salts, coal, and sulphur in specially constructed furnaces, followed by grinding and lixiviating the product in water. Over 2,500,000 pounds of ultramarine, with a value of \$222,769, were manufactured in the United States in 1914, and in 1919 (preliminary figures) 2,800,000 pounds, valued at \$630,000. It is also manufactured in the principal countries of Europe, chiefly in England and Germany.

Imports of ultramarine for 1911-1917 averaged 636,907 pounds, valued at \$59,251, yielding a revenue of \$14,362. Imports before the war were obtained chiefly from England and Germany. Later statistics follow:

| Calendar year | Quantity | Value | Unit value | Duty | Ad valorem rate |
|---|----------------|----------|------------|---------|------------------|
| ULTRAMARINE. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 267,520 | \$29,490 | \$0.10 | \$4,424 | 15 |
| 1919..... | 310,165 | 38,968 | .13 | 5,845 | 15 |
| 1920..... | 735,971 | 83,447 | .11 | 12,517 | 15 |
| 1921 (9 months)..... | 605,687 | 59,002 | .10 | | 15 |
| WASH BLUES CONTAINING ULTRAMARINE. | | | | | |
| 1918..... | | \$11,841 | | \$1,776 | 15 |
| 1919..... | 61,282 | 8,178 | \$0.21 | 1,977 | 15 |
| 1920..... | 165,361 | 29,816 | .18 | 4,472 | 15 |
| 1921 (9 months)..... | 17,376 | 2,246 | .13 | | 15 |

Exports.—Statistics not available.

PARAGRAPH 66.

H. R. 7466.

SENATE AMENDMENTS.

PAR. 66. Bone black or bone char, blood char, and decolorizing and deodorizing chars or carbons, 20 per centum ad valorem.

ACT OF 1909.

PAR. 10. * * * bone char, suitable for use in decolorizing sugars, and blood char, twenty per centum ad valorem.

PAR. 45. Black, made from bone, * * * by whatever name known, including bone black * * * dry or ground in oil or water, twenty-five per centum ad valorem.

ACT OF 1913.

PAR. 447. * * * blood char, bone char, or bone black, not suitable for use as a pigment [Free].

PAR. 53. Black pigments, made from bone, * * * by whatever name known; * * * dry or ground in or mixed with oil or water, 15 per centum ad valorem.

PAR. 423. Bones * * * burned, calcined, * * * [Free].

DECOLORIZING AND DEODORIZING CHARS OR CARBONS.

(See Survey A-15)

Description and uses.—Bone black or bone char and blood char are produced by heating dried blood and bones in closed retorts until all volatile matter is driven off. Bone char contains about 10 per cent carbon and 90 per cent mineral matter. Both of these substances are sometimes called animal charcoal. Bone char to be used for decolorizing purposes differs from that used as a pigment only in that it should be in lumps or grains, while the pigment must be very finely ground. The principal use of these substances is as decolorizers in the refining of sugar, and in the purification of vegetable oils and paraffin. Other uses are in the purification of drinking water and in casehardening steel. Decolorizing and de-

odorizing chars or carbons include other forms of carbons, largely of vegetable origin, which have become of commercial importance. They were imported prior to the war and are now being made in this country.

Production.—Most of the animal charcoal used domestically is produced here. Output of bone black (includes that used as a pigment) in 1914 was 44,509,000 pounds, valued at \$1,532,000. In 1919 production figures were combined with other black pigments (see par. 68).

Imports have been mostly of bone char. In 1913 imports were valued at \$12,484; in 1914, at \$77,717; in 1915, at \$120,715. Imports since 1918 have been valued at \$36,594, \$137,561, \$524,172, and \$170,206 in the calendar years 1918, 1919, 1920, and the first nine months of 1921, respectively.

Imports of blood char since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|--------|-------------|
| | <i>Pounds.</i> | | |
| 1919..... | 10,732 | \$441 | \$0.04 |
| 1920..... | 84,762 | 1,182 | .01 |
| 1921 (9 months)..... | 17,094 | 555 | .03 |

Exports.—Statistics not available.

Important changes in classification.—The phrase “and decolorizing and deodorizing chars or carbons,” has been added, and the phrase “not suitable for use as a pigment,” omitted from H. R. 7456. “Blood char, bone char, or bone black, not suitable for use as a pigment,” are exempt from duty (par. 447, act of 1913).

PARAGRAPH 67.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 67. Chrome yellow, chrome green, and other colors containing chromium, in pulp, dry, or ground in or mixed with oil or water, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 48. Chrome yellow, chrome green, and all other chromium colors in the manufacture of which lead and bichromate of potash or soda are used, in pulp, dry, or ground in or mixed with oil or water, four and three-eighths cents per pound.

PAR. 54. Chrome yellow, chrome green, and all other chromium colors in the manufacture of which lead and bichromate of potash or soda are used, in pulp, dry, or ground in or mixed with oil or water, 20 per centum ad valorem.

CHROMIUM PIGMENTS.

(See Survey A-15.)

Description and uses.—Chrome yellow is a pigment obtained by mixing solutions of sodium or potassium bichromate with a soluble lead salt (such as the acetate), filtering the insoluble lead chromate

formed, and washing and drying to a powder. Shades from deep orange to light canary yellow may be obtained by varying the chemical conditions.

Chrome green is a mixture of chrome yellow and Prussian blue.

Chrome red is sometimes known as vermilion red or American vermilion. It is a basic lead chromate made by digesting chrome yellow with caustic soda.

Zinc yellow is a pigment containing zinc and chromium.

The chrome colors are used in the manufacture of paints and for other purposes where a color pigment is desired. Chrome green is also used in the manufacture of lithographic inks. These colors are sold dry, in pulp, or ground in or mixed with oil or water.

Production.—In 1914 the United States produced 5,747,817 pounds of chrome yellow, valued at \$641,534. Production of orange and green pigments (including chrome orange and green) in the same year was 8,024,409 pounds, valued at \$677,329. The output of chrome yellow, orange, and green in 1919 (preliminary figures) was 9,431,870 pounds, valued at \$2,081,400.

Imports prior to 1915 averaged about 155,000 pounds, valued at approximately \$25,000. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 37 | \$10 | \$0.27 | \$2 | 20 |
| 1919..... | 6,791 | 2,733 | .40 | 547 | 20 |
| 1920..... | 70,968 | 38,910 | .55 | 7,782 | 20 |
| 1921 (9 months)..... | 28,957 | 16,573 | .57 | | 20 |

Exports.—Statistics not available.

Important changes in classification.—The chrome colors dutiable under paragraph 54, act of 1913, are limited to those in the manufacture of which lead and bichromate of potash or soda are used. Although these are the principal chromium colors, there are other chromium pigments which do not require lead and bichromate of potash or soda in their manufacture. For example, oxide of chromium containing no lead or potassium bichromate has been declared dutiable as a color under paragraph 63 (act of 1913) rather than as chrome green under paragraph 54 (same act). (Abstract 37081, of 1914.) Zinc chromate or "zinc yellow" is another important chromium color. There being no apparent reason why all chromium colors should not receive the same tariff treatment, as the chromium content is the item of chief value, the phrase "in the manufacture of which lead and bichromate of potash or soda are used," was omitted. (Reclassification Report, p. 78.)

PARAGRAPH 68.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 68. Gas black, lampblack, and all other black pigments, by whatever name known, dry or ground in or mixed with oil or water, and not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 45. Black, made from * * * ivory, or vegetable substance, by whatever name known, including * * * lampblack, dry or ground in oil or water, twenty-five per centum ad valorem.

PAR. 53. Black pigments, made from * * * ivory, or vegetable substance, by whatever name known; gas black and lampblack, dry or ground in or mixed with oil or water, 15 per centum ad valorem.

GAS BLACK, LAMPBLACK, AND OTHER BLACK PIGMENTS.

(See Survey A-15.)

Description and uses.—Carbon is the base of nearly all black pigments, which may be divided into five groups:

(1) Soot blacks, which include lampblack, carbon black, gas black, acetylene black, benzol black, and other black pigments obtained by the incomplete combustion of many substances, such as natural gas, crude petroleum oil, dead oil (obtained from coal-tar distillation and from resinous woods, tar, and pitch). Carbon black, one of the most important of the class, is generally made by burning natural gas so that the flame impinges on a metal surface, where the carbon is deposited and later removed by scraping. It is largely used as a filler in rubber, in the manufacture of printing ink, in stove polishes, and in paints.

(2) The animal blacks, which form the second group, are principally obtained by calcining bones. Certain high grades are made from ivory chips or from carefully selected bones. These are known as ivory black and drop black to distinguish them from the other forms of bone black (par. 66).

(3) The charcoal blacks are obtained by charring willow, maple, bass, and similar soft woods. A special grade, known as vine black, is obtained by charring grape vines.

(4) The mineral blacks are powdered shale or slate and appear in commerce under the name of mineral black, slate black, black chalk, etc. Powdered coal, graphite, manganese ores, and asphaltum are occasionally used as black pigments.

(5) The fifth class are the black lakes, which consist of coloring matter precipitated on an inert base such as barytes and aluminum hydroxide. Logwood and nigrosine and other coal-tar dyes are largely used.

Production of bone, carbon, and lampblack increased from \$1,464,000 by 27 firms in 1914 to \$6,194,000 by 36 firms in 1919 (preliminary figures). In 1914 the output was: Bone black, \$1,532,000; carbon black, \$918,091; and lampblack, \$503,856. The 1919 output of carbon black from natural gas was 52,056,940 pounds, valued at \$3,816,000 and in 1920 was 51,321,892 pounds, valued at \$4,032,286.

Imports have been small as compared with the domestic production. The average value for the five years preceding the war was

about \$26,000. Since 1915 the imports have been quite small. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$2,743 | | \$411 | 15 |
| 1919..... | 67,617 | 2,769 | \$0.04 | 415 | 15 |
| 1920..... | 609,047 | 46,754 | .08 | 7,013 | 15 |
| 1921 (9 months)..... | 205,054 | 16,426 | .08 | | 15 |

Exports of carbon, bone, and lamp black have been much larger than imports, reaching a value of \$1,111,265 in 1918. Since 1918 (calendar year) the exports have increased to \$2,288,884 in 1920 and during the first nine months of 1921 were valued at \$905,608.

Important changes in classification.—The provision "Black pigments, made from bone, ivory, or vegetable substance," in paragraph 53 (act of 1913), has been omitted and the wording "Gas black, lampblack, and all other black pigments" has been inserted in H. R. 7456. Bone black, also used as a pigment, has been mentioned specifically in paragraph 66. (Reclassification Report, p. 77.)

PARAGRAPH 69.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 69. Lead pigments: Litharge, orange mineral, red lead, and white lead, 2½ cents per pound; all pigments containing lead, dry or in pulp, or ground in or mixed with oil or water, not specially provided for, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 58. Lead: * * * litharge, two and one-half cents per pound.

PAR. 48. Orange mineral, three and one-fourth cents per pound.

PAR. 49. Red lead, two and five-eighths cents per pound.

PAR. 53. White lead, and white pigment containing lead, dry or in pulp, or ground or mixed with oil, two and one-half cents per pound.

PAR. 52. Vermilion reds, * * * when not containing quicksilver but made of lead or containing lead, four and seven-eighths cents per pound.

PAR. 56. Lead pigments: Litharge, orange mineral, red lead, white lead, and all pigments containing lead, dry or in pulp, and ground or mixed with oil or water, not specially provided for in this section, 25 per centum ad valorem.

PAR. 50. Vermilion reds, * * * when not containing quicksilver but made of lead or containing lead, 25 per centum ad valorem.

LEAD PIGMENTS.

(See Survey A-15.)

LITHARGE.

Description and uses.—Litharge is the commercial name given to the yellow monoxide of lead which is formed when melted lead is heated to about 900° C. and oxidized in a current of air. It is used

in the manufacture of paints; as a drier for drying oils, such as linseed oil; in glass and pottery manufacture; in the preparation of numerous lead salts, such as lead acetate; and for various other purposes.

Production.—Litharge is made by melting lead in rotating drums or reverberatory furnaces and blowing air through it. The melted litharge is allowed to run over iron plates, when it is chilled with water; this produces the "yellow" litharge of commerce. Slow cooling favors the formation of a red flaky variety. The flakes are separated from the lumps by sifting and are sold as "flake." The solid material is ground wet, settled in water, and dried. It is marketed as "levigated" or "buff" litharge. Production in the United States has been steadily increasing—37,739 short tons, valued at \$5,853,543, in 1916; 46,739 pounds, valued at \$6,431,801, in 1919; and 62,329 tons, valued at \$12,386,185, in 1920.

Imports.—The average annual import for 1910–1916 was 35,500 pounds, valued at \$1,787, yielding a revenue of \$782. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 100 | \$12 | \$0.12 | \$3 | 25 |
| 1919..... | | | | | |
| 1920..... | 21,002 | 2,647 | .12 | 662 | 25 |
| 1921 (9 months)..... | 100 | 7 | .07 | | 25 |

Exports.—Statistics not available.

ORANGE MINERAL.

Description and uses.—Orange mineral is a tetroxide of lead which has been prepared with special care and is therefore more expensive than red lead. It is used as a pigment and for other purposes, including the manufacture of rubber.

Production.—Orange mineral is made by heating white lead in the presence of air. It is usually made from the scum which collects on the surface of wash waters used in levigating white lead. The production figures of orange mineral in the United States have been included with the figures for red lead since 1915. Prior to 1915 the production of orange mineral averaged about 600 short tons.

Imports.—The average annual import for 1910–1917 was 317,205 pounds, valued at \$20,098, yielding a revenue of \$9,373. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 39,781 | \$5,062 | \$0.13 | \$1,271 | 25 |
| 1920..... | 52,094 | 5,352 | .10 | 1,338 | 25 |
| 1921 (9 months)..... | 72,232 | 7,386 | .10 | | |

Exports.—Statistics not available.

RED LEAD.

Description and uses.—Red lead, the name given to the tetraoxide of lead, is a heavy, orange-red pigment having good covering power. Red lead is used in the manufacture of flint glass and cut-glass tableware, in the manufacture of preservative paints, and for various other purposes, including the manufacture of rubber goods and storage batteries, and as a lute in pipe fittings.

Production.—Red lead is made by heating litharge under carefully controlled conditions to about 375° C. Production has steadily increased in the United States, amounting to 23,035 short tons of red lead and orange mineral, valued at \$3,933,566, in 1916, and in 1918 and also in 1919 to an excess of 30,000 tons, valued at more than \$5,000,000. In 1920 the output was 34,431 tons, valued at \$7,523,089.

Imports.—The average annual import for 1910-1917 was 370,351 pounds, valued at \$16,075, yielding a revenue of \$9,743. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 5 | \$1 | \$0.20 | | 25 |
| 1919..... | 7,199 | 1,136 | .16 | \$284 | 25 |
| 1920..... | 23,076 | 1,739 | .08 | 447 | 25 |
| 1921 (9 months)..... | 6,176 | 339 | .05 | | 25 |

Exports in 1918 (fiscal year) were 4,792,330 pounds, valued at \$567,854. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 5,739,819 | 6,227,797 | 3,063,030 | 949,290 |
| Value..... | \$662,584 | \$735,177 | \$365,575 | \$101,628 |

WHITE LEAD.

Description and uses.—White lead is the commercial name given to the artificial white pigment consisting of a mixture of carbonate and hydroxide of lead, and is the most important of the paint pigments, being impervious to light and possessing the highest covering power. It is sold dry or in pulp, ground or mixed with oil or water. White lead used alone or mixed with other pigments is a constituent of almost all mixed paints, and is used for the production of other lead compounds and salts.

Production.—White lead is manufactured chiefly by a method known in the trade as the "Dutch process," which consists essentially in corroding cast lead "buckles" by means of acetic acid and converting the acetate of lead produced into a mixture of lead carbonate and hydroxide of lead. This is accomplished by the action of carbon dioxide gas, obtained from fermentation of spent tan bark. Several other processes are employed which have distinct advantages, but the bulk of the white lead produced in this country is made by the Dutch process.

The average annual domestic production for 1910-1916 was 142,986 short tons, valued at \$18,260,727. The output in 1919 and 1920 was about 140,000 tons. It is manufactured in many countries, among them England, Germany, Austria-Hungary, Russia, Italy, Belgium, and Holland. Prior to 1915 it was produced in France, but manufacture was discontinued on account of lead poisoning.

Imports prior to the war were about 700,000 pounds—less than 1 per cent of the domestic production—and yielded a revenue averaging about \$4,000. They were negligible during the war, and have since been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-------------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919 ¹ | 21,213 | \$2,490 | \$0.12 | \$623 | 25 |
| 1920..... | 159,977 | 19,449 | .12 | 4,862 | 25 |
| 1921 (9 months)..... | 123,616 | 12,545 | .10 | ..... | 25 |

¹ In 1918 imports were combined with all other pigments containing lead.

Exports since 1913 have averaged about 7 or 10 per cent of the domestic production, and since 1918 (calendar years) have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|-------------|-------------|--------------------|
| Quantity (pounds)..... | 15,589,916 | 28,033,485 | 29,801,557 | 8,647,947 |
| Value..... | \$1,768,739 | \$3,037,392 | \$3,198,101 | \$663,848 |

SUBLIMED WHITE LEAD.

Description and uses.—Sublimed white lead (basic lead sulphate) is an amorphous white pigment with excellent covering properties. It is composed of about 75 per cent lead sulphate, 20 per cent lead oxide, and 5 per cent zinc oxide. Basic lead sulphate is used in paints, and in the manufacture of oilcloth, stained paper, and rubber goods.

Production.—Sublimed white lead is made directly from the ore (silver-free galena) by mixing finely ground ore with coal and heating in a furnace. Blue fume or "sublimed blue lead," which has some use as a pigment, is a by-product. The production of sublimed white lead in 1910 was 9,951 short tons, valued at \$1,002,010. Since 1910 the production figures of this commodity have been grouped with the figures for other lead pigments, chiefly leaded zinc oxides. Sublimed white lead is made in England and Australia and elsewhere abroad.

Import statistics for this commodity are not shown in official publications.

Exports.—Statistics not available.

OTHER LEAD PIGMENTS.

Imports of all other pigments containing lead since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-------------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918 ¹ | 508 | \$302 | \$0.40 | \$61 | 26 |
| 1919..... | 115 | 46 | .40 | 12 | 26 |
| 1920..... | 1,757 | 341 | .19 | 85 | 25 |
| 1921 (9 months)..... | 24,829 | 2,922 | .08 | ..... | 25 |

¹ Includes white lead.

PARAGRAPH 70.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 70. Ochers, siennas, and umbers, crude or not ground, one-fourth of 1 cent per pound; washed or ground, three-eighths of 1 cent per pound; iron-oxide and iron-hydroxide pigments not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 47. Ocher and ochery earths, sienna and sienna earths, and umber and umber earths, not specially provided for in this section, when crude or not powdered, washed or pulverized, one-eighth of one cent per pound; if powdered, washed or pulverized, three-eighths of one cent per pound; if ground in oil or water, one cent per pound.

PAR. 55. Ocher and ochery earths, sienna and sienna earths, and umber and umber earths, 5 per centum ad valorem; Spanish brown, venetian red, Indian red, and colcothar or oxide of iron, not specially provided for in this section, 10 per centum ad valorem.

PAR. 56. All * * * pigments * * * not otherwise specially provided for in this section, thirty per centum ad valorem; * * *

OCHER, SIENNA, AND UMBER.

(See Survey A-15.)

Description.—Ocher, sienna, and umber are natural pigments consisting essentially of clay colored by the hydrated oxides of iron and manganese. Ordinary ocher rarely contains more than 30 per cent of the hydrated oxide of iron. The composition of sienna and umber is similar to that of ocher, although they invariably contain manganese and frequently more iron. Ocher is the cheapest of the common yellow pigments. UMBER and sienna are of brown color, due to manganese content.

When ocher is calcined the color is changed to an orange or red, but these varieties, known as burnt ochers, are less important pigments than the untreated and natural yellows. UMBER and sienna are marketed both raw and burnt, but the burnt pigments, which are darker in color, are the more important. Burnt sienna is reddish brown, while burnt umber is a rich, warm brown.

Uses.—Coarse ocher is used as a filler for linoleum, the finer grade as a pigment in tinted paints or as a stain for the pulp of brown paper. Siennas and umbers are used principally as paint pigments.

Ground sienna is used in lithographic printing and widely as a stain and filler for wood. Umber paints have good covering power, and umber is an essential ingredient in many weather-proof paints.

Production.—France provides the world's greatest output of ocher. Large quantities are also mined in England and the United States. The French colors are considered more brilliant and finer than those from other countries and are generally recognized as standard grades. Prior to the war the United States annually consumed between 20,000 and 25,000 tons of ocher, of which about two-thirds was of domestic origin. Georgia, Pennsylvania, and Florida furnished most of the American product.

Neither sienna nor umber is produced in large amounts in the United States, the average domestic output before the war being less than 1,000 tons annually. In 1914, the last year for which complete data are available, the combined imports of umber and sienna were 7,581 short tons, valued at \$109,238, as compared with a domestic output of only 790 short tons, valued at \$21,070. Umber is produced in practically all countries, but the finest qualities are found in Cyprus, Sicily, Asia Minor, and the Netherlands. Turkish umber, chiefly from the island of Cyprus, is the standard. Italian sienna, produced in Tuscany, has the same preeminence in its field as Turkish umber in the world market. The Harz Mountains are the only other important source of supply, although small amounts of sienna are produced in many parts of the world.

Imports of ocher prior to the war were 6,000 to 9,000 tons annually. Approximately three-fourths came from France. Sienna and umber are imported in three forms: (1) Crude or unpulverized, (2) powdered or washed, and (3) paste (ground in oil or water). Imports have been principally in crude form. Imports of umber of all classes in 1914, which is a fairly representative year, amounted to 2,303 short tons, valued at \$35,570; imports of sienna during the same period were 3,245 tons, with a value of \$55,925. Imports of these materials since 1917 are given in the following table:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|------------------------|----------------|-----------|-------------|---------|------------------|
| OCHERS, CRUDE. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 8,321,892 | \$193,647 | \$0.02 | \$9,682 | 5 |
| 1919..... | 9,137,187 | 219,805 | .02 | 10,990 | 5 |
| 1920..... | 29,595,091 | 875,672 | .01 | 18,794 | 5 |
| 1921 (9 months)..... | 7,068,974 | 118,055 | .02 | ..... | 5 |
| SIENNAS, CRUDE. | | | | | |
| 1918..... | 1,641,214 | \$60,154 | \$0.04 | \$3,008 | 5 |
| 1919..... | 1,734,807 | 46,134 | .03 | 2,307 | 5 |
| 1920..... | 5,414,477 | 145,480 | .08 | 7,274 | 5 |
| 1921 (9 months)..... | 2,157,947 | 88,002 | .04 | ..... | 5 |
| UMBERS, CRUDE. | | | | | |
| 1918..... | 487,623 | \$13,859 | \$0.03 | \$993 | 5 |
| 1919..... | 2,315,377 | 23,244 | .01 | 1,162 | 5 |
| 1920..... | 7,643,235 | 85,424 | .01 | 4,271 | 5 |
| 1921 (9 months)..... | 2,617,169 | 29,486 | .01 | ..... | 5 |

Exports.—Statistics not available.

Important changes in classification.—The term "earths" has been omitted in connection with ochers, siennas, and umbers (par. 55, act of 1913).

IRON-OXIDE AND IRON-HYDROXIDE PIGMENTS.

(See Survey A-15.)

Description and uses.—These pigments, consisting chiefly of red and brown oxides of iron, are known by the general term metallic paint. They were described in the act of 1913 as "Spanish brown, Venetian red, Indian red, and colcothar or oxide of iron." Commercially the brown colors are called metallic browns to distinguish them from ochers, umbers, and siennas. Spanish brown is the product imported from Spain. The nomenclature of the reds is much more involved, and describes shade and quality rather than origin or method of production.

Venetian red has been loosely applied to a variety of red pigments, but is correctly applicable only to a combination of iron oxide and calcium sulphate. All Venetian reds are of the familiar brick color, are paler than other iron reds, and not so brilliant, are permanent, work well with oil, can be mixed with other pigments, and are cheap.

Indian red is doubtless the best known of the natural iron oxide pigments, and in the trade bears various names, such as bole, raddle, oxide red, and rouge. Native Indian red contains about 90 per cent of iron oxide.

Colcothar is the obsolete name for iron oxide formed by the calcination of copperas—iron sulphate crystals produced from iron wastes and from pickling liquors in wire works and galvanizing mills.

Oxide of iron is the commercial term used to describe the artificial oxide obtained by calcination of copperas. The name is not used to describe natural pigments or those made direct from ore, although red hematite and calcined carbonate iron ore may have the same chemical composition.

Crocus martis is a trade designation for the purple or deep-red pigment produced by calcining certain iron salts. It is rarely used as a pigment but chiefly for polishing powder.

One of the most extensive uses of iron paints is for the protection of structural steel and iron, for which purpose it has proved more satisfactory than either graphite or red lead; it is also much cheaper in first cost. Large quantities are used for painting freight cars, barns, and houses.

In addition to being used as a pigment the best grade of iron oxide is an important abrasive. Iron oxide, of natural and artificial origin, is prepared in extremely fine form and used for polishing plate glass and lenses, gold, silver, and other metals.

Production.—The chief source of natural iron paints in the United States is the Clinton hematite found in various places throughout the Appalachian region. There is also a small output from the Lake Superior district. Accurate statistics of production are practically impossible to secure, because of the diversity of the products and the difficulty of classification. Data, reported by the United States

Geological Survey for the years 1907 to 1914, show an average domestic output of about 25,000 short tons, valued at approximately \$180,000. These figures do not include material of similar composition used as mortar colors or all of the oxide paints from the metallurgical waste liquors. The marketed production of Venetian red in 1914 was 7,445 short tons, valued at \$119,895.

Imports.—The United States is the largest consumer of iron paints in the world. The consumption is increasing rapidly, and is supplied chiefly by domestic production. Spanish iron ores, however, notably the brown hematites, are important imports. Special qualities of reds, chiefly of artificial origin, are imported from Europe, especially from England; and, before the war, were brought from Germany. The values of the imports of oxides of iron for consumption are the only data shown in Commerce and Navigation. From 1910 to 1918 the annual imports of Spanish brown, Indian red, and colcothar or oxide of iron, n. s. p. f., averaged about \$180,000, increasing from \$82,514 in 1911 to \$335,176 in 1918. Imports of Venetian red from 1910 to 1913 average annually about 2,620,000 pounds, valued at \$23,410. They increased to 3,858,611 pounds in 1914, and then decreased steadily to 483,368 pounds in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|-------------|----------|------------------|
| SPANISH BROWN, INDIAN RED, AND COLCOTHAR OR OXIDE OF IRON. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$311,425 | | \$31,143 | 10 |
| 1919..... | 9,971,744 | 307,413 | .03 | 30,741 | 10 |
| 1920..... | 15,200,834 | 483,201 | .03 | 48,320 | 10 |
| 1921 (9 months)..... | 10,686,007 | 337,755 | .03 | | 10 |
| VENETIAN RED. | | | | | |
| 1918..... | 312,996 | \$3,658 | \$.01 | \$365 | 10 |
| 1919..... | 179,700 | 3,509 | .02 | 351 | 10 |
| 1920..... | 303,916 | 4,802 | .01 | 480 | 10 |
| 1921 (9 months)..... | 255,997 | 5,360 | .02 | | 10 |

Exports.—Statistics not available.

Important changes in classification.—The terms "Spanish brown, venetian red, Indian red, and colcothar or oxide of iron" (par. 55, act of 1913) have been replaced with "iron-oxide and iron-hydroxide pigments."

PARAGRAPH 71.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 71. Satin white and precipitated calcium sulphate, one-half of 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 44. * * * satin white, or artificial sulphate of lime, one-half of one cent per pound.

PAR. 51. * * * satin white, or artificial sulphate of lime, 20 per centum ad valorem.

SATIN WHITE AND PRECIPITATED CALCIUM SULPHATE.

(See Survey A-15.)

Description, uses, and production.—Satin white is gelatinous aluminum hydroxide mixed with calcium sulphate. It is made by precipitating a concentrated solution of sulphate of aluminum with an excess of lime. Precipitated calcium sulphate is the pure product obtained by precipitation from a solution of calcium chloride by means of sodium sulphate. It is also obtained as a by-product of certain chemical processes. Calcium sulphate also exists in nature as gypsum. (See par. 205, p. 265.) Satin white and artificial sulphate of lime are used synonymously in the act of 1913; in reality they are distinct commodities. Satin white is used largely in the coating of paper. Precipitated calcium sulphate, as well as natural calcium sulphate (gypsum), is used as an inert pigment and filler in the manufacture of paints.

Imports.—These two commodities are combined with “blanc-fixe or artificial sulphate of barytes,” in the statistics of imports. (See par. 64, p. 187.)

Exports.—Statistics not available.

Important changes in classification.—Satin white and artificial calcium sulphate are distinct articles of commerce, satin white being a gelatinous aluminum hydroxide mixed with calcium sulphate and some free lime, and produced by precipitating a solution of aluminum sulphate with an excess of lime, while precipitated (artificial) calcium sulphate is obtained by precipitation from a solution of calcium chloride by means of sodium sulphate. Satin white and precipitated calcium sulphate have no relation (other than being pigments) to the other articles in paragraph 51 (act of 1913); therefore they were provided for in separate paragraphs. (Reclassification Report, p. 76.)

PARAGRAPH 72.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 72. Spirit varnishes containing less than 5 per centum of methyl alcohol, \$2.20 per gallon and 25 per centum ad valorem; spirit varnishes containing 5 per centum or more of methyl alcohol, and all other varnishes not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 51. Varnishes, including so-called gold size or japan, twenty-five per centum ad valorem; * * * spirit varnish containing five per centum or more of methyl alcohol, thirty-five cents per gallon and thirty-five per centum ad valorem; spirit varnish containing less than five per centum of methyl alcohol, one dollar and thirty-two cents per gallon and thirty-five per centum ad valorem.

PAR. 58. Varnishes, including so-called gold size or japan, 10 per centum ad valorem: *Provided*, That spirit varnishes containing less than 10 per centum of methyl alcohol of the total alcohol contained therein, shall be dutiable at \$1.32 per gallon and 15 per centum ad valorem.

VARNISHES.

(See Survey A-15.)

Description and uses.—Varnish is a homogeneous liquid which dries (when applied to a surface) by evaporation of the volatile solvent or by evaporation of the solvent and oxidation of the oil and resins to a more or less impervious elastic film. Varnishes in the drying of which heat is applied in a closed compartment to expel the solvent and the residual layer is fused to a glasslike uniformity are termed japans. In the trade the term is loosely used. Gold size is a varnish used in preparing surfaces to which gold leaf is to be applied. Lacquers are highly transparent varnishes used to produce a thin film on metals to preserve their luster; some are finished by heating; others by drying in the air. The term is used somewhat interchangeably with "japan."

Varnishes may be divided into three classes: (1) Spirit varnishes, which are a solution of a gum resin in a volatile solvent, such as grain or wood alcohol or a mixture of the two; for example, shellac. (2) Oil varnishes, which contain a gum resin, a drying oil (linseed, China wood), a thinner, and a drier. (3) Pyroxylin varnishes, which consist of cellulose nitrate dissolved in a solvent, usually amyl acetate. Pyroxylin varnishes are often classed as spirit varnishes, but are quite different chemically.

Production.—In 1914 there were engaged primarily in the manufacture of varnishes 215 establishments, with a capital of \$29,860,798, with 5,610 employees, and an output valued at \$33,214,949, an increase of about \$3,000,000 over 1909. The chief producing States are New York, Illinois, New Jersey, and Ohio. In 1919, according to preliminary figures, there were 229 establishments with an output valued at \$83,632,400, two and one-half times the value of the 1914 output.

Imports from 1910 to 1917, inclusive, have ranged from a minimum of \$55,787 in 1913 to a maximum of \$70,073 in 1916. In 1914 the imports were less than 0.2 per cent of domestic production. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit val.ue. | Duty. | Equiva- lent ad valorem. |
|--|-----------------|---------|--------------|---------|--------------------------------|
| SPIRIT VARNISHES, CONTAINING LESS THAN 10 PER CENT METHYL ALCOHOL. | | | | | |
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 867 | \$1,046 | \$1.21 | \$1,301 | 124.41 |
| 1919..... | 48 | 272 | 5.67 | 104 | 38.29 |
| 1920..... | 86 | 630 | 7.33 | 208 | 33.02 |
| 1921 (9 months)..... | 341 | 1,484 | 4.35 | | |
| SPIRIT VARNISHES, CONTAINING 10 PER CENT OR MORE OF METHYL ALCOHOL. | | | | | |
| 1918..... | 91 | \$775 | \$8.52 | \$78 | 10.00 |
| 1919..... | 380 | 1,622 | 4.27 | 162 | 10.00 |
| 1920..... | 798 | 2,586 | 3.22 | 289 | 10.00 |
| 1921 (9 months)..... | 161 | 883 | 5.48 | | |

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------------|-----------|--------|-------------|-------|--------------------------------|
| GOLD SIZE OR JAPAN. | | | | | |
| 1918..... | | \$105 | | \$11 | 10.00 |
| 1919..... | 2,426 | 9,099 | \$3.75 | 910 | 10.00 |
| 1920..... | 1,006 | 3,131 | 3.11 | 313 | 10.00 |
| 1921 (9 months)..... | 572 | 2,890 | 5.05 | | |

ALL OTHER VARNISHES, N. S. P. F.

| | | | | | |
|----------------------|--------|---------|--------|-------|-------|
| 1918..... | 284 | \$1,127 | \$3.97 | \$113 | 10.00 |
| 1919..... | 18,712 | \$9,130 | 3.16 | 5,913 | 10.00 |
| 1920..... | 15,391 | 51,650 | 3.36 | 5,165 | 10.00 |
| 1921 (9 months)..... | 15,482 | 58,378 | 3.77 | | |

Exports from 1910 to 1915 were practically constant at about \$1,000,000, decreasing to \$682,352 in 1915 and increasing to prewar figures in 1917 and 1918. In 1914 exports were 3 per cent of the domestic production. Exports since 1917 (calendar years) have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|-------------|---------------------|
| Quantity (gallons)..... | 698,152 | 1,418,267 | 1,623,754 | |
| Value..... | \$1,213,710 | \$2,713,727 | \$3,228,350 | \$2,671,668 |

Important changes in classification.—Spirit varnishes in the act of 1913 (par. 58) were dutiable at different rates, according to whether or not they contained less than 10 per cent of methyl alcohol. This division at the time of the passage of the act of 1913 was in accordance with the denaturing formula in use in the United States. The limit has been changed to 5 per cent in H. R. 7456 to correspond to present denaturing formula of the Bureau of Internal Revenue.

“Varnishes, including so-called gold size or japan,” in paragraph 58, act of 1913, has been omitted and instead the phrase, “other varnishes not specifically provided for,” has been inserted in H. R. 7456. (Reclassification Report, p. 81.)

PARAGRAPH 78.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 73. Vermilion reds containing quicksilver, dry or ground in or mixed with oil or water, 38 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 52. Vermilion reds, containing quicksilver, dry or ground in oil or water, ten cents per pound; * * *

PAR. 59. Vermilion reds, containing quicksilver, dry or ground in oil or water, 15 per centum ad valorem; * * *

VERMILION RED.

(See Survey A-15.)

Description and uses.—Vermilion red ordinarily refers to the red sulphide of mercury which is suitable for use as a pigment. It is so expensive on account of a large content of quicksilver (mercury) that substitutes are extensively used for the true vermilion. "American vermilion" is basic-lead chromate and is more generally known as chrome red. (See par. 67, p. 193.) Another so-called vermilion is eosine vermilion or "vermillionette," which is a color lake produced by precipitating eosine, a coal-tar dye, on inert, white bases, such as barium sulphate, lead sulphate, or white lead.

Production.—True vermilion may be of natural or artificial origin. It exists in nature as the mineral cinnabar, but this source is of minor importance. Practically all of the quicksilver vermilion is now manufactured from quicksilver and sulphur, both produced in this country. In H. R. 7456 quicksilver is assessed a duty of 35 cents per pound (par. 383); sulphur is free (par. 1663).

The production of vermilion reds is one of the minor branches of the paint industry. The total output of true vermilion as reported by the census in 1914 was 322,759 pounds, valued at \$200,134; and in 1919 (preliminary figures), 327,500 pounds, valued at \$237,800.

Vermilion is manufactured in various European countries, Germany and England being the most important. These countries depend on Spain, Austria, and Italy for their supply of quicksilver.

Imports in 1913 of vermilion red containing quicksilver were 84,294 pounds, valued at \$44,420, and yielded a revenue of \$8,429. The imports in 1914 were about 72,000 pounds, and in 1915 increased to 94,164 pounds, valued at \$58,464, yielding a revenue of \$8,769. Imports then decreased to 7,181 pounds in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,368 | \$3,134 | \$1.32 | \$470 | 15 |
| 1919..... | 13,704 | 21,122 | 1.53 | 3,168 | 15 |
| 1920..... | 46,963 | 57,223 | 1.22 | 8,583 | 15 |
| 1921 (9 months)..... | 4,289 | 3,785 | .88 | ..... | 15 |

The imports of vermilion red not containing quicksilver, but made of lead or containing lead, have been sporadic and practically negligible.

Exports.—Statistics not available.

Important changes in classification.—The language in paragraph 59, act of 1913, "when not containing quicksilver but made of lead or containing lead," is in conflict with the language in paragraph 54, "all other chromium colors in the manufacture of which lead and bichromate of potash or soda are used." The only pigment which could possibly be classified under this provision in paragraph 59 is "American vermilion." This pigment is a basic-lead chromate, distinctly a chromium color, and within the language of paragraph 54. "Vermillionette" is a coal-tar lake which comes within the act of September 8, 1916. The clause for vermilion reds not containing quicksilver was therefore omitted. (Reclassification Report, p. 82.)

PARAGRAPH 74.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 74. Zinc oxide and leaded zinc oxides containing not more than 25 per centum of lead, in any form of dry powder, 1½ cents per pound; ground in or mixed with oil or water, 2 cents per pound; lithopone, and other combinations or mixtures of zinc sulphide and barium sulphate, 1½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 55. Zinc, oxide of, and white pigment containing zinc, but not containing lead, dry, one cent per pound; ground in oil, one and three-fourths cents per pound; sulphid of zinc white, or white sulphide of zinc, one and one-fourth cents per pound; * * *

PAR. 61. Zinc, oxide of, and pigments containing zinc but not containing more than 5 per centum of lead, ground dry, 10 per centum ad valorem; when ground in or mixed with oil or water, lithopone and white sulphide of zinc, 15 per centum ad valorem.

ZINC OXIDE AND LEADED ZINC OXIDE.

(See Survey A-15.)

Description and uses.—Zinc oxide is a white, insoluble compound of zinc and oxygen. It is the most important pigment containing zinc as the principal ingredient, and is sold in various grades, determined by the quality and method of manufacture, all grades containing not less than 99 per cent of oxide of zinc. When mixed with other pigments it is used in the manufacture of paint. It is also used as an ingredient in vulcanized rubber goods, in the manufacture of oilcloth, linoleum, and printing inks. An especially high-grade zinc oxide is used in medicine and in many pharmaceutical preparations.

Leaded zinc oxide consists of zinc oxide and basic lead sulphate. This pigment is made by roasting an ore containing zinc and lead and converting the lead to basic sulphate by the action of the combustion gases in the furnace. The leaded zinc oxides contain from 3 to 25 per cent of lead.

Production.—Zinc oxide is made by two processes—the American and the French. The American process consists essentially of blowing air through a heated mixture of oxidized or roasted zinc ore mixed with coal and collecting the fume. This process requires an extremely high-grade pure ore in order to obtain a product that will compete with that made by the French process, which method is also used in the United States. The French method consists in oxidizing the vapor given off by a boiling bath of spelter and collecting the fume. This gives a high-grade product and is the process chiefly used in Europe. The output of American-process oxide is in excess of the domestic consumption and leaves a small margin for export. Zinc oxide is produced in Germany, Belgium, Holland, and France. The output of zinc oxide and leaded zinc oxide in the United States since 1912 has been as follows:

| Year. | Zinc oxide. | | Leaded zinc oxide. | |
|-----------|------------------------|-------------|------------------------|-----------|
| | Quantity (short tons). | Value. | Quantity (short tons). | Value. |
| 1912..... | 84,002 | \$7,482,409 | 11,410 | \$953,800 |
| 1913..... | 75,700 | 7,161,528 | 8,421 | 745,668 |
| 1914..... | 82,809 | 7,850,350 | 11,317 | 977,431 |
| 1915..... | 109,261 | 11,984,470 | 18,759 | 1,724,145 |
| 1916..... | 109,339 | 18,816,378 | 23,003 | 3,053,066 |
| 1917..... | 107,586 | 21,589,976 | 23,450 | 3,728,976 |
| 1918..... | 100,286 | 20,560,247 | 26,714 | 4,480,565 |
| 1919..... | 117,639 | 20,591,877 | 27,591 | 4,009,024 |
| 1920..... | 69,444 | 17,859,736 | 30,400 | 4,467,532 |

Imports of dry zinc oxide for the period 1910-1917 have averaged 4,236,109 pounds, valued at \$282,883, yielding a revenue of \$39,911. Zinc oxide is imported chiefly from Belgium; the decrease of about 4,000,000 pounds in 1915 over the previous year was caused by interruptions to shipping. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 323,127 | \$62,703 | \$0.19 | \$6,270 | 10 |
| 1919..... | 209,653 | 44,338 | .21 | 4,434 | 10 |
| 1920..... | 2,861,136 | 299,890 | .10 | 23,989 | 10 |
| 1921 (9 months)..... | 955,060 | 59,084 | .06 | ..... | 10 |

Imports of zinc oxide ground in oil prior to 1914 ranged between 300,000 and 500,000 pounds annually. They were negligible during the war, and since have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 7,074 | \$1,043 | \$0.15 | \$156 | 15 |
| 1919..... | 6,727 | 1,351 | .20 | 203 | 15 |
| 1920..... | 27,809 | 3,596 | .13 | 539 | 15 |
| 1921 (9 months)..... | 68,713 | 8,460 | .12 | ..... | 15 |

Exports.—The average annual exports of zinc oxide and leaded zinc oxide for 1910-1917 were about 31,000,000 pounds. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months.) |
|------------------------|-------------|-------------|-------------|------------------|
| Quantity (pounds)..... | 24,841,747 | 29,405,334 | 22,327,830 | 3,591,142 |
| Value..... | \$2,779,507 | \$3,059,276 | \$2,151,544 | \$317,072 |

Exports have been chiefly to Canada, England, and Italy.

Important changes in classification.—Paragraph 61, act of 1913, limited other pigments containing zinc to those containing not more

than .5 per cent of lead. Leaded zinc oxides, an important group of zinc-oxide pigments, which contain between 3 and 25 per cent of lead, were therefore dutiable under paragraph 56, act of 1913, as pigments containing lead. These leaded zinc oxides are in chief value of zinc oxide; and since there is no apparent reason why all zinc-oxide pigments should not receive the same tariff treatment, the limiting lead content was increased to 25 per cent. (Reclassification Report, p. 83.)

LITHOPONE.

(See Survey A-4.)

Description and uses.—Lithopone is a coarse-grained, brilliant, white pigment which has excellent covering powers. The quality depends largely upon the method of manufacture. It is used as a pigment chiefly in the manufacture of paints known in the trade as "flat paints"; also as a filler in the manufacture of such articles as linoleum, table oilcloth, window shades, and vulcanized rubber goods.

Production.—Lithopone is manufactured by mixing solutions of zinc sulphate and barium sulphide. The resultant insoluble mixture of zinc sulphide and barium sulphate is filtered, washed, dried, roasted, quenched, and powdered. Production in the United States has increased steadily from 25,330,000 pounds, valued at \$916,512, in 1910, to 178,746,000 pounds, valued at \$12,484,925, in 1920. The output in the first six months of 1921 was about 45,000,000 pounds. Domestic production since 1912 has supplied 90 per cent or more of the consumption.

The Tariff Commission investigated the cost of production in the lithopone industry for 1919 and for the first six months in 1921.¹² The total cost in 1921 was 6.26 cents per pound, a slight increase over the average cost in 1919. Investigation showed that during the first half of 1921 only about one-third of the entire capacity of the domestic industry was in actual operation. This inactivity, however, must be attributed to reasons other than active competition from foreign sources, as imports were slightly less than 2 per cent of the domestic output.

Imports of lithopone for 1911–1916 have averaged 6,000,000 pounds, valued at \$217,000, yielding a revenue of \$57,700. During 1917 and 1918 imports were negligible, and since have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-------------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919 ^a | 1,477,298 | \$122,708 | \$0.08 | \$18,406 | 15 |
| 1920..... | 8,427,321 | 263,240 | .08 | 39,486 | 15 |
| 1921 (9 months)..... | 4,561,750 | 206,072 | .04 | | |

^a No imports of lithopone in 1918 (calendar year).

¹² See reports of the Tariff Commission: "Barytes, Barium Chemical and Lithopone Industries, Including Costs of Production 1919," Tariff Information Series No. 18, and "Production Costs in the Lithopone Industry, First Six Months in 1921," Tariff Information Series No. 24.

Exports.—Statistics not available.

Important changes in classification.—Lithopone in the United States is a standard product containing approximately 80 per cent zinc sulphide and 70 per cent barium sulphate. In Europe, however, lithopone is made with a content of zinc sulphide varying from 11 to 42 per cent. These European grades are sold under various trade names and in order to prevent evasion of the duty intended for lithopone the phrase "and other combinations or mixtures of zinc sulphide and barium sulphate" has been added. (Reclassification Report, p. 88.)

PARAGRAPH 75.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 75. Potassium: Chromate and dichromate, 2½ cents per pound; chlorate and perchlorate, 1 cent per pound; ferricyanide or red prussiate of potash, 7 cents per pound; ferrocyanide or yellow prussiate of potash, 4 cents per pound; iodide, 25 cents per pound; bromide, 10 cents per pound; bicarbonate, carbonate, hydroxide or caustic potash, nitrate or saltpeter, and permanganate, 25 per centum ad valorem: *Provided*, That for a period of five years beginning on the day following the passage of this Act, there shall be levied, collected, and paid in addition thereto on all the foregoing a duty of 15 per centum ad valorem.

ACT OF 1909.

PAR. 64. Prussiate of potash, red, eight cents per pound; yellow, four cents per pound; * * *

PAR. 60. Bichromate and chromate of potash, two and one-fourth cents per pound.

PAR. 61. Caustic potash, or hydrate of, refined, in sticks or rolls, one cent per pound; chlorate of, two cents per pound.

PAR. 62. Hydriodate, iodide, * * * of potash, twenty-five cents per pound.

PAR. 63. Nitrate of potash, or saltpeter, refined, one-half of one cent per pound.

PAR. 8. * * * all chemical compounds, * * * and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 655. * * * carbonate of potash, crude or refined; hydrate of, or caustic potash, not including refined in sticks or rolls; nitrate of potash or saltpeter, crude; * * * [Free].

ACT OF 1913.

PAR. 64. Potash: Bicarbonate of, refined, and chlorate of, ½ cent per pound; chromate and bichromate of, 1 cent per pound; nitrate of, or saltpeter, refined, \$7 per ton; permanganate of, 1 cent per pound; prussiate of, red, 2 cents per pound; yellow, 1½ cents per pound.

PAR. 38. * * * potassium iodide, 15 cents per pound.

PAR. 5. * * * all chemical * * * compounds, * * * and salts, * * * not specially provided for in this section, 15 per centum ad valorem.

PAR. 580. Potash: * * * carbonate of; * * * hydrate of, when not containing more than 15 per centum of caustic soda; nitrate of, or saltpeter, crude; * * * [Free].

POTASSIUM COMPOUNDS.

POTASSIUM CHROMATE AND DICHROMATE.

(See Survey A-18.)

Description and uses.—These two salts of chromic acid have similar uses, and are readily converted into each other. Both crystallize well, but the dichromate, being much less soluble in cold water, crystallizes better and is the one usually prepared. Both crystallize more readily than the corresponding sodium salt and are therefore more readily purified. Potassium dichromate is used to a much greater extent than the potassium chromate, owing to its greater richness in chromic acid and the fact that it is more easily crystallized and purified. It is a strong oxidizing agent. The chief uses of these salts are in the chrome tanning of leather, textile dyeing and printing, manufacture of chrome pigments and colors, pickling of brass, and the electro-engraving of copper plates. They are also used in bleaching oils and fats, for other oxidation purposes, and as a chemical reagent. Wherever possible the cheaper sodium salt is now substituted for the potassium salt.

Manufacture.—Potassium chromate and dichromate are prepared from chrome iron ore or chromite, the larger portion of which is imported. The ore is pulverized and mixed with lime and potassium carbonate. This mixture is then heated to a bright red in a strong current of air. The fused mass is then lixiviated with water, forming a solution of calcium and potassium chromates. Additional potash, usually potassium sulphate, is added to the solution to convert the calcium chromate into potassium chromate. The clear solution of potassium chromate is then drawn off and treated with sulphuric acid, thus producing potassium dichromate, which is crystallized from the solution.

Domestic production.—Figures were not available prior to 1918, when the output of potassium chromate and dichromate was 681,346 pounds and sales were 1,008,598 pounds, valued at \$407,793.

Imports since 1910 have been not more than 40,000 pounds in any year and were negligible during 1915-1918. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad-valorem. |
|----------------------|-----------|--------|-------------|-------|------------------------|
| | Pounds. | | | | Per cent. |
| 1918..... | 20 | \$8 | \$0.40 | | 2.60 |
| 1919..... | 15,450 | 4,271 | .28 | \$155 | 3.62 |
| 1920..... | 4,414 | 2,690 | .61 | 44 | 1.64 |
| 1921 (9 months)..... | 1,120 | 271 | .24 | | |

Exports.—Statistics not available.

POTASSIUM CHLORATE AND PERCHLORATE.

(See Survey A-16.)

Description and uses.—Potassium chlorate or chlorate of potash is a white crystalline substance not readily soluble in water. It is a strong oxidizing agent and when mixed with sulphur and charcoal forms an explosive powder. It is used in the manufacture of matches, fireworks, percussion caps, and explosive powders, in dyeing, and in medicine. Potassium perchlorate contains one more atom of oxygen than the chlorate, and therefore possesses greater oxidizing capacity per unit of quantity and is more stable than the chlorate. Its uses are similar to the chlorate.

Production.—Potassium chlorate is made by subjecting a solution of potassium chloride to the action of a direct current of electricity in an electrolytic cell. The perchlorate is made by electrolytic oxidation of the chlorate or by treating sodium perchlorate with potassium chloride. In 1914 the combined production of sodium and potassium chlorates was 8,304 short tons, valued at \$1,131,316. The output of potassium chlorate in 1918 by three firms was 9,753,424 pounds, valued at \$2,837,892. Production of potassium perchlorate was reported in 1918 by one firm only.

Imports of potassium chlorate have been rather sporadic, the largest before 1920 being over 1,200,000 pounds in 1913. During the war the import declined to a minimum of 27,000 pounds in 1915, increasing to about 1,000,000 pounds in 1918 (fiscal year). Japan has been active recently in the production of potassium chlorate and it is likely that these imports originated in that country. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-----------|-------------|---------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 709,805 | \$248,160 | \$0.35 | \$3,549 | 1.43 |
| 1919..... | 199,077 | 31,996 | .18 | 995 | 2.84 |
| 1920..... | 1,484,948 | 162,417 | .11 | 7,423 | 4.57 |
| 1921 (9 months)..... | 2,523,208 | 137,444 | .05 | | |

Exports of potassium chlorate are first shown in Commerce and Navigation in 1918, when 1,564,662 pounds, valued at \$681,128, were exported, chiefly to Australia and British Africa. Since then exports, chiefly to England, Japan, and Canada, have been as follows (calendar years):

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-----------|-----------|-----------|--------------------|
| Quantity (pounds)..... | 1,391,663 | 1,982,194 | 2,819,459 | 241,354 |
| Value..... | \$539,491 | \$521,193 | \$445,243 | \$33,781 |

Important changes in classification.—Potassium perchlorate is mentioned specifically for the first time.

POTASSIUM FERRICYANIDE (RED PRUSSIAE OF POTASH).

(See Survey A-18.)

Description and uses.—Potassium ferricyanide is also known commercially as red prussiate of potash. It crystallizes from water in large red anhydrous crystals. It is poisonous, readily soluble in water, and is used in calico printing, in the manufacture of blue-print paper, and the production of blue pigments.

Production.—Red prussiate of potash is manufactured by treating a solution of yellow prussiate of potash with chlorine. Production by two firms in 1918 was reported to the Geological Survey.

Imports in 1914 were 89,976 pounds, chiefly from Germany and Austria-Hungary. In 1915 the import was slightly less, but in 1916 declined to 2,040 pounds. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------------|-------|--------------------------------|
| | <i>Pounās.</i> | | | | <i>Per cent.</i> |
| 1918..... | 15,516 | \$29,201 | \$1.88 | \$310 | 1.06 |
| 1919..... | 34,007 | 18,096 | .53 | 680 | 3.6 |
| 1920..... | 101,361 | 64,686 | .64 | 2,027 | 3.14 |
| 1921 (9 months)..... | 25,178 | 4,878 | .19 | | |

Exports.—Statistics not available.

POTASSIUM FERROCYANIDE (YELLOW PRUSSIAE OF POTASH).

(See Survey A-18.)

Description and uses.—Potassium ferrocyanide, known as yellow prussiate of potash, crystallizes from water in large yellow crystals containing water of crystallization. When heated or exposed to dry air, the crystals become a white powder. It is used in the preparation of Prussian blue, in calico printing, for dyeing silk, for case-hardening of iron, and for making potassium cyanide and ferricyanide. Small amounts are used in the manufacture of some explosives and as a reagent in analytical chemistry. Within the last few years sodium ferrocyanide has replaced potassium for most purposes because it is much cheaper.

Production.—Formerly the method of manufacture was to fuse nitrogenous animal matter (hides, hoofs, hair, blood, or other animal waste) with potassium carbonate and iron borings. At present potassium ferrocyanide is produced almost entirely as a by-product of the manufacture and purification of coal gas. The exhausted purifying agent is first treated with water to dissolve out ammonia and soluble salts, then dried, the sulphur extracted with carbon bisulphide, and the residue mixed with lime. This is then heated with steam and forms calcium ferrocyanide, and on treatment with potassium chloride a double calcium potassium ferrocyanide is produced. When the latter is treated with potassium carbonate, calcium carbonate separates and potassium ferrocyanide remains in

solution and may be recovered by evaporation. Late figures for production are not available. In 1914 the United States produced 3,204,684 pounds, which probably represented a little less than half of the total consumption. Production in 1918 by three firms was 457,267 pounds and sales were 306,535 pounds, valued at \$204,190. This decrease from 1914 was due to substitution of sodium ferrocyanide (see par. 78, p. 232).

Imports for 1914 amounted to 3,508,229 pounds, more than 50 per cent of which came from Germany and about 27 per cent from England. In 1915 the imports were 2,316,736 pounds, but dropped the next year to 44,156 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 129,441 | \$112,729 | \$0.87 | \$1,618 | 1.44 |
| 1919..... | 515,236 | 122,372 | .24 | 6,440 | 5.26 |
| 1920..... | 762,857 | 105,962 | .14 | 9,536 | 9.00 |
| 1921 (9 months)..... | 306,521 | 68,644 | .22 | | |

Exports.—Statistics not available.

POTASSIUM IODIDE.

(See Survey A-9.)

Description and uses.—Potassium iodide is a white crystalline salt, easily soluble in water, used in medicine and photography and as a reagent in analytical chemistry. By far the greatest consumption is in medicine.

Production.—It is produced from iodine and potassium carbonate, both raw materials being obtained almost entirely by importations from Chile and Germany, respectively. During the war potassium iodide has been largely replaced by sodium iodide, owing to the scarcity of potash. More than half of the iodine consumed in the United States is used for making potassium and sodium iodide. In 1918 the output of potassium iodide by eight firms was 521,678 pounds, and sales were 481,301 pounds, valued at \$1,587,656.

Imports have averaged less than 100 pounds annually until 1917. For the fiscal year ending June 30, 1917, the imports were 24,357 pounds and for the same period in 1918, 65,992 pounds. The source of these imports is not indicated in Commerce and Navigation, but as the Japanese annual returns of foreign trade report 38,600 pounds of potassium iodide exported to the United States in 1917, it is probable that these imports were almost wholly from Japan. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 64,892 | \$142,324 | \$2.21 | \$3,659 | 6.79 |
| 1919..... | 18,218 | 64,250 | 2.98 | 2,738 | 5.01 |
| 1920..... | 6,184 | 14,879 | 2.87 | 778 | 5.23 |
| 1921 (9 months)..... | 226 | 580 | 2.57 | | |

Exports.—Statistics not available.

Important changes in classification.—Potassium iodide is provided for with iodoform in paragraph 38 of the act of 1913; it has been transferred to this paragraph, which covers other potassium salts.

POTASSIUM BROMIDE.

(See also Bromine and Bromine Compounds, p. 128.)

POTASSIUM BICARBONATE.

(See Survey A-16.)

Description and uses.—Potassium bicarbonate is a white crystalline substance which evolves carbon dioxide on treatment with an acid. It is used for making potassium carbonate of high purity, as an antacid, and in the preparation of effervescing salts.

Production.—Potassium bicarbonate is prepared by saturating a solution of potassium carbonate with carbon dioxide and crystallizing the resulting bicarbonate. Production by one firm in 1918 is included with potassium carbonate, *infra*.

Imports prior to 1914 had increased to about 300,000 pounds per year, valued at about \$15,000, yielding a revenue of about \$4,000. In 1914 the import increased to about 480,000 pounds, and in 1916 decreased to 2,062 pounds. Later import statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|----------|-------------|-------|------------------------|
| | Pounds. | | | | Per cent. |
| 1918..... | 72,188 | \$34,279 | \$0.47 | \$361 | 1.95 |
| 1919..... | 47,354 | 8,921 | .19 | 237 | 2.65 |
| 1920..... | 387,331 | 93,566 | .24 | 1,937 | 2.07 |
| 1921 (9 months)..... | 299,891 | 29,214 | .10 | | |

Exports.—Statistics not available.

POTASSIUM CARBONATE.

(See Survey A-16.)

Description and uses.—Potassium carbonate was formerly obtained from wood ashes, but little now comes from this source except that derived from the immense forests in Russia. Much is manufactured from the Stassfurt salts and some from the distillery waste of molasses in beet-sugar manufacture. It is used in soft soaps, Bohemian and flint glass, and in dyeing and wool washing.

Production.—A small quantity of crude carbonate of potash was produced here during the war chiefly from wood ashes—1,035 tons of crude material in 1917 and 438 tons in 1920. In 1918 the output of refined potassium carbonate and bicarbonate was 229,287 pounds, of which 201,574 pounds, valued at \$104,432, was sold.

Imports of carbonate of potash formerly averaged about 20,000,000 pounds, chiefly from Germany, falling to a minimum of about

2,000,000 pounds in 1916. In 1918 the imports were over 90 per cent from Russia.

Imports since 1917 are shown in the following tables:

| Calendar year. | Quantity. | Value. | Unit value. |
|--------------------------------------|----------------|-------------|-------------|
| POTASSIUM CARBONATE, CRUDE. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 8,593,268 | \$2,273,202 | \$0.26 |
| 1919..... | 515,373 | 104,744 | .20 |
| 1920..... | 16,903,554 | 510,700 | .03 |
| 1921 (9 months)..... | 2,985,061 | 158,783 | .05 |
| POTASSIUM CARBONATE, REFINED. | | | |
| 1918..... | 207,055 | \$65,974 | \$0.32 |
| 1919..... | 45,640 | 9,665 | .21 |
| 1920..... | 1,764,117 | 290,354 | .16 |
| 1921 (9 months)..... | 139,497 | 14,952 | .11 |

Exports.—Statistics not available.

Important changes in classification.—Carbonate of potash is exempt from duty under paragraph 580 of the act of 1913.

POTASSIUM HYDROXIDE (CAUSTIC POTASH).

(See Survey A-16.)

Description and uses.—Potassium hydroxide, also known as caustic potash, readily absorbs water and carbon dioxide from the air and is very easily soluble in water, giving a strongly caustic solution. The usual method of manufacture is by the electrolysis of a solution of potassium chloride, chlorine being a by-product. It is used in soft soaps, in the preparation of oxalic acid, in some dyes, in preparing caustic lyes, and as a chemical reagent. Owing to the great advance in the price of potash salts, it has been replaced wherever possible by sodium hydroxide.

Production.—Previous to the war, according to the only domestic manufacturer at that time, 75 per cent of the domestic consumption was imported from Germany. The output of this firm was reported as 6,504,000 pounds in 1914.¹³

Production in 1919 (preliminary figures) was 12,625,000 pounds, valued at \$2,163,400.

Imports, which in 1913 amounted to 8,896,805 pounds, declined to 68,095 pounds in 1917.

Since 1917 imports, chiefly from Germany, Sweden, and Austria, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1919..... | 484,290 | \$134,166 | \$0.28 |
| 1920..... | 1,712,319 | 451,274 | .26 |
| 1921 (9 months)..... | 7,084,767 | 359,399 | .05 |

¹³ Hearings before the Committee on Ways and Means, 1921, Pt. I, pp. 335-337.

Exports.—Statistics not available.

Important changes in classification.—Hydrate of potash when not containing more than 15 per cent of caustic soda is exempt from duty under the act of 1918 (par. 580).

POTASSIUM NITRATE OR SALTPETER.

(See Surveys A-16; A-18.)

Description and uses.—Potassium nitrate, or saltpeter, when pure, is a white crystalline substance and is readily soluble in water. It is used in the manufacture of gunpowder and other explosives and in fireworks. It is also used in curing meats and as a reagent in assaying.

Production.—Formerly potassium nitrate was obtained almost exclusively from niter earths, which occur chiefly in India. Much of it is now produced by treating sodium nitrate with potassium chloride. Before the war large quantities were made in this manner in Germany from potassium chlorides of Stassfurt and sodium nitrate imported from Chile. Since the beginning of the war considerable amounts have been separated by crystallization from crude Chilean sodium nitrate. There are no commercial deposits of potassium nitrate in the United States. In 1914 there were produced from imported raw materials 29,480,000 pounds, valued at \$1,244,051. The output in 1918 by four firms was 16,250,433 pounds, of which 8,176,382 pounds, valued at \$2,206,788, was sold.

Imports of refined nitrate of potash just prior to the war were less than 200 tons, valued at about \$20,000. Since then the import declined to 2 tons in 1916 and increased to 288 tons, valued at \$35,143, in 1917. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

REFINED NITRATE OF POTASH.

| | Tons. | | | | Per cent. |
|----------------------|-------|---------|-------|-------|-----------|
| 1918..... | 2 | \$730 | \$365 | \$14 | 1.92 |
| 1919..... | 33 | 8,168 | 247 | 231 | 2.83 |
| 1920..... | 563 | 107,154 | 190 | 3,941 | 3.68 |
| 1921 (9 months)..... | 74 | 16,503 | 223 | | |

CRUDE POTASSIUM NITRATE.

| | Pounds. | | | | |
|----------------------|------------|-----------|--------|--|--|
| 1918..... | 9,344,825 | \$906,549 | \$0.10 | | |
| 1919..... | 37,652,334 | 1,107,313 | .03 | | |
| 1920..... | 37,632,131 | 1,599,346 | .04 | | |
| 1921 (9 months)..... | 16,593,849 | 590,200 | .04 | | |

Imports of crude potassium nitrate since 1917 have been chiefly from Chile, British India, and England.

Exports.—Statistics not available.

Important changes in classification.—Nitrate of potash or saltpeter, crude, is exempt from duty under the act of 1913 (par. 580).

POTASSIUM PERMANGANATE.

(See Survey A-16.)

Description and uses.—Potassium permanganate forms purplish black crystals with a greenish metallic luster which dissolve in water, giving a deep purple-red solution. It is used largely as an oxidizer, and when mixed with organic matter may cause spontaneous combustion. It is also used for bleaching; in dyeing shoe leather; for coloring wood a deep brown; to some extent in medicine, especially as a local disinfectant and germicide; and as an important reagent in analytical chemistry. It is estimated that over 50 per cent of the domestic production of potassium permanganate during the war was used in the manufacture of saccharin.

Production.—The usual method of manufacture is to mix a solution of potassium hydroxide with powdered manganese ore and potassium chlorate or potassium nitrate, evaporate to dryness, and fuse the residue until it becomes pasty. This forms potassium manganate, which is then dissolved in water and treated with sulphuric acid, chlorine, or carbon dioxide. The permanganate crystallizes on evaporation.

Another method in use is to fuse manganese ore with caustic soda, producing sodium manganate. This is electrolytically oxidized to sodium permanganate and caustic soda and then treated with carbon dioxide, forming soda ash, which crystallizes on evaporation, leaving the sodium permanganate in solution. The sodium permanganate is now treated with a potassium salt, preferably the carbonate, which produces the potassium permanganate, which is separated by crystallization. Sodium permanganate does not crystallize.

Prior to the war no permanganate was produced in this country. The shutting off of imports, the requirements for war purposes, and the large demand for the manufacture of saccharin have greatly stimulated the industry in the United States, several firms manufacturing permanganate of potash during the war. In 1918 the output by nine firms was 562,416 pounds, of which 530,837 pounds, valued at \$922,746, was sold.

Imports in 1914 were 1,351,855 pounds, nearly all of which came from Germany, but by 1916 imports had fallen to 208,979 pounds, and in 1917 to 5,605 pounds. Some came from Japan, but when prices fell these imports were reduced, as Japan was not able to ship to this country at the lower prices. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 53,798 | \$128,438 | \$2.39 | \$538 | 0.42 |
| 1919..... | 4,000 | 10,163 | 2.54 | 40 | .39 |
| 1920..... | 53,358 | 23,748 | .56 | 534 | 1.79 |
| 1921 (9 months)..... | 223,266 | 51,738 | .23 | | |

Exports.—Statistics not available.

PARAGRAPH 76.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 76. Santonin, and salts of, 75 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 68. Santonin, and all salts thereof containing eighty per centum or over of santonin, fifty cents per pound.

PAR. 594. Santonin, and its combinations with acids not subject to duty under this section [Free].

SANTONIN.

(See Survey FI-2.)

Description and uses.—Santonin is a chemical compound used as a vermifuge. It is derived from Levant wormseed, or santonica, a wild shrub occurring in Russia and Turkestan, where santonin was manufactured under supervision of the Russian Government and was practically a monopoly. Before the war the article had no large domestic use, but about 1917 it was developed considerably in veterinary medicine for the treatment of hogs, and is now in great demand. The elimination of intestinal worms from swine induces a much more rapid growth without an increase of feed, therefore santonin is considered indispensable by many hog raisers.

Production.—Prior to the war it commanded a price of about \$15 per pound, but during the war reached \$70, and in December, 1921, was \$147 per pound. Even at this price its cost is said to be negligible as compared with the increased value of treated hogs. The high price and increasing demand have stimulated interest in American production, and santonica has been grown experimentally with favorable results. Santonin content of Levant wormseed runs about 2 per cent, and it must be obtained and purified by an expensive process.

Imports of santonin before the war were mostly from Germany and averaged about 5,000 pounds, valued at \$40,000. Imports reached a maximum of 20,925 pounds in 1916, but decreased to 223 pounds in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|---------|-------------|
| | Pounds. | | |
| 1918..... | 1 | \$25 | \$25.00 |
| 1919..... | 3,463 | 174,111 | 50.28 |
| 1920..... | 2,124 | 187,518 | 88.28 |
| 1921 (9 months)..... | 2,711 | 258,736 | 95.44 |

Important changes in classification.—The articles covered by this paragraph are exempt from duty under the act of 1913 (par. 594).

Suggested changes.—Page 23, line 12: Insert a period after "pound."

PARAGRAPH 77.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 77. Soap: Castile, 15 per centum ad valorem; toilet, 30 per centum ad valorem; all other soap and soap powder not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 69. Castile soap, one and one-fourth cents per pound; medicinal or medicated soaps, twenty cents per pound; fancy or perfumed toilet soaps, fifty per centum ad valorem; all other soaps not specially provided for in this section, twenty per centum ad valorem.

PAR. 68. Soaps: Perfumed toilet soaps, 30 per centum ad valorem; medicinal soaps, 20 per centum ad valorem; castile soap, and unperfumed toilet soap, 10 per centum ad valorem; all other soaps and soap powder not specially provided for in this section, 5 per centum ad valorem.

SOAPS.

(See Survey A-17.)

Description and uses.—The term “soap” is ordinarily confined to the water-soluble potassium and sodium salts of the fatty acids, although the water-insoluble soaps of lead, magnesium, manganese, and aluminum are used for technical purposes.

Pure castile soap is supposed to be made from olive oil and soda lye only, but much of the soap marketed as such is made from other oils as well.

The term “toilet soap” is used to distinguish toilet soaps from household and laundry soaps. As certain soaps are suitable for both toilet and laundry purposes, the term “toilet soap” is rather vague and has caused considerable litigation. The tariff act of 1913 makes a distinction between perfumed and unperfumed toilet soap. Soap stocks, as a rule, have an unpleasant odor which prevents their use for toilet purposes. Some substance, usually a perfume material, is added to neutralize the odor of the stock or to give the soap a decidedly pleasant smell. Medicinal soaps contain some substance possessing antiseptic or healing properties.

Production.—The chief raw materials used in making soap are tallow, grease, and other fats; coconut, cottonseed, soya-bean, palm, corn, peanut, and other vegetable oils; vegetable waxes and resin; perfumes, naphthas, and other materials. Large quantities of caustic soda are used in converting the materials into soap and lesser quantities of caustic potash in making soft soaps, wool-scouring soaps, and shaving soaps. Certain fillers, such as silicate of soda (water glass), borax, and soda ash, and for scouring soaps different abrasive materials are used.

Manufacture involves the action of a caustic alkali, usually caustic soda, on fatty acids or more often on fats or fatty oils. This operation, known as saponification, produces an alkali salt (soap) and an important by-product, glycerin. Manufacture is by three processes, giving boiled, half-boiled, and cold-process soaps. The names are descriptive of the condition under which the soap is made. Boiled soaps are by far the most important class.

The capital invested in 371 establishments in 1914 was over \$92,000,000, the materials consumed cost \$88,866,786, and the value of the finished product was \$127,942,441. In 1919 (preliminary figures) output of the "soap industry" reached \$317,163,000. Domestic production supplies over 99 per cent of consumption. The principal States producing soap are New York, Illinois, New Jersey, Ohio, and Pennsylvania.

Imports have been valued at less than \$850,000. About 50 per cent of the imports is castile soap. Foreign manufacturers of well-known brands have branch factories in this country. Statistics of imports in recent years follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-------------------------------------|----------------|-----------|-------------|----------|------------------|
| CASTILE SOAP. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 724,824 | \$98,160 | \$0.13 | \$9,816 | 10 |
| 1919..... | 1,325,007 | 222,698 | .17 | 22,270 | 10 |
| 1920..... | 2,350,720 | 400,897 | .17 | 40,090 | 10 |
| 1921 (9 months)..... | 1,439,358 | 196,014 | .14 | ..... | 10 |
| TOILET SOAPS, PERFUMED. | | | | | |
| 1918..... | | \$103,645 | | \$31,094 | 30 |
| 1919..... | 182,318 | 143,959 | \$0.79 | 43,198 | 30 |
| 1920..... | 319,847 | 180,771 | .56 | 54,231 | 30 |
| 1921 (9 months)..... | 246,256 | 157,574 | .64 | ..... | 30 |
| TOILET SOAPS, UNPERFUMED. | | | | | |
| 1918..... | | \$7,197 | | \$720 | 10 |
| 1919..... | 55,415 | 17,910 | \$0.32 | 1,791 | 10 |
| 1920..... | 62,265 | 13,108 | .21 | 1,311 | 10 |
| 1921 (9 months)..... | 109,282 | 20,340 | .19 | ..... | 10 |
| SOAP POWDERS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$15,229 | | \$761 | 5 |
| 1919..... | 210,004 | 9,756 | \$0.05 | 488 | 5 |
| 1920..... | 181,442 | 12,770 | .07 | 639 | 5 |
| 1921 (9 months)..... | 152,303 | 8,238 | .05 | ..... | 5 |
| ALL OTHER SOAPS, N. S. P. F. | | | | | |
| 1918..... | | \$16,285 | | \$314 | 5 |
| 1919..... | 236,457 | 22,579 | \$0.09 | 1,129 | 5 |
| 1920..... | 230,618 | 28,745 | .12 | 1,437 | 5 |
| 1921 (9 months)..... | 288,765 | 29,908 | .10 | ..... | 5 |

Exports have shown a steady increase from \$3,620,546 in 1910 to \$6,291,790 in 1918. The export in 1914 was about 4 per cent of the value of domestic production. The increase has been largely in the export of varieties other than toilet soap. The export of "toilet" or "fancy" soap has been chiefly to the United Kingdom, Canada, Argentina, Australia, and Cuba. Prior to 1917 the United Kingdom took between 15,000,000 and 25,000,000 pounds of soap other than

toilet soap. Since 1916 Mexico has taken the largest quantity of this variety, importing over 27,000,000 pounds, valued at more than \$2,000,000, in 1918. Later statistics follow:

| Calendar year. | Toilet soaps (value). | All other soaps. | |
|----------------------|--------------------------|------------------|--------------|
| | | Quantity. | Value. |
| | | <i>Pounds.</i> | |
| 1918..... | \$2,567,614 | 116,936,623 | \$10,871,335 |
| 1919..... | 6,034,230 | 157,749,605 | 15,266,696 |
| 1920..... | 5,899,146 | 123,821,428 | 13,315,691 |
| 1921 (9 months)..... | 2,147,892 | 55,093,340 | 4,697,818 |

Toilet soaps, perfumed and unperfumed, were exported chiefly to Cuba, England, and Canada. All other soaps, except toilet, went chiefly to Mexico, Cuba, and Canada.

Important changes in classification.—The distinction between perfumed and unperfumed toilet soaps in the act of 1913 (par. 66) is omitted, as is also specific mention of medicinal soaps. (Reclassification Report, p. 89.)

PARAGRAPH 78.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 78. Sodium: Arsenate, 1 cent per pound; bicarbonate or baking soda, five-eighths of 1 cent per pound; borate or borax, refined, one-eighth of 1 cent per pound; bromide, 10 cents per pound; carbonate, calcined, or soda ash, hydrated or sal soda, and monohydrated, one-fourth of 1 cent per pound; chlorate, 1½ cents per pound; chloride or salt, in bags, sacks, barrels, or other packages, 11 cents per one hundred pounds; in bulk, 7 cents per one hundred pounds; chromate and dichromate, 1½ cents per pound; formate, 25 per centum ad valorem; ferrocyanide or yellow prussiate of soda, 2 cents per pound; hydroxide or caustic soda, one-half of 1 cent per pound; nitrite, 3 cents per pound; phosphate, one-half of 1 cent per pound; sesquicarbonate, one-fourth of 1 cent per pound; sulphate, crystallized, or Glauber salt, \$1 per ton; sulphate, anhydrous, \$2 per ton; sulphide, containing not more than 35 per centum of sodium sulphide, three-eighths of 1 cent per pound; containing more than 35 per centum, three-fourths of 1 cent per pound; silicate, sulphite, bisulphite, meta-bisulphite, and thiosulphate, three-eighths of 1 cent per pound.

ACT OF 1909.

PAR. 70. Bicarbonate of soda, or supercarbonate of soda, or saleratus, * * * five-eighths of one cent per pound.

PAR. 71. Bichromate and chromate of soda, one and three-fourths cents per pound.

PAR. 72. Crystal carbonate of soda, or concentrated soda crystals, or monohydrate, or sesquicarbonate of soda, one-fourth of one cent per pound; chlorate of soda, one and one-half cents per pound.

PAR. 73. Hydrate of, or caustic soda, one-half of one cent per pound; nitrite of soda and yellow prussiate of soda, two cents per pound; sulphide of soda containing not more than thirty-five per centum of sulphide of soda, and hyposulphite of soda, three-eighths of one cent per pound; sulphide of soda, concentrated, or containing more than thirty-five per centum of sulphide of soda, three-fourths of one cent per pound.

PAR. 74. Sal soda, or soda crystals, not concentrated, one-sixth of one cent per pound.

PAR. 75. Soda ash, one-fourth of one cent per pound; arseniate of soda, one cent per pound.

PAR. 76. Silicate of soda, * * * three-eighths of one cent per pound.

PAR. 77. Sulphate of soda, * * * one dollar per ton.

PAR. 3. * * * all chemical compounds, * * * and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 11. Borax, two cents per pound; borates of * * * soda, * * * not otherwise provided for in this section, two cents per pound.

PAR. 295. Salt in bags, sacks, barrels, or other packages, eleven cents per one hundred pounds; in bulk, seven cents per one hundred pounds; *Provided*, That imported salt in bond may be used in curing fish taken by vessels licensed to engage in the fisheries and in curing fish on the shores of the navigable waters of the United States under such regulations as the Secretary of the Treasury shall prescribe; and upon proof that the salt has been used for either of the purposes stated in this proviso, the duties on the same shall be remitted: *Provided further*, That exporters of meats, whether packed or smoked, which have been cured in the United States with im-

ACT OF 1913.

PAR. 67. Soda: * * * chlorate of, and nitrite of, $\frac{1}{2}$ cent per pound; bicarbonate of, or supercarbonate of, or saleratus, * * * hydrate of, or caustic; phosphate of; hyposulphite of; sulphid of, and sulphite of, $\frac{1}{2}$ cent per pound; chromate and bichromate of, and yellow prussiate of, $\frac{1}{2}$ cent per pound; borate of, or borax refined; crystal carbonate of, monohydrate, and sesquicarbonate of; sal soda, and soda crystals, $\frac{1}{2}$ cent per pound; and sulphate of soda crystallized, or Glauber salts, \$1 per ton.

PAR. 593. Salt [Free].

PAR. 605. Soda, arseniate of, * * * soda ash, silicate of, * * * [Free].

PAR. 5. * * * all chemical * * * compounds, * * * and salts, not specially provided for in this section, 15 per centum ad valorem.

ported salt, shall, upon satisfactory proof, under such regulations as the Secretary of the Treasury shall prescribe, that such meats have been cured with imported salt, have refunded to them from the Treasury the duties paid on the salt so used in curing such exported meats, in amounts not less than one hundred dollars.

SODIUM COMPOUNDS.

SODIUM ARSENATE.

(See Survey A-18.)

Description and uses.—Sodium arsenate is a white solid substance, soluble in water, and very poisonous. It is usually prepared by heating together white arsenic (arsenious acid, par. 1) and nitrate of soda, the product being purified by crystallization from solution. Its principal use is in insecticides, chiefly lead arsenate (par. 44). It is also used in dyeing and calico printing.

Production is by a few companies only; figures are not available.

Imports in 1913 were 1,267,998 pounds, but in 1914 only 228,270 pounds, all from England. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|--------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 35 | \$88 | \$2.51 |
| 1919..... | | | |
| 1920..... | 15,976 | 1,481 | .09 |
| 1921 (9 months)..... | 127,537 | 11,613 | .09 |

Exports.—Statistics not available.

Important changes in classification.—Sodium arsenate (arseniate of soda is free of duty under paragraph 605, act of 1913. (Reclassification Report, p. 123.)

SODIUM BICARBONATE (BAKING SODA).

(See Survey A-18.)

Description and uses.—Sodium bicarbonate or acid sodium carbonate, a white opaque powder soluble in water, is the mildest of the alkalis. In pure form it is the ordinary baking soda or saleratus. When sodium bicarbonate is treated with an acid it evolves carbon dioxide, a property which gives it a large use for industrial and household purposes. Sodium bicarbonate is the cheapest and most convenient form of storing carbon dioxide. It is used in the manufacture of baking powders, Seidlitz powders, effervescing drinks, and in medicine as an antacid. A very pure product is demanded for household and medicinal uses; one of less purity for carbonating waters, charging fire extinguishers, and prevention of timber mold.

Mixtures of sodium bicarbonate and sodium carbonate are sold for cleaning purposes.

Production.—Practically all of the bicarbonate of soda is produced by the "ammonia-soda" process, the raw materials being salt in the form of brine, limestone, ammonia, and coal. The ammonia is used over and over. The limestone is burned at the plant so that the carbon dioxide evolved is available for use in the process, and the lime produced is used in the regeneration of the ammonia and in the making of caustic soda. (See *infra*.) The brine solution is saturated with ammonia gas and then subjected to the action of carbon dioxide in high towers, producing sodium bicarbonate. This crude product is converted by heating into sodium carbonate, which is then dissolved in water and carbon dioxide passed through the solution, giving a refined bicarbonate of soda.

A small quantity of sodium bicarbonate is made from the alkaline waters of Owens Lake, Calif. It is made by the "ammonia-soda" process at Syracuse, N. Y.; Saltville, Va.; Detroit and Wyandotte, Mich.; and Hutchinson, Kans.

Production has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|-------------|
| 1914..... | 90,169 | \$1,439,014 |
| 1916..... | 115,177 | 2,303,540 |
| 1917..... | 119,177 | 4,029,499 |
| 1918..... | 118,535 | 3,293,153 |
| 1919 ¹ | 134,962 | 3,486,635 |
| 1920 ¹ | 188,906 | 4,256,715 |

¹ Sales rather than production.

Imports are small compared with the domestic production, the maximum since 1910 being 129,414 pounds, valued at \$2,867, in 1916. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 12,383 | \$629 | \$0.05 | \$3 | 4.92 |
| 1919..... | 17,122 | 3,616 | .21 | 43 | 1.18 |
| 1920..... | 5,828 | 593 | .10 | 15 | 2.46 |
| 1921 (9 months)..... | 3,251 | 201 | .06 | ..... | ..... |

Exports are not shown separately prior to 1920 (calendar year), in which year they were 20,642,201 pounds, valued at \$616,261, and for the first nine months of 1921, 8,371,534 pounds, valued at \$225,819. They have gone chiefly to Canada, Cuba, and Hongkong.

Important changes in classification.—The term "supercarbonate," used in the act of 1913 (par. 67) in connection with sodium bicarbonate, has been omitted from H. R. 7456, as it is obsolete. The term "baking soda" has been inserted as a synonym for sodium bicarbonate. (Reclassification Report, p. 92.)

SODIUM BORATE OR BORAX, REFINED.

(See Survey A-1.)

Description and uses.—Crude borax and borate materials used in the manufacture of refined borax are free of duty under paragraph 1533. Sodium borate, or borax refined, is the most important derivative of boric acid. It comes on the market in two forms, common or prismatic borax, which contains 10 molecules of water of crystallization, and octahedral borax, which contains only 5 molecules.

The largest use of borax is in making enamel coating for cast and wrought iron sanitary and kitchen ware. It is also used in the manufacture of glass and soap, for sizing paper, in the soaking and cleaning of hides in tanneries, in the textile industry as a mordant and for rendering certain cloths fireproof, and as a flux in welding and brazing.

Production.—It is now made from colemanite, which is calcined; the calcium borate is separated mechanically from the minerals, and boiled with a solution of soda ash, forming sodium borate and insoluble calcium carbonate.

Domestic production has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|-------------|
| 1914..... | 26,501 | \$2,071,774 |
| 1917..... | 32,089 | 4,717,532 |
| 1918..... | 26,673 | 3,909,565 |
| 1919 ¹ | 28,518 | 4,351,891 |
| 1920 ¹ | 35,281 | 5,674,012 |

¹ Sales, not production.

Imports, prior to 1920, have been less than 0.01 per cent of the domestic production; the maximum was 11,768 pounds, valued at \$882, in 1913. Since 1917 imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|--------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2 | \$1 | \$0.50 | ..... | 1.00 |
| 1919..... | 378 | 155 | .41 | \$0.47 | .30 |
| 1920..... | 30,563 | 2,451 | .08 | 38.00 | 1.56 |
| 1921 (9 months)..... | 236,240 | 12,477 | .05 | ..... | ..... |

Exports before the war were small and chiefly to the Orient. During the war a substantial export trade to Europe was developed. Exports in 1920 (calendar year) were 14,325,037 pounds, valued at \$1,026,936, and for the first nine months of 1921, 2,750,392 pounds, valued at \$191,616. They have gone chiefly to Japan, Canada, and England.

SODIUM BROMIDE.

(See Survey FL-8. For discussion, see Bromine and Bromine Compounds, p. 128.)

Important changes in classification.—Sodium bromide has been mentioned specifically for the first time because it is one of the important forms in which bromine is marketed. (Reclassification Report, p. 92.)

SODIUM CARBONATE, CALCINED (SODA ASH).

(See Survey A-18.)

Description and uses.—Soda ash, or calcined sodium carbonate, is the most important industrial alkali. It is not as strong as caustic soda, but is cheaper, easier to handle and ship, and is ordinarily used in preference to caustic soda wherever possible. There are two commercial grades containing 48 and 58 per cent of actual alkali (Na_2O). The 58 per cent grade is sold as "light" and "dense." The dense product is twice as heavy per unit as the light and is used in glass, where small bulk is desired. The largest use of soda ash is in glass, soap, wood pulp and paper, caustic soda, and other sodium chemicals; in the dye and textile industries; in the manufacture of drugs, enamel ware, and cleaners; and for softening water.

Production.—Practically all of the soda ash manufactured is made from sodium bicarbonate (see *supra*) derived from salt by the ammonia-soda process. A small quantity of soda ash is made from the natural soda brines of the Western States, but this source is of little importance. Sodium bicarbonate is converted into soda ash by simply heating continuously in a revolving furnace. Some soda ash is also made by the Hargreaves-Bird process, which produces caustic soda electrolytically in an atmosphere of carbon dioxide, which immediately converts the caustic soda into soda ash. This process is used by several paper mills in this country. The domestic production has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|--------------|
| 1914..... | 935,305 | \$10,937,945 |
| 1916..... | 1,324,208 | 18,283,866 |
| 1917..... | 1,390,625 | 38,023,000 |
| 1918..... | 1,390,628 | 35,635,520 |
| 1919 ¹ | 981,054 | 29,895,343 |
| 1920 ¹ | 1,238,149 | 38,908,726 |

¹ Sales, not production.

Imports have been less than 1 per cent of production, and since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 1,445 | \$29 | \$0.02 |
| 1919..... | 829,286 | 12,998 | .02 |
| 1920..... | 1,515,278 | 37,161 | .02 |
| 1921 (9 months)..... | 11,734,363 | 158,103 | .01 |

Exports in 1918 (fiscal year) were 198,752,457 pounds, valued at \$6,074,879, about 40 per cent to Japan and 35 per cent to Canada. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 238,434,992 | 100,361,927 | 166,761,603 | 25,402,330 |
| Value..... | \$7,895,550 | \$3,656,608 | \$4,689,591 | \$644,311 |

Exports in recent years have been chiefly to Sweden, Netherlands, and Canada.

Important changes in classification.—Sodium carbonate, calcined, or soda ash, is free of duty under paragraph 605, act of 1913. This article is designated only as "soda ash" in the act of 1913. The term "sodium carbonate, calcined," has been added in order to include the correct chemical name. (Reclassification Report, p. 124.)

HYDRATED SODIUM CARBONATE (SAL SODA)—MONOHYDRATED SODIUM CARBONATE—SODIUM SESQUICARBONATE.

(See Survey A-18.)

Description and uses.—Soda crystals is an indefinite term applied to several crystalline sodium carbonates. These compounds may be sodium carbonate or a mixture of sodium carbonate and sodium bicarbonate, containing water of crystallization. Sal soda refers to crystals of completely hydrated sodium carbonate which contain 10 molecules of water ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$), also known as washing soda. Monohydrated sodium carbonate is a crystalline compound of sodium carbonate containing one molecule of water ($\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$). Sesquicarbonate of soda is a mixture of chemically equivalent parts of sodium carbonate and sodium acid carbonate crystallized with two molecules of water ($\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$). These crystalline products are used chiefly for washing and cleansing purposes, particularly in the laundry and household.

Production.—Sal soda is prepared by dissolving soda ash (sodium carbonate) in hot water to form a solution of a definite specific gravity. On allowing this solution to cool, the sodium carbonate crystallizes out with 10 molecules of water. The addition of a little sodium sulphate to the solution is necessary to obtain the proper crystal form. This fact, however, is sometimes taken advantage of to dilute the finished product with a cheaper inert material which has no cleaning properties. Sodium sesquicarbonate is formed by crystallization from a hot solution containing chemically equivalent quantities of sodium carbonate and sodium acid carbonate. For many purposes this product is preferred to the other soda crystals.

Production in 1914 was 106,591 short tons of sal soda, including monohydrate crystals. The output since then has been as follows:

| Year. | Sal soda. | | Monohydrated sodium carbonate and sodium sesquicarbonate. | |
|-------------------------|-------------|-------------|---|-------------|
| | Short tons. | Value. | Short tons. | Value. |
| 1917..... | 77,939 | \$1,096,520 | 55,035 | \$1,262,875 |
| 1918..... | 82,465 | 2,020,271 | 22,678 | 482,958 |
| 1919..... | 80,090 | 2,229,994 | 31,278 | 714,930 |
| 1920 ¹ | 62,857 | 7,128,937 | 12,876 | 459,167 |

¹ Sales, not production.

Imports.—The maximum imports of crystal carbonate, monohydrate, and sesquicarbonate were 354,609 pounds in 1912, which is less than 0.2 per cent of the domestic production. Imports declined to 60,000 pounds in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

SODA CRYSTALS.

| | Pounds. | \$ | \$0.08 | | Per cent. |
|----------------------|---------|-------|--------|---------|-----------|
| 1918..... | 25 | \$2 | | | 1.50 |
| 1919..... | 45,060 | 1,182 | .08 | \$56.00 | 4.77 |
| 1920..... | 4,796 | 577 | .12 | 6.00 | 1.04 |
| 1921 (9 months)..... | 68,779 | 1,652 | .02 | | |

MONOHYDRATED SODA, OR SESQUICARBONATE.

| | | | | | |
|----------------------|--------|---------|--------|------|------|
| 1918..... | 44,800 | \$1,251 | \$0.03 | \$56 | 4.37 |
| 1919..... | | | | | |
| 1920..... | 3,342 | 106 | .03 | 4 | 3.94 |
| 1921 (9 months)..... | 71,132 | 2,176 | .03 | | |

Exports of sal soda in 1918 (fiscal year) were 14,076,264 pounds, valued at \$205,489. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|------------|------------|---------------------|
| Quantity (pounds)..... | 12,716,453 | 11,126,370 | 12,030,193 | 7,750,741 |
| Value..... | \$213,865 | \$178,285 | \$220,487 | \$154,191 |

Exports have been chiefly to Canada, Cuba, and Argentina.

Important changes in classification.—The wording “crystal carbonate of, monohydrate, and sesquicarbonate of; sal soda and soda crystals”, paragraph 67, act of 1913, describes three separate chemical and commercial articles. These have been corrected in this paragraph as (1) sodium carbonate, hydrated, or sal soda; (2) sodium carbonate, monohydrated; and (3) sodium sesquicarbonate. (Reclassification Report, p. 92.)

SODIUM CHLORATE.

(See Survey A-18.)

Description and uses.—Sodium chlorate is a colorless crystalline compound composed of sodium, chlorine, and oxygen, readily soluble in water. It is used as an oxidizing agent in the manufacture of coal-tar dyes, in dyeing and printing textiles, and in large quantities in the manufacture of matches and explosives. It was formerly believed that only potassium chlorate could be used for matches, since sodium chlorate is hygroscopic, but the high price of potassium salts during the war led to methods permitting such use. Sodium chlorate has generally replaced the higher-priced potassium salts.

Production in 1917 was large, but statistics are not available. It is generally manufactured by subjecting a solution of sodium chloride (salt) to the action of a direct current of electricity. The apparatus for its manufacture electrolytically is quite expensive. It was formerly made by treating milk of lime with chlorine gas and converting the calcium chlorate formed into sodium chlorate by treatment with sodium sulphate (salt cake).

Imports from 1915 to 1918 have been between 22,000 and 45,000 pounds a year, and since have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 44,810 | \$8,066 | \$0.18 | \$224 | 2.78 |
| 1919..... | 39,023 | 3,814 | .10 | 195 | 5.12 |
| 1920..... | 561,613 | 50,266 | .09 | 2,808 | 5.59 |
| 1921 (9 months)..... | 267,390 | 15,485 | .06 | | |

Exports.—Statistics are not available.

SODIUM CHLORIDE (SALT).

(See Survey A-18.)

Description and uses.—Salt, or sodium chloride, is one of the most common minerals. Besides its well-known uses, it is employed in the manufacture of chemicals, such as sodium bicarbonate, soda ash, caustic soda, and chlorine, and in the dye industry for diluting dyes.

Production of salt has shown a steady increase from about 3,000,000 tons in 1900 to about 6,000,000 tons in 1916, and nearly 7,000,000 tons in 1920. Since 1914 it has supplied over 99 per cent of domestic consumption. Michigan and New York produced over one-half of the output, with Ohio and Kansas also contributing largely. About 50 per cent of the salt is used as brine for the manufacture of chemicals.

Imports of salt are negligible, and chiefly from England and the British West Indies. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------|-----------|--------|-------------|
|----------------|-----------|--------|-------------|

IN BAGS.

| | <i>100 pounds.</i> | | |
|----------------------|--------------------|-----------|--------|
| 1918..... | 205,180 | \$148,128 | \$0.72 |
| 1919..... | 193,529 | 137,627 | .71 |
| 1920..... | 591,348 | 240,923 | .40 |
| 1921 (9 months)..... | 558,928 | 284,012 | .51 |

IN BULK.

| | <i>100 pounds.</i> | | |
|----------------------|--------------------|-----------|--------|
| 1918..... | 900,627 | \$133,340 | \$0.22 |
| 1919..... | 996,753 | 105,077 | .10 |
| 1920..... | 2,161,736 | 435,576 | .20 |
| 1921 (9 months)..... | 802,096 | 148,465 | .18 |

Exports of salt increased from 41,908 short tons, valued at \$286,363 in 1910, to 97,075 tons, valued at \$726,761 in 1917. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------------|-------------|-------------|-------------|------------------|
| Quantity (short tons)..... | 136,783 | 119,416 | 136,272 | 75,454 |
| Value..... | \$1,677,577 | \$1,306,625 | \$1,901,593 | \$994,817 |

Exports have been chiefly to Canada, Cuba, and Mexico.

Important changes in classification.—Transfer from the free list (par. 593) of the act of 1913.

SODIUM CHROMATE AND DICHROMATE.

(See Survey A-18.)

Description and uses.—Sodium dichromate is a red crystalline compound containing about 67 per cent of chromic acid (Cr_2O_3). It is about ten times as soluble as the corresponding potassium salt and is frequently preferred. The sodium salt is also much cheaper and has replaced potassium salt to a large extent. Sodium chromate is a yellow crystalline compound containing only 29.2 per cent of chromic acid. The dichromate is therefore generally preferred, owing to its greater richness in chromic acid, which is the active constituent.

Chromates and dichromates are used for the chrome tanning of leather; in textile dyeing and printing; in the manufacture of chrome colors and pigments, especially lead and barium chromates; for pickling brass; in the electro-engraving of copper plates; as laboratory reagents; and in the bleaching of oils and fats.

Production.—All of the chromium salts are prepared from chrome iron ore or chromite. (See par. 1544.) The ore is pulverized and mixed with lime and soda ash and roasted in a strong current of air. Calcium chromate, which is produced with sodium chromate, is converted into sodium chromate by means of more soda ash. Sodium chromate is usually converted directly in solution to sodium dichromate by treatment with sulphuric acid. Sodium dichromate when used in oxidation processes is reduced to chromium sulphate, which may be reconverted into sodium dichromate and used again.

Domestic production of sodium dichromate and chromate has been as follows:

| Calendar year. | Short tons. | Value. |
|-------------------------|-------------|-------------|
| 1914..... | 11,824 | \$1,125,308 |
| 1917..... | 22,446 | 9,045,133 |
| 1918..... | 28,334 | 9,868,118 |
| 1919 ¹ | 26,526 | 6,233,560 |
| 1920 ¹ | 25,973 | 5,531,054 |

¹ Sales, not production.

Imports of dichromate and chromate of soda have been insignificant since 1910. There were no imports from 1919 through nine months of 1921.

Exports.—Statistics not available.

SODIUM FORMATE.

Description, uses, and production.—Sodium formate is an important chemical compound used as an intermediate material in the manufacture of formic and oxalic acids. It is produced by passing carbon monoxide into a solution of sodium hydroxide under pressure. The sodium formate thus produced may be converted into formic

acid by treatment with an acid or into sodium oxalate by heating, which in turn can be converted into oxalic acid by means of acid. The establishment of the manufacture of oxalic and formic acids in the United States by this process is discussed under paragraph 1.

Import figures are available for 1914 only, when they were 1,843,245 pounds, valued at \$44,693.

Exports.—Statistics not available.

Important changes in classification.—Sodium formate has been mentioned specifically for the first time. (Reclassification Report, p. 92.)

SODIUM FERROCYANIDE (YELLOW PRUSSIAN OF SODA).

(See Survey A-18.)

Description and uses.—Sodium ferrocyanide, or yellow prussiate of soda, is a lemon-yellow crystalline compound containing 10 molecules of water of crystallization. It is similar to the potassium salt which it has largely replaced on account of the high price of that compound. It is used in the manufacture of blue pigments, in calico printing and dyeing, for the casehardening of iron, for making sodium ferricyanide, and as a chemical reagent.

Production.—Sodium ferrocyanide, or yellow prussiate of soda, is prepared in this country as a by-product of the purification of coal gas; also from sodium cyanide by lixiviating with hot water in the presence of iron.

In 1917 the production was 8,346,000 pounds, valued at \$2,577,667; in 1918 it was 9,050,000 pounds, valued at \$2,690,110. The output then decreased to 5,860,000 pounds, valued at \$1,318,049 in 1920.

Imports prior to the war had reached about 1,900,000 pounds in 1913. In 1914 they increased to about 2,300,000 pounds, and steadily declined until 1918 (fiscal year), when no imports appeared. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 271,063 | \$98,505 | \$0.36 | \$2,033 | 2.06 |
| 1919..... | 1,299,521 | 218,222 | .17 | 9,746 | 4.47 |
| 1920..... | 2,201,662 | 400,873 | .18 | 16,512 | 4.12 |
| 1921 (9 months)..... | 1,421,113 | 179,429 | .13 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—The correct chemical name, sodium ferrocyanide, has been used in connection with yellow prussiate of soda in this paragraph. (Reclassification Report, p. 92.)

SODIUM HYDROXIDE (CAUSTIC SODA).

(See Survey A-18.)

Description and uses.—Sodium hydroxide, or caustic soda, in industrial importance ranks second only to soda ash. The commercial product is a white opaque solid having strong caustic properties, sold by content of sodium oxide (Na₂O). The common grades are 60, 70,

74, and 76 per cent sodium oxide. The method of stating this content is, however, based on erroneous atomic weights. The so-called New York and Liverpool test, figured from the actual content, is used in the United States. The difference between the actual content and that calculated by this test is shown for the ordinary grades of caustic soda:

| Sodium oxide. | |
|------------------|------------------------------|
| Actual. | New York and Liverpool test. |
| <i>Per cent.</i> | <i>Per cent.</i> |
| 58.12 | 60 |
| 67.81 | 70 |
| 71.68 | 74 |
| 73.62 | 76 |

Caustic soda has a wide variety of uses in the manufacture of soap, wood pulp and paper, chemicals, dyes, and drugs, in refining vegetable and mineral oils, in mercerizing cotton, for water softening, bottle washing, and in the preparation of cleaners. The largest single use is in the manufacture of soap. The war caused a large demand for caustic soda for phenol, the raw material of explosive picric acid.

Production.—It is made from salt or soda ash, the raw material depending on the method of manufacture. Soda ash is converted into caustic soda by treatment with lime. Caustic soda is also made directly from salt, a solution being subjected to the action of direct electric current.*

Production has been as follows:

| Year. | Short tons. | Value. | Year. | Short tons. | Value. |
|-----------|-------------|-------------|-------------------------|-------------|--------------|
| 1914..... | 212,539 | \$6,657,514 | 1918..... | 513,363 | \$31,854,470 |
| 1916..... | 391,697 | 17,426,066 | 1919 ¹ | 311,388 | 20,091,978 |
| 1917..... | 488,066 | 29,402,689 | 1920 ¹ | 382,689 | 26,894,641 |

¹ Sales, not production.

In 1917 there were 8 firms using the soda-ash method and 28 companies using the electrolysis of salt method. About 28 per cent of the output in 1917 and 1918 was produced electrolytically from salt.

Imports.—The largest importation was in 1911, 1,500 short tons. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,002 | \$193 | \$0.10 | \$5 | 2.69 |
| 1919..... | 42,724 | 6,888 | .16 | 107 | 1.55 |
| 1920..... | 97,798 | 11,970 | .12 | 244 | 2.04 |
| 1921 (9 months)..... | 645,694 | 32,080 | .05 | ..... | ..... |

Exports in 1918 (fiscal year) were 67,365 short tons, valued at \$8,629,086. Japan, Italy, Brazil, and Canada were the chief countries of destination. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|--------------|---------------------|
| Quantity (pounds)..... | 97,378,384 | 164,235,420 | 224,137,406 | 26,810,068 |
| Value..... | \$5,602,813 | \$6,748,762 | \$10,044,017 | \$1,094,970 |

In recent years exports have been chiefly to Japan, Italy, and the Netherlands.

Important changes in classification.—The term “hydrate” used in connection with caustic soda in paragraph 67, act of 1913, is not in accordance with correct chemical nomenclature; therefore, the name “sodium hydroxide” has been used. (Reclassification Report, p. 92.)

SODIUM NITRITE.

SODIUM NITRITE.

Description and uses.—Sodium nitrite is a chemical compound composed of sodium, nitrogen, and oxygen. It differs from nitrate of soda in that it contains one atom less of oxygen. When pure it is a white crystalline salt, containing commercially 96 to 98 per cent of sodium nitrite. It is used chiefly in the manufacture of coal-tar dyes, in the dyeing of textiles, and has minor laboratory and pharmaceutical uses.

Production.—Sodium nitrite was usually prepared by the reduction of sodium nitrate (Chile saltpeter) by means of lead; also from atmospheric oxygen. In the fixation of nitrogen by the arc process the oxides of nitrogen produced are absorbed in sodium carbonate (soda ash), forming sodium nitrite. Ammonia gas produced from by-product coke ovens or synthetically from atmospheric nitrogen can be oxidized to form a similar mixture of oxides of nitrogen which are converted into sodium nitrite as described above.

The domestic production of sodium nitrite in 1917 was 1,722,000 pounds, valued at \$480,145, and in 1918 increased to 3,402,000 pounds, valued at \$609,779. The output in 1919 and 1920 was about 2,400,000 pounds for each year.

Imports increased from 1,696,567 pounds in 1915 to 3,675,179 pounds in 1917, the imports in 1917 being more than twice the domestic production. The increase in imports was caused by the development of the American dye industry, now the largest consumer of sodium nitrite. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,357,631 | \$289,182 | \$0.10 | \$14,238 | 4.94 |
| 1919..... | 2,550,689 | 246,729 | .10 | 12,768 | 5.17 |
| 1920..... | 11,690,142 | 1,378,992 | .12 | 58,451 | 4.24 |
| 1921 (9 months)..... | 3,007,151 | 227,016 | .07 | ..... | ..... |

Exports.—Statistics not available.

SODIUM PHOSPHATE.

(See Survey A-18.)

Description and uses.—There are a number of sodium phosphates, the most important in commerce being disodium phosphate, also known as "neutral phosphate" and "secondary phosphate," usually the product referred to when only sodium phosphate is specified. It is used in the textile industries (especially the silk industry in the weighting of the material in dyeing), in the manufacture of baking powder, in the preparation of enamels, in tinning and soldering, and pharmaceutically. The other sodium phosphates, monosodium and trisodium phosphate, are of minor importance.

Production.—It is obtained from dicalcium phosphate by treatment with soda ash. It is also prepared from bone ash or phosphorite by digestion with sulphuric acid followed by treatment with soda ash and crystallization of the sodium phosphate from the clear solution.

Production has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|-----------|
| 1914..... | 15,997 | \$853,528 |
| 1917..... | 13,305 | 711,288 |
| 1918..... | 15,620 | 1,427,947 |
| 1919..... | 14,760 | 1,733,996 |
| 1920 ¹ | 30,515 | 3,233,896 |

¹ Sales, not production.

Imports prior to the war were small and sporadic, the maximum in 1914 being 1,364,767 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|--------|-------------|--------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | | | | |
| 1919..... | 56 | \$22 | \$0.39 | \$0.14 | 0.64 |
| 1920..... | 66 | 19 | .29 | .17 | 0.80 |
| 1921 (9 months)..... | 483,130 | 15,773 | .03 | | |

Exports.—Statistics not available.

SODIUM SESQUICARBONATE.

[See Hydrated Sodium Carbonate, p. 228.]

SODIUM SULPHATE ANHYDROUS AND GLAUBER SALT.

(See Survey A-18.)

Description and uses.—Sodium sulphate, crystallized, was discovered by a chemist named Glauber and is known commercially as Glauber salt. It is sodium sulphate crystallized with 10 molecules of water. It is used as an assistant in dyeing, for diluting dyes, and for the preparation of cooling mixtures. Ordinarily most sodium sul-

phate is used in the anhydrous form and only a small portion is converted into the crystallized Glauber salt. It is more economical to ship the anhydrous salt.

Production.—Glauber salt is a by-product of the manufacture of hydrochloric acid. Domestic production of Glauber salt has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|-----------|
| 1914..... | 34,537 | \$427,808 |
| 1917..... | 47,767 | 732,403 |
| 1918..... | 50,715 | 1,041,070 |
| 1919..... | 47,730 | 877,060 |
| 1920 ¹ | 50,655 | 990,541 |

¹ Sales, not production.

Imports have never been large and are negligible compared with domestic production.

Exports.—Statistics not available.

Important changes in classification.—"Sodium sulphate, anhydrous," has been mentioned specifically, as it was held that calcined sodium sulphate, in powdered form, is dutiable as a chemical compound or mixture, and not within the provisions of paragraph 67, act of 1913, for sulphate of soda, crystallized, or Glauber salts. (Reclassification Report, p. 92.)

SODIUM SULPHIDE.

(See Survey A-18.)

Description and uses.—Sodium sulphide is composed of sodium and sulphur. There are two commercial articles, the "crystal" sulphide of soda, containing about 30 per cent of sodium sulphide, and the "fused" or "concentrated," containing about twice as much sodium sulphide as the crystal product. It is used chiefly in the manufacture and dyeing of sulphur colors and as a depilatory agent in leather manufacture.

Production.—Sulphide of soda was formerly manufactured from sodium sulphate (salt cake). The war caused the establishment of a barium chemical industry from which part of the sodium sulphide now comes as a by-product. Domestic production supplies practically the entire consumption and has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|-------------|
| 1914..... | 20,263 | ..... |
| 1917..... | 49,494 | \$1,905,473 |
| 1918..... | 43,490 | 2,293,304 |
| 1919 ¹ | 45,448 | 2,645,181 |
| 1920 ¹ | 42,952 | 2,962,033 |

¹ Sales, not production.

The increased output since 1914 was due to the establishment of an American dye industry—a large outlet for this product.

Imports.—The maximum import of sodium sulphide was in 1914, and was about 6 per cent of domestic production. Since 1917 imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad-valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 112,821 | \$4,673 | \$0.04 | \$282 | 6.04 |
| 1919..... | 1,668,562 | 54,251 | .03 | 4,171 | 7.69 |
| 1920..... | 1,038,181 | 47,064 | .04 | 2,595 | 5.51 |
| 1921 (9 months)..... | 2,474,057 | 78,584 | .03 | ..... | ..... |

Exports.—Statistics not available.

SODIUM SILICATE.

(See Survey A-18.)

Description and uses.—Silicate of soda, "water glass" or "soluble glass," is a chemical compound produced from silica (sand) and an alkali salt, usually soda ash. It is marketed in water solution largely, but also to some extent in a solid form, and is used chiefly as an adhesive in the manufacture of various forms of fiber and paper board and as a filler in soap.

Production has increased from 169,049 tons in 1914 to 254,011 tons in 1917, and has been in excess of 300,000 tons from 1918 to 1920. The production of silicate of soda of the 40° Baumé grade has been estimated by a leading manufacturer as 295,000 tons in 1917 and 335,500 tons in 1918. The process of making is comparatively simple and calls for inexpensive equipment. Some of its uses, however, require considerable accuracy in composition, involving large equipment and much technical skill in its manufacture. The industry is rather widespread, plants being located near large markets, as it is more economical to ship the raw materials (sand and soda ash) than the water solution of silicate of soda.

Imports from 1910 to 1917 have averaged about 600 short tons per year. Since 1918 these have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 463,461 | \$9,902 | \$0.02 |
| 1919..... | 931,086 | 25,421 | .03 |
| 1920..... | 658,638 | 15,162 | .02 |
| 1921 (9 months)..... | 688,606 | 22,661 | .03 |

Exports.—Since the war the United States has developed an export trade, which since 1917 has been chiefly to Canada, Mexico, and Cuba. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|------------|------------|---------------------|
| Quantity (pounds)..... | 28,250,360 | 24,300,567 | 34,095,542 | 13,375,800 |
| Value..... | \$404,796 | \$338,818 | \$450,770 | \$169,345 |

Important changes in classification.—Sodium silicate is free of duty under paragraph 605, act of 1913.

SODIUM SULPHITE, BISULPHITE, AND METABISULPHITE.

(See Survey A-18.)

Description and uses.—There are three sulphites of soda, the normal sulphite, the bisulphite or acid sulphite, and the metabisulphite. These compounds are white crystalline salts more or less soluble in water. The sulphites are employed in various industries as antiseptics, reducing agents, and sources of sulphur dioxide. Sulphite of soda is used industrially as an antichlor in bleaching processes, and as a bleaching agent for delicate fabrics, such as silk and wool. Both the normal and metabisulphite are used in the preparation of photographic developers. Bisulphite of soda is a more energetic antichlor and bleaching agent than the sulphite. It is also used as an antiseptic in steeping and preserving grain, and a strong solution is used for sterilizing brewer's casks. Bisulphites of calcium and magnesium are made for the manufacture of sulphite pulp for paper. Sodium hydrosulphite (see par. 79) is another reducing agent, used chiefly in dyeing and printing textiles, which is even more energetic than the sulphites, and should not be confused with them.

Production.—Bisulphite of soda is the starting point for the manufacture of all of the sodium sulphites. It is produced by saturating a solution of soda ash with sulphur dioxide. The acid sulphite thus produced can be separated from the solution or an additional quantity of soda ash can be added, thus forming the normal sulphite of soda, which crystallizes from the solution with seven molecules of water. Carbon dioxide is evolved in this process and in some cases it is purified and compressed in cylinders for sale. Sodium sulphite is also a by-product of the manufacture of phenol.

Domestic production of sodium sulphite, bisulphite, and metabisulphite since 1917 has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|-----------|
| 1917..... | 13,707 | \$300,668 |
| 1918..... | 16,362 | 478,482 |
| 1919 ¹ | 11,819 | 687,750 |
| 1920 ¹ | 75,837 | 1,226,155 |

¹ Sales, not production.

Imports of sulphite of soda have not been large compared with the domestic production, being less than 1 per cent in 1917. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad-valorem. |
|----------------------|----------------|---------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 30,450 | \$1,287 | \$0.04 | \$76 | 5.92 |
| 1919..... | 58,524 | 2,376 | .04 | 146 | 6.16 |
| 1920..... | 119,805 | 5,388 | .04 | 300 | 5.56 |
| 1921 (9 months)..... | 511,394 | 14,015 | .03 | | |

Exports.—Statistics not available.

Important changes in classification.—The act of 1913 (par. 67) provided only for sulphite of soda, whereas there are three important sodium sulphites, namely, (normal) sodium sulphite, sodium bisulphite, and sodium meta-bisulphite. These three compounds have been provided for specifically in this paragraph. (Reclassification Report, p. 92.)

SODIUM THIOSULPHATE.

(See Survey A-18.)

Description and uses.—Sodium thiosulphate, incorrectly called hyposulphite of soda, is a white crystalline substance containing about 27 per cent of water of crystallization, soluble in water, and a strong reducing agent. It is used as a fixer in photography, when it is usually designated hypo; as an antichlor in bleaching to destroy the last traces of chlorine bleach; as a reducing agent in the chrome tanning of leather; and for iodine determinations in analytical work.

Production.—Sodium thiosulphate is produced by boiling a solution of sodium sulphite with sulphur. In Europe it is obtained as a by-product from the sulphide residues of the Le Blanc soda process. The output since 1917 has been as follows:

| Year. | Short tons. | Value. |
|-------------------------|-------------|-----------|
| 1917..... | 26,598 | \$717,924 |
| 1918..... | 26,868 | 1,051,623 |
| 1919 ¹ | 32,212 | 1,709,223 |
| 1920 ¹ | 24,863 | 1,290,667 |

¹ Sales, not production.

Imports have increased from prewar imports of about 8,000 pounds per year to over 900,000 pounds in 1914 and 1,800,000 pounds in 1915. Imports in the war years declined to less than the prewar imports and since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,120 | \$975 | \$0.87 | \$3 | 0.29 |
| 1919..... | 27,616 | 6,312 | .23 | 69 | 1.09 |
| 1920..... | 17,174 | 11,989 | .70 | 43 | 0.36 |
| 1921 (9 months)..... | 199,707 | 2,933 | .01 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—Hyposulphite of soda (par. 67, act of 1913) is a commercial term used incorrectly to designate "sodium thiosulphate," the term which has been used in this paragraph. (Reclassification Report, p. 92.)

PARAGRAPH 79.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 79. Sodium hydrosulphite, hydrosulphite compounds, sulphoxylate compounds, and all combinations and mixtures of the foregoing, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 3. * * * all chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

PAR. 5. * * * all chemical * * * compounds, * * * mixtures and salts, not specially provided for in this section, 15 per centum ad valorem.

HYDROSULPHITES AND SULPHOXYLATES.

(See Survey A-18.)

Description and uses.—Under this heading are included several related chemicals, which are energetic reducing agents. They are marketed as gray to white crystalline powders. Their chief use is in the textile trade in certain dyeing, printing, and bleaching operations, and also to a lesser extent in the bleaching of soaps, oils, sirups, fibers, and in the preparation of pharmaceuticals. Sodium hydrosulphite, anhydrous, is used in the application of indigo and the different vat dyes.

Sulphoxylate of soda formaldehyde is used with or without the addition of other agents for the "discharge of dyes" and for the application of vat dyes in textile printing. The double compound sulphoxylate of soda formaldehyde and bisulphite of soda formaldehyde is used for discharges on dyed cotton. The basic sulphoxylate of zinc formaldehyde is used for stripping dyes from colored fabrics.

Production and imports.—The capacity of the American plants exceeds the imports of 1914, the latter totaling 872,500 pounds, valued at \$288,314. Sodium hydrosulphite is made by reducing sodium bisulphite by means of zinc with the addition of sulphur dioxide followed by separation of the hydrosulphite by "salting out." The other compounds are made from the sodium hydrosulphite.

Exports.—Statistics not available.

Important changes in classification.—A new specific provision.

PARAGRAPH 80.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 80. Starch: Potato, 1½ cents per pound; and all other starches not specially provided for, 1 cent per pound

ACT OF 1909.

ACT OF 1913.

PAR. 206. Starch, made from potatoes, one and one-half cents per pound; all other starch, including all preparations, from whatever substance produced, fit for use as starch, one cent per pound.

PAR. 234. Starch, made from potatoes, 1 cent per pound; all other starch, including all preparations, from whatever substance produced, fit for use as starch, ½ cent per pound.

STARCHES.

(See Survey G-33.)

Description and uses.—Starch occurs more or less abundantly in all forms of vegetable life, but commercially the most important sources are corn, potatoes, rice, wheat, and cassava. Starch is white, odorless, and tasteless, and is marketed in powdered, granular, or lump form. Cornstarch is by far the most important in this country; potato starch, the most important in Europe, ranks second in consumption. Of the domestic output in 1914, approximately 93 per cent was from corn, 3.8 per cent from potatoes, and the balance from wheat, rice, and cassava.

Starch is used for edible purposes in various flours, and in pastries, puddings, confectionery, etc.; and for laundry and manufacturing purposes, e. g., sizing of paper and cotton goods, thickening of colors and mordants used in textile printing, in making dextrin, soluble starch, and glucose. Its physical properties vary slightly with its sources, and thus cause the specific uses of different varieties. In the textile industry and in the manufacture of dextrin, potato starch has certain advantages which give it a market even at a higher price. Means have been found to make varieties of cornstarch suitable for use in the textile industry; these are severely competitive with potato starch.

Production of cornstarch increased from 574,247,697 pounds, valued at \$13,784,654, in 1914, to 727,962,000 pounds, valued at \$40,558,000, in 1919; potato starch decreased from 23,540,472 pounds, valued at \$718,006, in 1914, to 16,477,000 pounds, valued at \$1,099,000, in 1919; the output of other starches increased from 22,976,000 pounds, valued at \$1,281,000, in 1914, to 39,074,000 pounds, valued at \$2,746,000, in 1919. (Figures for 1919 are preliminary.) The number of establishments decreased from 82 in 1914 to 56 in 1919.

Imports of starch for 1909-1913 averaged 13,730,665 pounds, valued at \$375,767; for 1914-1918 they averaged 15,143,778 pounds, valued at \$684,714, approximately 95 per cent being potato starch. Before the war Germany and the Netherlands supplied practically all; in the last two years great quantities came from Japan, viz, 18,008,666 pounds in 1917 and 21,806,975 pounds in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

POTATO STARCH.

| | Pounds. | | | | Per cent. |
|----------------------|------------|-------------|--------|-----------|-----------|
| 1918..... | 20,416,580 | \$1,590,574 | \$0.08 | \$204,166 | 12.84 |
| 1919..... | 2,031,403 | 151,833 | .07 | 20,314 | 13.37 |
| 1920..... | 14,134,454 | 726,586 | .05 | 141,345 | 19.45 |
| 1921 (9 months)..... | 4,101,561 | 150,583 | .04 | | |

ALL OTHER STARCHES, N. S. P. F.

| | | | | | |
|----------------------|---------|----------|--------|---------|------|
| 1918..... | 443,813 | \$64,794 | \$0.17 | \$2,219 | 3.42 |
| 1919..... | 659,349 | 72,073 | .11 | 3,237 | 4.57 |
| 1920..... | 659,615 | 78,241 | .12 | 3,298 | 4.22 |
| 1921 (9 months)..... | 483,560 | 57,276 | .12 | | |

Exports of starch for 1914-1918 averaged 122,848,429 pounds, valued at \$3,913,104, practically all cornstarch. Over one-half goes to England and Scotland, while before the war the Netherlands and Belgium also took large quantities. Later statistics follow:

| Calendar year. | Cornstarch. | | All other starch. | |
|----------------------|----------------|-------------|-------------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Pounds.</i> | | <i>Pounds.</i> | |
| 1918..... | 33,619,821 | \$1,758,557 | 16,063,388 | \$1,020,071 |
| 1919..... | 179,436,736 | 10,219,799 | 89,703,821 | 5,342,366 |
| 1920..... | 116,462,841 | 6,891,607 | 31,480,284 | 2,053,917 |
| 1921 (9 months)..... | 136,179,599 | 3,411,599 | 21,580,140 | 616,137 |

Exports.—Statistics not available.

Important changes in classification.—The words “including all preparations from whatever substances produced fit for use as starch” have been omitted and “not specially provided for” added.

PARAGRAPH 81.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 81. Dextrine, made from potato starch or potato flour, 1½ cents per pound; dextrine, not otherwise provided for, burnt starch or British gum, dextrine substitutes, and soluble or chemically treated starch, 1½ cents per pound.

ACT OF 1909.

PAR. 297. Dextrine, dextrine substitutes, soluble starch or chemically treated starch, burnt starch, gum substitute, or British gum, one and one-half cents per pound.

ACT OF 1913.

PAR. 36. Gums: * * * dextrine, made from potato starch or potato flour, 1½ cents per pound; dextrine, not otherwise provided for, burnt starch or British gum, dextrine substitutes, and soluble or chemically treated starch, ½ of 1 cent per pound.

DEXTRINE, BRITISH GUM, SOLUBLE STARCH.

(See Survey A-9.)

Description and uses.—Dextrine is a substance produced by heating starch or by treating starch with dilute acid. It is sometimes considered an intermediate product between starch and dextrose. It is soluble in water and has strong adhesive properties. Dextrine is used extensively in the textile industry for thickening mordants, for printing calicos and other fabrics, and in finishing textiles; in the manufacture of paper boxes and wall paper; for gumming stamps and envelopes; in inks, felts, etc.

British gum is a name given to the commercial product. There are different grades, depending on the methods of manufacture and the botanical sources of the starch.

Soluble starch is starch rendered soluble by chemical treatment. It is intermediate between starch and dextrine and is used as an emulsifying agent, in the textile industry, and in volumetric chemical analysis.

Production of dextrine in 1914 was 18,931,641 pounds, valued at \$705,584. Domestic production of dextrine has increased greatly since 1914, the United States now having the largest plants and producing more tapioca dextrine than foreign countries; also large quantities from potato starch and cornstarch. The tapioca used is imported from Java.

Imports.—Before the war about 5,000,000 pounds of dextrine were imported, usually from Germany, Holland, and England, but these imports decreased during the war to less than 100,000 pounds in 1918. Imports of soluble starch in 1914 were 1,697,392 pounds, decreasing greatly since, with none reported in 1918. Recent imports of dextrine have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

DEXTRINE FROM POTATO STARCH OR FLOUR.

| | Pounds. | | | | Per cent. |
|----------------------|---------|----------|--------|---------|-----------|
| 1918..... | 378,177 | \$35,032 | \$0.09 | \$4,702 | 13.42 |
| 1919..... | 147,404 | 13,528 | .09 | 1,843 | 13.62 |
| 1920..... | 843,359 | 69,783 | .08 | 10,542 | 15.11 |
| 1921 (9 months)..... | 499,855 | 24,908 | .05 | | |

DEXTRINE SUBSTITUTES, BURNT STARCH, OR BRITISH GUM.

| | | | | | |
|----------------------|---------|-----------|--------|----------|------|
| 1918..... | 15 | \$2.00 | \$0.13 | | 5.50 |
| 1919..... | 238 | 54.00 | .23 | \$2.00 | 3.33 |
| 1920..... | 225,247 | 17,764.00 | .08 | 1,689.00 | 9.51 |
| 1921 (9 months)..... | 136,035 | 8,489.00 | .06 | | |

CHEMICALLY TREATED OR SOLUBLE STARCH.

| | | | | | |
|----------------------|---------|-------|--------|-----|------|
| 1918..... | 250 | \$38 | \$0.15 | \$2 | 4.95 |
| 1919..... | 973 | 105 | .10 | 7 | 6.95 |
| 1920..... | 110,034 | 8,812 | .08 | 826 | 9.37 |
| 1921 (9 months)..... | 66,138 | 3,257 | .05 | | |

Exports.—Statistics not available.

Important changes in classification.—Dextrines, included with gums and resins in the act of 1913, are given a separate paragraph in H. R. 7456.

PARAGRAPH 82.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 82. Strontium: Carbonate, precipitated, nitrate, and oxide, 25 per centum ad valorem.

ACT OF 1909.

PAR. 3. * * * all chemical compounds, * * * and salts, not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 685. Strontia, oxide of, and protoxide of strontian, * * * [Free].

ACT OF 1913.

PAR. 5. * * * all chemical * * * compounds, * * * and salts, not specially provided for in this section, 15 per centum ad valorem.

Par. 615. Strontia, oxide of, protoxide of strontian, * * * [Free].

STRONTIUM COMPOUNDS.

(See Survey FL-22.)

Description and uses.—Strontium compounds are prepared from the minerals celestite or strontianite, free of duty in paragraph 1662. The two most important compounds are strontium nitrate and strontium carbonate; both—but chiefly the nitrate—are used in the manufacture of pyrotechnics (fireworks and signal lights). The largest demand prior to the war was for the manufacture of railway signal flares.

Strontium salts were in demand for use in night signals and signal shells during the war. Strontium oxide after being converted into the hydroxide is used in certain European countries, especially Germany, for beet-sugar refining.

Production of strontium salts increased from 2,006,000 pounds in 1916 (first available figures) to 4,927,000 pounds in 1918, and then decreased to 1,971,519 pounds in 1919. The output in 1920 by 2 firms only exceeded that of any previous year, except 1918. Domestic manufacture is chiefly from imported materials, principally celestite from England.

Imports prior to the war—chiefly from Germany—supplied the requirements of the United States for strontium salts. In 1914 (only year figures are available) there were imported 1,941,103 pounds of strontium salts, of which 1,834,733 pounds were strontium nitrate and 52,179 pounds strontium carbonate.

Later statistics for imports of strontium nitrate and precipitated strontium carbonate are not available, but it is known that considerable quantities have been brought in during 1921. Imports of strontium oxide are combined with those of the strontium minerals (par. 1662).

Exports.—Statistics not available.

Important changes in classification.—Precipitated strontium carbonate and strontium nitrate are specifically mentioned for the first time. Strontium oxide (strontia, oxide of, protoxide of strontian) has been transferred from the free list, act of 1913 (par. 615).

PARAGRAPH 83.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 83. Strychnine, and salts of, 15 cents per ounce.

ACT OF 1909.

ACT OF 1913.

PAR. 80. Strychnia, or strychnine, and all salts thereof, fifteen cents per ounce.

PAR. 616. Strychnia or strychnine, and its combinations with acids not subject to duty under this section [Free].

STRYCHNINE AND SALTS.

(See Survey FL-2.)

Description and uses.—Strychnine is an alkaloid manufactured from nux vomica (par. 1621). It is also sold in combination with various acids, the most important salts being the acetate, nitrate,

phosphate, and sulphate. It is used as a stimulant in medicine and as a poison for vermin and predatory animals. One ounce of strychnine corresponds to 17,500 medicinal doses.

Production.—Our strychnine is derived from nux vomica imported from India. Production figures are not available, but the annual import of nux vomica is equivalent to 400,000 to 600,000 ounces of strychnine. It is also manufactured in England and Germany, but no commercial production has been noted in India. In 1919 (preliminary figures) 16,414 pounds of strychnine and salts, valued at \$72,804, were consumed in "druggist's preparations, patent medicines, and compounds."

Imports of strychnine and its combinations with acids from 1909 to 1913 were negligible. During 1914-1918 an average of 29,305 ounces, valued at \$17,946, was reported. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|-----------------------|-----------|--------|-------------|
| | Ounces. | | |
| 1918 | 180 | \$345 | \$1.92 |
| 1919 | 6,006 | 9,390 | 1.56 |
| 1920 | 20,950 | 37,370 | 1.78 |
| 1921 (9 months) | 54,852 | 83,039 | 1.51 |

Exports.—Statistics not available.

Important changes in classification.—This provision has been transferred from the free list of the act of 1913 (par. 316) and modified in language.

PARAGRAPH 84.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 84. Thorium nitrate, thorium oxide, and other salts of thorium not specially provided for, cerium nitrate, cerium fluoride, and other salts of cerium not specially provided for, and gas-mantle scrap consisting in chief value of metallic oxides, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 183. * * * thorium, oxide of and salts of, * * * and gas mantle scrap consisting in chief value of metallic oxides, forty per centum ad valorem.

PAR. 154. * * * thorium, oxide of and salts of; * * * and gas-mantle scrap consisting in chief value of metallic oxides, 10 per centum ad valorem.

PAR. 8. * * * all chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 5. * * * all chemical * * * compounds, * * * mixtures and salts, not specially provided for in this section, 15 per centum ad valorem.

THORIUM COMPOUNDS.

(See Survey C-22)

Description and uses.—Thorium nitrate is the most important of the salts of thorium. The commercial product is a white crystalline material containing 48 to 50 per cent of the oxide of thorium. It is

used primarily in incandescent gas mantles, which contain approximately 99 per cent of thoria. Thorium oxide is the chief ingredient of gas-mantle scrap (see *infra*).

Production.—Thorium nitrate is obtained from monazite sand by a long and tedious chemical process. The manufacture before the war was virtually controlled by German and Austrian interests. After imports ceased domestic production increased greatly, in 1918–19 supplying American needs and permitting large exportations to France and England. There were five manufacturers of thorium nitrate producing 439,304 pounds in 1917, as compared with 149,850 pounds in 1913. In 1919 the output had decreased to 239,163 pounds.

Imports of thorium nitrate reached a maximum of 144,413 pounds, valued at \$309,760, in 1914, with approximately 99.5 per cent from Germany. Imports of thorium oxide in 1914 amounted to 2,448 pounds, valued at \$4,095. Imports of thorium nitrate since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 3,307 | \$5,250 | \$1.59 | \$1,313 | 25 |
| 1919..... | 35,493 | 42,857 | 1.21 | 10,714 | 25 |
| 1921 (9 months)..... | 44,444 | 89,550 | 2.01 | | 25 |

The only recorded imports of other thorium compounds, including thorium oxide, were 28 pounds in 1918, valued at \$124.

Export statistics are wanting, but information from the manufacturers indicates that exports during the war approximated prewar imports.

Important changes in classification.—Thorium salts have been transferred from paragraph 154, Schedule C (act of 1913), to the chemical schedule. The paragraph has been amplified by mentioning thorium nitrate specifically.

CERIUM COMPOUNDS.

(See Survey C-22.)

Description and uses.—Cerium is a soft, steel-gray metal occurring in more than sixty minerals. Of the entire list of cerium-bearing minerals, two may be regarded as commercial sources. These are the phosphate (monazite sand) and the silicate (orthite). Cerite, a hydrous silicate occurring in Sweden, was for some time the only commercial source of cerium compounds. Monazite sand, the most important cerium ore, is mined for its content of thoria, which is used in incandescent gas mantles. Cerium is a by-product and is obtained in excessively large amounts. No commercial use has been found for the pure cerium metal, but certain of its alloys and compounds have a fairly extended range of application. The quantity consumed, however, is only a small fraction of the crude cerium salts obtained as a by-product in making thorium nitrate. Incandescent gas mantles

contain 98-99 per cent of thoria and 1-2 per cent of ceria. Certain cerium alloys, e. g., pyrophoric alloys, throw off glowing particles when scratched by a hard metal, a property utilized in automatic cigarette and gas lighters. Other alloys are used as reducing agents and as deoxidizers in the manufacture of high-grade iron and steel castings. Cerium fluoride is used extensively in carbon electrodes for "flaming" electric arc lamps. Cerium salts are also used in medicine.

Production statistics of cerium are not available, but consumption of monazite sand indicates an output of at least 250 tons of ceria. At least 10,000 tons of ceria are estimated to have accumulated at the gas-mantle factories.

Imports of cerium compounds are not shown since 1918.

Exports.—Statistics not available.

Important changes in classification.—First specific mention of cerium salts.

GAS-MANTLE SCRAP.

(See Survey C-22.)

Description and uses.—Imperfect mantles and those damaged in manufacture or left over as refuse are reduced to ashes by a firing process and sold to thorium manufacturers for the recovery of the valuable thorium and cerium oxides. Practically 90 per cent of the gas-mantle scrap is obtained in this way and about 10 per cent is collected from gas companies and other large consumers.

Imports of gas-mantle scrap in 1914 amounted to 60,435 pounds, valued at \$3,305, and decreased to 4,175 pounds in 1915 and to 2,291 pounds in 1918. Imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 44 | \$111 | \$2.52 | \$11 | 10 |
| 1920..... | 144 | 354 | 2.53 | 36 | 10 |

Exports.—Statistics not available.

Important changes in classification.—Gas mantle scrap, in chief value metallic oxide (thorium oxide), has been transferred to this schedule from paragraph 154, Schedule C, act of 1913.

PARAGRAPH 85.

H. B. 7456.

SENATE AMENDMENTS.

PAB. 85. Tin bichloride, tin tetrachloride, and all other chemical compounds, mixtures, and salts, of which tin constitutes the element of chief value, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAB. 3. * * * all chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAB. 65. Salts and all other compounds and mixtures of which * * * tin constitute the element of chief value, 10 per centum ad valorem.

PAB. 603. Lac spirits [Free].

TIN COMPOUNDS.

(See Survey A-17.)

Description and uses.—There are two important chlorides of tin, bichloride of tin and tin tetrachloride. The bichloride of tin as sold to the trade under the name of tin crystals, contains about 53 per cent of tin. It is used for weighting silk, in dyeing and calico printing. Tin tetrachloride contains about 45 per cent of tin. It is used for weighting silk, and as a mordant in dyeing. The silk industry requires about 3,000 tons of tin tetrachloride per year. It was used during the war for producing smoke screens.

Production.—The preparation of tin chlorides has developed almost exclusively into the detinning of scrap tin by means of chlorine gas. The process originated in the plant of the Goldschmidt chemical works at Essen, Germany, and was soon established in this country. In 1918 three companies were producing tin chlorides in the United States. The growth of the industry is dependent upon the growth of the silk industry, which is the largest consumer.

In 1914, census reports give the production of all-tin salts as 8,291,200 pounds, valued at \$2,028,500. In 1919 (preliminary figure) the output of tin chlorides was 8,999,200 pounds, valued at \$2,986,500, and of oxide of tin, 1,352,600 pounds, valued at \$900,240.

Imports.—Statistics are combined with those of gold, platinum, silver, and rhodium salts.

Exports.—Statistics not available.

Important changes in classification.—Tin bichloride and tin tetrachloride are mentioned specifically for the first time and the tin salts and compounds put in a separate paragraph.

PARAGRAPH 86.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 86. Titanium potassium oxalate, and all compounds and mixtures containing titanium, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 3. * * * all chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 5. * * * all chemical * * * compounds, * * * mixtures and salts, not specially provided for in this section, 15 per centum ad valorem.

TITANIUM COMPOUNDS.

Description and uses.—Titanium potassium oxalate is used as a mordant for fixing certain coal-tar and natural dyes on vegetable and animal fibers and on leather. With tannic acid it is used as a self-color. Other titanium compounds have, to some extent, uses

similar to that of the above compound. Titanium chloride is a powerful reducing agent and is used in stripping dyes.

Production.—Statistics are not available. Titanium potassium oxalate is prepared by dissolving the mineral Rutile or Ilmenite in sulphuric acid, followed by precipitating and purifying it as a hydroxide. The latter is dissolved in oxalic acid with the subsequent addition of potash.

Imports for the fiscal year 1914 were 3,328 pounds of titanium trichloride and 1,213 pounds of titanium sulphate.

Exports.—Not recorded.

Important changes in classification.—This is a new specific provision.

PARAGRAPH 87.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 87. Vanilla beans, 30 cents per pound; tonka beans, 25 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 559. Drugs, * * * not advanced * * * [Free].

PAR. 70. * * * vanilla beans, 30 cents per pound; tonka beans, 25 cents per pound.

PAR. 697. Tonquin, tonqua, or tonka beans [Free].

VANILLA BEANS.

(See Survey A-19.)

Description and uses.—Vanilla beans are the fruit of a tropical plant and are used in the preparation of the alcoholic extract or "essence" ordinarily sold as vanilla, used in flavoring chocolate, confectionery, various foods, liquors, and in pharmaceutical preparations. Vanillin, which is the chief aromatic constituent of vanilla beans, is now prepared synthetically. (See Vanillin, par. 56.)

Production.—Vanilla beans are not produced commercially in the United States, the industry requiring tropical climatic conditions and specially trained cheap labor. The vanilla plant is native to certain localities in Mexico, where it still occurs wild, although the vanilla bean of commerce is chiefly cultivated. The cultivation of vanilla has reached commercial importance only in the French insular colonies; a few British possessions, notably the Seychelles and Mauritius; and in the Java and other Dutch colonies.

The quality of vanilla varies greatly with its geographical source, no doubt due both to climate and method of culture and curing. Mexican, Bourbon, Seychelles, and Tahiti vanilla beans rank in quality in the order named.

Imports since 1910 have been between 800,000 and 1,150,000 pounds per year, valued at from \$1,500,000 to \$2,500,000. Imports have shown no appreciable decline during the war. Since 1917 imports,

chiefly from France, Mexico, and French Oceania, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|-------------|-------------|-----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 846,060 | \$1,308,470 | \$1.55 | \$253,815 | 19.40 |
| 1919..... | 1,037,865 | 2,104,048 | 2.03 | 311,360 | 14.80 |
| 1920..... | 1,192,757 | 2,344,703 | 1.97 | 357,827 | 15.26 |
| 1921 (9 months)..... | 760,130 | 1,087,517 | 1.43 | | |

Exports.—Statistics not available.

TONKA BEANS.

(See Survey A-19.)

Description and uses.—Tonka beans are seeds used in perfuming tobacco (especially snuff), to adulterate vanilla extract, and in the manufacture of perfumery. They have been used in the preparation of coumarin, but this product is now more extensively manufactured synthetically. Extracts of tonka beans are sometimes used in pharmacy to mask the odor of iodoform. The beans contain about 25 per cent of a fatty substance which is extracted as tonquin butter.

Production.—Tonka beans are not produced in the United States or its possessions. The trees are native to South America, chiefly in the Guianas, northern Brazil, and Venezuela. The beans are prepared for market by soaking in rum or alcohol and drying in the sun.

Imports for the years 1909 to 1914 have averaged 358,313 pounds, valued at \$406,696. For the years 1915 to 1918, during which period the duty was 25 cents per pound, the average annual import was 224,863 pounds, valued at \$137,026. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------------|----------|--------------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 112,137 | \$60,384 | \$0.54 | \$28,034 | 46.43 |
| 1919..... | 99,973 | 88,543 | .89 | 24,993 | 28.23 |
| 1920..... | 316,288 | 280,510 | .89 | 79,072 | 28.19 |
| 1921 (9 months)..... | 47,995 | 32,060 | .67 | | |

Exports.—Statistics not available.

PARAGRAPH 88.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 88. Zinc chloride, $1\frac{1}{2}$ cents per pound; zinc sulphate, three-fourths of 1 cent per pound; and zinc sulphide, $1\frac{1}{2}$ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 55. * * * sulfid of zinc white, or white sulphide of zinc, one and one-fourth cents per pound; chloride of zinc and sulphate of zinc, one cent per pound.

PAR. 61. * * * white sulphide of zinc, 15 per centum ad valorem.

PAR. 62. Zinc, chloride of and sulphate of, $\frac{1}{2}$ cent per pound.

ZINC COMPOUNDS.

(See Survey A-15.)

ZINC CHLORIDE.

Description and uses.—Zinc chloride, a chemical compound composed of zinc and chlorine, is a white to grayish-white solid. It is sold in solution or as a powder, also in porcelainlike masses, and cast in the form of pencils and tablets for pharmaceutical purposes. The preservation of wood, chiefly railroad crossties, is its largest use, the annual consumption for this purpose being about 30,000,000 pounds, or about 65 per cent of the domestic production. It is also used in the manufacture of vulcanized fiber board and for pharmaceutical purposes as a caustic, astringent, antiseptic, disinfectant, and deodorant.

Production of "zinc salts" in the United States in 1914 was 40,786,886 pounds, valued at \$1,130,959, which supplies the major part of the consumption in this country. The output of zinc chloride in 1919 (preliminary figures) was 74,089,000 pounds, valued at \$4,349,100. It is made from zinc scrap or roasted zinc ores by treatment with hydrochloric acid and is obtained as a by-product of galvanizing sheet iron.

Imports prior to 1914 were over 1,000,000 pounds, declining to about 6,000 pounds in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 195,522 | \$15,177 | \$0.08 | \$978 | 6.44 |
| 1919..... | 2,016 | 192 | .10 | 10 | 5.25 |
| 1920..... | 1,129,231 | 76,495 | .07 | 5,646 | 7.38 |
| 1921 (9 months)..... | 3,583,494 | 191,010 | .05 | | |

Exports.—Statistics not available.

ZINC SULPHATE.

Description and uses.—Zinc sulphate (white vitriol) occurs as colorless transparent crystals or as granular crystalline powder. It contains about 44 per cent of water. It is used for preserving and clarifying glue solutions, as a disinfectant, as a mordant in the dyeing and printing of textiles, as an astringent and emetic in medicine, and in electroplating. It is also the intermediate salt used in the electrolytic production of metallic zinc and of the pigment lithopone.

Production.—Zinc sulphate may be produced from zinc dross, zinc scrap, and roasted zinc ores. The production of zinc sulphate is closely allied with the zinc industry. Production figures in 1914 were combined with other zinc salts, but in 1919 (preliminary figures) showed an output of 7,325,500 pounds, valued at \$267,000.

Imports reached a maximum of 108,065 pounds, valued at \$2,176, in 1914. During the war imports were negligible and since have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 231 | \$152 | \$0.66 | \$1 | 0.76 |
| 1920..... | 100,269 | 3,038 | .03 | 501 | 16.50 |
| 1921 (9 months)..... | 11,604 | 455 | .04 | | |

Exports.—Statistics not available.

ZINC SULPHIDE.

Description and uses.—Zinc sulphide is a white, or yellowish insoluble compound of zinc and sulphur. When combined with barium sulphate it constitutes the pigment lithopone (par. 74). Zinc sulphide alone is seldom used as a pigment but is used primarily in the manufacture of dental cements, as is also lithopone containing 50 per cent of zinc sulphide.

Production.—Statistics are not available.

Imports have been shown only since 1914. They decreased from 283,356 pounds valued at \$8,979 in 1915, to about 7,000 pounds in 1918 (fiscal years). Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,670 | \$993 | \$0.37 | \$149 | 15 |
| 1919..... | 10,035 | 4,413 | .44 | 662 | 15 |
| 1920..... | 45,482 | 15,027 | .33 | 2,254 | 15 |
| 1921 (9 months)..... | 34,503 | 4,479 | .13 | | |

Exports.—Statistics are not available.

Important changes in classification.—Zinc sulphide has been transferred from the paragraph covering lithopone and other zinc pigments, as it is used chiefly for purposes other than as a pigment. (Reclassification Report, p. 84.)

SCHEDULE 2.—EARTHS, EARTHENWARE, AND GLASSWARE.

PARAGRAPH 201.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 201. Fire brick, weighing not more than 10 pounds each, not glazed, enameled, ornamented, or decorated in any manner, and brick other than fire brick, 10 per centum ad valorem; glazed, enameled, ornamented, or decorated, 20 per centum ad valorem; weighing more than 10 pounds each and not specially provided for, not glazed, enameled, ornamented, or decorated in any manner, 17 per centum ad valorem; glazed, enameled, ornamented, or decorated, 20 per centum ad valorem; magnesite brick, three-fourths of 1 cent per pound and 10 per centum ad valorem; chrome brick, not glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, 20 per centum ad valorem; if glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, 23 per centum ad valorem; bath brick, 23 per centum ad valorem.

ACT OF 1909.

SCHEDULE B.—EARTHS, EARTHENWARE, AND GLASSWARE.

PAR. 84. Fire-brick, weighing not more than ten pounds each, not glazed, enameled, ornamented, or decorated in any manner, one dollar and twenty-five cents per ton; glazed, enameled, ornamented, or decorated, thirty-five per centum ad valorem; weighing more than ten pounds each and not specially provided for in this section, not glazed, enameled, ornamented, or decorated in any manner, thirty per centum ad valorem; glazed, enameled, ornamented, or decorated, thirty-five per centum ad valorem; magnesite brick, chrome brick, and brick other than fire-brick, not glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, twenty-five per centum ad valorem; if glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, thirty-five per centum ad valorem.

PAR. 95. Articles and wares composed * * * of earthy or mineral substances, * * * not decorated * * * thirty-five per centum ad valorem; * * *. [Covered bath brick.]

ACT OF 1913.

SCHEDULE B.—EARTHS, EARTHENWARE, AND GLASSWARE.

PAR. 71. Fire brick, magnesite brick, chrome brick, and brick not specially provided for in this section, not glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, 10 per centum ad valorem; if glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, and bath brick, 15 per centum ad valorem.

REFRACTORY BRICKS.

(See Survey B-1.)

Description and uses.—Refractory bricks or fire bricks, made of burned clay, have a melting point high enough to withstand the temperatures of metallurgical operations. They are used in all metallurgical and furnace work exposed to intense heat. Those known as silica, magnesite, and chrome bricks are composed of quartz sand, calcined magnesite, and chromic iron ore, respectively. In addition to being refractory each will successfully resist the corrosive action of certain metallurgical slags.

Production.—Domestic deposits of suitable clays are widely distributed, and the native industry supplies our needs, besides large quantities for export. The industry is generally local in character, because of the low price of the product, but certain bricks composed of very highly refractory clays have a wide market. Manufacture is concentrated in the large metallurgical and industrial centers.

Refractory brick production is an important economic factor in Germany, Great Britain, France, and Belgium.

The domestic refractory manufacturing industry is independent of foreign competition in the ordinary grades and shapes used by the metallurgical industries. The following tabulation shows the fire brick marketed in the United States in specified years.

| | 1914 | 1916 | 1919 ¹ | 1920 ¹ |
|---------------------------|--------------|--------------|-------------------|-------------------|
| Quantity (thousands)..... | 816,784 | 1,376,000 | 943,942 | 1,131,000 |
| Value..... | \$16,427,547 | \$30,800,000 | \$36,170,000 | \$52,750,000 |

¹ Estimated.

Imports of refractory brick are largely supplementary to the domestic production. Ordinary grades are imported in small amounts for use in the large metallurgical plants located on the New York and New Jersey seaboard, but most of the importations are standard and special shapes composed of highly refractory English and Scotch clays. The high melting point of these goods is the controlling factor, since they can be used under conditions where more easily fusible brick would be quickly destroyed.

Imports of fire brick during the period 1910-1919 fluctuated between \$75,000 and \$128,000 per annum. Unglazed fire brick weighing less than 10 pounds each are the main item. These were separately listed by the Department of Commerce prior to the tariff act of 1913, but have since been included with unglazed brick weighing more than 10 pounds each. During the war period the imports of both classes of unglazed fire brick dropped to a minimum of 8,100 tons, valued at \$62,293, in the fiscal year 1916, but again increased in 1917 and 1918.

The imports of chrome, magnesite, and other special brick, however, show a rapid increase since 1916, amounting in 1919 to \$87,385, which, owing to enhanced prices, is three times the average for the five years immediately preceding the outbreak of the war in 1914.

Later statistics follow:

Fire brick.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|--------------|-----------|----------|------------------|
| NOT GLAZED, ENAMELED, PAINTED, VITRIFIED, ORNAMENTED, OR DECORATED. | | | | |
| | <i>Tons.</i> | | | <i>Per cent.</i> |
| 1918..... | 12,769 | \$156,059 | \$15,606 | 10 |
| 1919..... | 6,436 | 89,925 | 8,992 | 10 |
| 1920..... | 11,445 | 163,811 | 16,381 | 10 |
| 1921 (9 months)..... | 2,527 | 35,473 | | |

GLAZED, ENAMELED, PAINTED, VITRIFIED, ORNAMENTED, OR DECORATED.

| | | | | |
|----------------------|-----|-------|-------|----|
| 1918..... | | \$4 | | 15 |
| 1919..... | 184 | 1,976 | \$296 | 15 |
| 1920..... | 76 | 1,935 | 290 | 15 |
| 1921 (9 months)..... | | | | |

MAGNESITE, CHROME, AND OTHER THAN FIRE, NOT GLAZED, ENAMELED, PAINTED VITRIFIED, ORNAMENTED, OR DECORATED.

| | | | | |
|----------------------|--------|----------|---------|----|
| 1918..... | | \$85,590 | \$8,558 | 10 |
| 1919..... | 11,574 | 59,963 | 5,996 | 10 |
| 1920..... | 16,322 | 166,442 | 16,644 | 10 |
| 1921 (9 months)..... | 5,066 | 57,298 | | |

Exports.—Prewar annual exports of fire brick averaged about \$1,000,000. Later statistics follow:

Fire brick not glazed, enameled, painted, vitrified, ornamented, or decorated.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------|-------------|-------------|-------------|------------------|
| Quantity..... thousands.. | 89,608 | 51,252 | 82,570 | 29,838 |
| Value..... | \$5,001,057 | \$2,747,512 | \$4,200,266 | \$1,985,938 |

The exports shown above were principally to Canada, Cuba, and Mexico, with smaller shipments to Italy and Chile.

Exports of other kinds of fire brick are negligible.

OTHER BRICK.

(See Survey B-1.)

Description and uses.—Building bricks are classified into (1) common brick, and (2) ornamental brick, the latter including front brick having an attractive finish, enameled brick, and all kinds of fancy brick. Vitrified bricks are clay bricks which have been made harder and less porous by fusion, for example, paving bricks, which constituted 80 per cent of the vitrified bricks used in 1917. "Semivitrified" is an unscientific term used in the trade to describe articles ranging between porous and vitrified. Bath brick is an abrasive used for scouring and polishing.

Production.—Structural bricks are manufactured from a wide variety of common clays, and numerous grades are recognized in the trade. The color ranges from buff to almost black, according to the iron content. The hardness and porosity of the product is an important factor, and generally a hard-burned brick is considered most desirable. Special bricks for ornamental purposes are manufactured in presses; their production involves considerable hand work.

Structural brick is the most important clay product manufactured in the United States. The production surpasses in value the total production of pottery and chinaware or of all other clay products.

Suitable clays are widely distributed, and bricks are produced in every State and Territory except Hawaii and Alaska. The industry is local in character, very few bricks being shipped more than a few miles. Local demand is enormous near the large centers of population.

Brick (other than fire brick) produced in United States in specified years.

| | 1914 | 1919 ¹ | 1920 ¹ |
|--|--------------|-------------------|-------------------|
| Common brick: | | | |
| Quantity (thousands)..... | 7,145,809 | 4,552,667 | 4,709,000 |
| Value..... | \$43,763,554 | \$58,220,000 | \$81,330,000 |
| Face brick: | | | |
| Quantity (thousands)..... | 1,810,395 | 778,190 | 728,000 |
| Value..... | \$9,289,623 | \$15,240,000 | \$19,050,000 |
| Enameled brick | \$1,075,026 | \$640,000 | \$520,000 |
| Fancy or ornamental brick | \$124,459 | \$40,000 | \$30,000 |
| Vitrified brick or block: | | | |
| Quantity (thousands)..... | 931,324 | 485,139 | 442,000 |
| Value..... | \$12,500,866 | \$11,210,000 | \$12,020,000 |
| Sand lime: | | | |
| Quantity (thousand)..... | 172,629 | | |
| Value..... | \$1,058,512 | | |

¹ Estimated; marketed.

² Front, including fancy colored.

Imports.—Imports of common brick are negligible and are confined to shipments from Canadian plants to points in the United States near the international boundary. Imports of bath brick amounted to \$9,000 in 1919 and \$6,000 in 1920.

Exports of building brick, mostly to Canada, have in the past been unimportant. Statistics for the calendar years 1918–1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) ¹ |
|---------------------------|-----------|-----------|-----------|---------------------------------|
| Quantity (thousands)..... | 6,679 | 12,169 | 12,863 | 16,965 |
| Value..... | \$117,263 | \$245,600 | \$382,814 | \$369,267 |

GENERAL NOTES ON PARAGRAPH.

Suggested changes.—Page 25, line 17, H. R. 7456: “Or” should be inserted before “ornamented” and the comma after “ornamented” stricken out, since “ornamented” and “decorated” are interchangeable terms and so treated elsewhere.

Page 25, line 18: Transfer the words “and brick other than fire brick” to line 17 after the word “each.”

Page 26, line 2: Strike out "if" before "glazed" to agree with similar provisions elsewhere.

PARAGRAPH 202.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 202. Tiles, unglazed, glazed, ornamented, hand painted, enameled, vitrified, semivitrified, decorated, encaustic, ceramic mosaic, flint, spar, embossed, gold decorated, grooved and corrugated, and all other earthenware tiles and tiling by whatever name known, except pill tiles and so-called quarries or quarry tiles, but including tiles wholly or in part of cement, valued at not more than 40 cents per square foot, 8 cents per square foot, but not less than 35 nor more than 50 per centum ad valorem; valued at more than 40 cents per square foot, 38 per centum ad valorem; mantels, friezes, and articles of every description or parts thereof, composed wholly or in chief value of earthenware tiles or tiling, except pill tiles, 38 per centum ad valorem; so-called quarries or quarry tiles, red or brown in color, 8 cents per square foot, but not less than 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 85. Tiles, plain unglazed, one color, exceeding two square inches in size, four cents per square foot; glazed, encaustic, ceramic mosaic, vitrified, semivitrified, flint, spar, embossed, enameled, ornamented, hand painted, gold decorated, and all other earthenware tiles and tiling, by whatever name known, except pill tiles and so-called quarries or quarry tiles, valued at not exceeding forty cents per square foot, eight cents per square foot; exceeding forty cents per square foot, ten cents per square foot and twenty-five per centum ad valorem; so-called quarries or quarry tiles, forty-five per centum ad valorem; mantels, friezes, and articles of every description, composed wholly or in chief value of tiles or tiling, sixty per centum ad valorem.

PAR. 72. Tiles, plain unglazed, one color, exceeding two square inches in size, 1½ cents per square foot; glazed, ornamented, hand-painted, enameled, vitrified, semivitrified, decorated, encaustic, ceramic mosaic, flint, spar, embossed, gold decorated, grooved and corrugated, and all other earthenware tiles and tiling, except pill tiles and so-called quarries or quarry tiles, but including tiles wholly or in part of cement, 5 cents per square foot; so-called quarries or quarry tiles, 20 per centum ad valorem; mantels, friezes, and articles of every description or parts thereof, composed wholly or in chief value of earthenware tiles or tiling, except pill tiles, 30 per centum ad valorem.

TILES.

(See Survey B-1.)

Description and uses.—Tiles, like bricks, are clay products. Portland and Sorel cements, instead of clay, are also used in their manufacture. The chief uses are for roofing, flooring, and wall finishing. Roofing tiles, made from natural clays, sometimes mixed with other

materials, are usually vitrified and may be self-finished or glazed. Flooring tiles are practically all vitrified and unglazed. The term "quarry tiles" refers to square, unglazed, flooring tiles made of natural clays. Ceramic mosaics are smaller and of better material than quarry tiles. Wall tiles generally have a white body composition of clay and other minerals, such as feldspar and flint. They are seldom vitrified, but are usually coated with glaze. Mantels are sometimes built of wall tile. "Semivitrified" is not a scientific term, but is used in the trade to describe articles ranging between porous and vitrified.

Production of tiles (other than drain tile) was valued at \$5,705,583 in 1914 and at \$6,821,221 in 1917. The estimated value of the product in 1919 was \$7,250,000; in 1920, \$10,930,000. Ohio reported over one-third the total output, with New Jersey second. All grades and varieties are produced in sufficient quantities to supply the domestic market and leave a substantial surplus for export.

Tiles used for roofs and flooring are manufactured in pug mills and presses that thoroughly mix the clay and shape the green tile. After these are dried they are burned in round or oval coal-fired kilns.

Decorated tiles are manufactured from china clay or from refractory clay covered on one face with a layer of high-grade clay. The prepared surface is decorated and glazed to produce any desired finish.

All necessary raw materials (except high-grade china clay), together with all machinery and structural materials, are produced in the United States.

The manufacture of tile is an important industry in various parts of Europe. England is the chief producer on account of her large deposits of coal and suitable clays.

The large sale of quarry tiles in the United States is due to their fine quality and pleasing color rather than to price. Foreign manufacturers of roofing and flooring tiles specialize on finish and color. This custom gives the imported ware a slight advantage. Tiles are brittle and require careful packing to endure shipment.

Imports in 1914 were valued at \$111,566. Importers state that most of the quarry tile (over 50 per cent of the imports) and roofing tile come from England. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|---------------------|----------|---------|------------------------|
| TILES, PLAIN, UNGLAZED, ONE COLOR, EXCEEDING 2 SQUARE INCHES IN SIZE. | | | | |
| | <i>Square feet.</i> | | | <i>Per cent.</i> |
| 1918..... | 15,639 | \$1,432 | \$235 | 15.83 |
| 1919..... | 13,136 | 1,303 | 197 | 15.12 |
| 1920..... | 31,492 | 4,657 | 472 | ..... |
| 1921 (9 months)..... | 51,073 | 11,595 | ..... | ..... |
| GLAZED, ENCAUSTIC, CERAMIC, MOSAIC, VITRIFIED, SEMIVITRIFIED, FLINT, SPAR, EMBOSSED, ENAMELED, ORNAMENTED, DECORATED, HAND PAINTED, GOLD DECORATED, GROOVED, AND CORRUGATED, AND ALL OTHER EARTHENWARE TILES AND TILING, EXCEPT PILL TILES AND SO-CALLED QUARRIES OR QUARRY TILES. | | | | |
| 1918..... | 76,274 | \$16,256 | \$3,814 | 23.46 |
| 1919..... | 25,323 | 8,727 | 1,266 | 14.51 |
| 1920..... | 80,352 | 21,916 | 4,018 | 18.33 |
| 1921 (9 months)..... | 313,378 | 78,658 | ..... | ..... |

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|---|-----------|----------|---------|--------------------------------|
| QUARRIES OR QUARRY TILES, SO-CALLED. | | | | |
| 1918..... | | \$28,220 | \$5,644 | 20.00 |
| 1919..... | | 22,290 | 4,458 | 20.00 |
| 1920..... | | 46,994 | 9,399 | 20.00 |
| 1921 (9 months)..... | | 30,879 | | |

**MANTELS, FRIEZES, AND ARTICLES OF EVERY DESCRIPTION, OR PARTS OF, COM-
POSED, ETC., OF TILES OR TILING.**

| | | | | |
|----------------------|--|-------|-------|-------|
| 1918..... | | \$341 | \$102 | |
| 1919..... | | 67 | 20 | 30.00 |
| 1920..... | | 554 | 166 | 30.00 |
| 1921 (9 months)..... | | 386 | | |

CEMENT TILES.

| | | | | |
|----------------------|--------|-------|-------|-------|
| 1918..... | 1,436 | \$711 | \$72 | 10.10 |
| 1919..... | 8,045 | 1,762 | 402 | |
| 1920..... | 99,288 | 7,632 | 4,968 | 65.04 |
| 1921 (9 months)..... | 27,525 | 6,475 | | |

Exports of tiles (except drain) principally to Canada, Cuba, Panama, and Mexico were valued as follows for calendar years: 1918, \$582,051; 1919, \$628,836; 1920, \$1,025,083; 1921 (9 months), \$608,491.

Important changes in classification.—The distinction between unglazed and glazed tiles has been removed.

Suggested changes.—Page 26, line 9: Change “and” to “or” between “grooved” and “corrugated.” Page 26, line 16: Change “or” to “and” between “description” and “parts.” Page 26, line 19: “In color” might be omitted as unnecessary. There are quarries of colors besides red and brown.

PARAGRAPH 203.

H. R. 7456.

SENATE AMENDMENTS

PAR. 203. Roman, Portland, and other hydraulic cement, in barrels, sacks, or other packages, 5 cents per 100 pounds, including weight of barrel or package; in bulk, 4 cents per one hundred pounds; other cement, not specially provided for, 17 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 86. Roman, Portland, and other hydraulic cement, in barrels, sacks, or other packages, eight cents per one hundred pounds, including weight of barrel or package; in bulk, seven cents per one hundred pounds; other cement, not otherwise specially provided for in this section, twenty per centum ad valorem.

PAR. 444. Cement, Roman, Portland, and other hydraulic [Free].

PAR. 74. * * * all other cements not specially provided for in this section, 10 per centum ad valorem.

CEMENT.

(See Survey B-2.)

Description and uses.—Hydraulic cements are complex anhydrous silicates of lime and aluminum which possess the property of absorbing water and setting in a hard rocklike mass of complex hydrous silicates. Roman cement is a quick-setting variety of natural cement distinguished by high percentages of iron and alumina. Natural cements are all made by burning natural mixtures of clay and limestone; they are rarely as dependable as artificial cement. Portland cement is cement made by calcining limestone with a clayey matter or from blast-furnace slag, followed by fine grinding. Pozzuolana or puzzolan cement is a hydraulic cement made by mixing a volcanic ash (granulated blast-furnace slag, broken brick, and burned clay may also be used), with slaked lime. Cement is a most important building material, and is rapidly replacing brick and cut-stone construction. The United States was the pioneer in concrete building and industrial construction, and the production and consumption per capita exceed that of any other nation.

Production.—Deposits of all necessary raw materials and fuel are widely distributed; and domestic costs, owing to cheap domestic fuel supplies and to the utilization of labor-saving excavating and conveying methods, compare favorably with those in Europe. The industry is conducted in large plants, which must operate continuously at full capacity to show a profit. The margin between manufacturing cost and selling price is normally very small, and a rapid turnover is necessary.

The bulk of our production originates north of the Potomac and Ohio Rivers and east of the Mississippi River. The Pacific coast and western Mississippi Valley produce sufficient to satisfy the local demand. New England States are supplied by water and rail from the eastern Pennsylvania producing centers.

Domestic production exceeds consumption. Considerable quantities of domestic cement were used in the Panama Canal, and during the war exports to Cuba and to South American ports reached several million barrels per year. Exports, however, have never exceeded 4 per cent of production.

Germany, Great Britain, France, Belgium, and Italy are large cement producers. The industry is highly organized abroad and prior to the war a considerable percentage of the output was exported to South America and to other undeveloped countries. The Canadian industry is expanding rapidly and can compete in domestic markets located at some distance from domestic producing centers.

Principal hydraulic cements produced in the United States in specified years.

| Year. | Natural cement. | | Portland cement. | |
|-----------------------|---------------------|-----------|---------------------|--------------|
| | Quantity (barrels). | Value. | Quantity (barrels). | Value. |
| 1914..... | 751,285 | \$351,370 | 88,230,170 | \$81,789,368 |
| 1917..... | 1,639,456 | 1,435,370 | 92,814,202 | 125,670,430 |
| 1918..... | 1,432,966 | 1,401,341 | 71,081,663 | 113,730,061 |
| 1919..... | 1,528,589 | 1,588,554 | 80,777,935 | 138,130,269 |
| 1920 (estimated)..... | 1,615,000 | 1,965,000 | 100,302,600 | 201,607,000 |

¹ Figures for puzzolan cement are included with those for natural cement.

Principal hydraulic cements produced in the United States in specified years—
Continued.

| Year. | Puzzolan cement. | | Total. | |
|-----------------------|---------------------|----------|---------------------|--------------|
| | Quantity (barrels). | Value. | Quantity (barrels). | Value. |
| 1914..... | 68,311 | \$63,358 | 89,049,766 | \$82,204,096 |
| 1917..... | (1) | (1) | 93,453,658 | 126,105,800 |
| 1918..... | (1) | (1) | 71,514,629 | 114,132,002 |
| 1919..... | (1) | (1) | 81,306,524 | 138,713,823 |
| 1920 (estimated)..... | (1) | (1) | 100,917,000 | 202,572,000 |

¹ Figures for puzzolan cement are included with those for natural cement.

Imports.—During the first 10 years of the twentieth century, Germany, Belgium, France, Great Britain, and, at times, Canada, exported large quantities of cement to the United States. During the period 1911 to 1918 imports decreased rapidly, and at the time of the last tariff revision European producers had ceased to be factors in the domestic market. Imports from Germany increased sharply when cement was placed on the free list. Imports of hydraulic cement in 1914 were 37,447,094 pounds, valued at \$163,460. German shipments ceased entirely on the outbreak of the war. Importations have increased since the armistice. The bulk of the increase is Canadian cement from plants located near the border. The Canadian industry is expanding and will be of increasing importance in the domestic market. Most Canadian plants operate at a disadvantage, however, since fuel must, in most cases, be imported from the United States. Over 2,000,000 pounds of cement was imported from Austria-Hungary during the fiscal year 1919. It is probable that this was caustic magnesia for use in Sorel cement, since the value (\$36) per ton is higher than any commercial grade of Portland cement. Imports from 1918-1921 were as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

ROMAN, PORTLAND, AND OTHER HYDRAULIC CEMENT, N. E. S.

| | 100 pounds. | | | Per cent. |
|----------------------|-------------|-----------|--|-----------|
| 1918..... | 1,146 | \$1,185 | | |
| 1919..... | 32,325 | 51,363 | | |
| 1920..... | 1,959,477 | 1,230,914 | | |
| 1921 (9 months)..... | 246,017 | 237,240 | | |

ALL OTHER CEMENT, N. S. P. F.

| 1918..... | | \$10,849 | \$1,085 | 10 |
|----------------------|--|----------|---------|----|
| 1919..... | | 9,981 | 998 | 10 |
| 1920..... | | 49,105 | 4,910 | 10 |
| 1921 (9 months)..... | | 21,064 | | |

Exports of hydraulic cement in 1914 were 2,391,453 barrels, valued at \$3,382,282. Later statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|--------------|---------------------|
| Quantity (barrels)..... | 2,252,446 | 2,463,573 | 2,985,807 | 933,639 |
| Value..... | \$5,912,166 | \$7,513,390 | \$10,045,360 | \$3,520,456 |

The principal countries to which shipments were made were Cuba, Brazil, Mexico, Argentina, Peru, Colombia, and Panama.

Important changes in classification.—Roman, Portland, and other hydraulic cement is exempt from duty under the act of 1913 (par. 444).

Suggested changes.—Page 26 of H. R. 7456, in line 22, "100 pounds" is in figures. In line 24 "one hundred pounds" is in words. The figures should be changed to words to agree with practice elsewhere.

PARAGRAPH 204.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 204. Limestone (not suitable for use as monumental or building stone), crude, or crushed but not pulverized, 5 cents per one hundred pounds; lime, not specially provided for, 10 cents per one hundred pounds, including weight of barrel or package; hydrated lime, 12 cents per one hundred pounds, including weight of barrel or package.

ACT OF 1909.

ACT OF 1913.

PAR. 87. Lime, five cents per one hundred pounds, including weight of barrel or package.

[No corresponding provision for the other commodities.]

PAR. 73. Lime, 5 per centum ad valorem.

PAR. 614. * * * Limestone, unmanufactured and not suitable for use as monumental or building stone; all of the foregoing not specially provided for in this section [Free].

LIMESTONE.

(See Survey B-2.)

Description and use.—Limestone is natural calcium carbonate formed under pressure of overlying sediments from the accumulated remains of marine shellfish. It is a soft, porous, even-grained white rock which often contains fossil impressions of shells and other marine growths, and may be colored red, green, or gray by iron or granite impurities. Limestone includes a great variety of stones. Although there are no chemical differences, it is customary to call those limestones possessing especial value in fine building or decora-

tive work marbles (see par. 232), and the ordinary dull-colored non-crystalline and oolitic varieties, suitable only for building and lime-burning, limestones.

Production.—The following table shows the amount and disposition of limestone sold in the United States in 1918 and 1920:

| Use. | 1918 | | 1920 | |
|--|------------|-------------|------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| Building stone.....cubic feet.. | 3,698,035 | \$2,266,654 | 7,542,150 | \$8,197,866 |
| Curbing, flagging and paving.....do... | 37,698 | 37,836 | 41,870 | 22,841 |
| Rubble.....short tons.. | 109,327 | 109,369 | 274,630 | 425,279 |
| Riprap.....do... | 1,118,109 | 969,276 | 892,610 | 907,616 |
| Crushed stone.....do... | 19,120,858 | 16,278,184 | 25,807,800 | 30,608,799 |
| Fluxing stone.....long tons.. | 28,862,029 | 23,427,736 | 22,301,060 | 26,476,763 |
| Alkali works.....short tons.. | 3,437,068 | 2,263,821 | | |
| Sugar factories.....do... | 435,555 | 649,589 | 637,090 | 1,200,394 |
| Glass works.....do... | 202,211 | 332,744 | 196,150 | 400,873 |
| Paper mills.....do... | 100,247 | 117,829 | 139,880 | 256,278 |
| Agriculture.....do... | 1,091,918 | 1,626,292 | 1,364,260 | 2,724,209 |
| Other uses ¹.....do... | 1,216,633 | 1,378,676 | 4,432,170 | 4,435,432 |
| Total (quantities approximate, in short tons)..... | 53,868,200 | 49,453,006 | 59,290,000 | 75,655,260 |

¹ Includes stone sold as a filler for asphalt, paint, rubber, soap, and other material; stone sold for the manufacture of basic magnesium carbonate; stone sold to alcohol works and calcium carbide works; dolomite sold for use in making refractory products; stone sold for chicken grit and other products.

Imports of limestone are not given separately, but are included with freestone, granite, and sandstone, unmanufactured, and unsuitable for monumental or building stone. The total imports of these materials were in 1919 \$42,185 and in 1920 \$97,199.

Exports.—None recorded.

Important changes in classification, etc.—See General Notes on Paragraph, page 265.

LIME.

(See Survey B-2.)

Description and uses.—Lime is a white, infusible material made by calcining relatively pure limestone. Quicklime and hydrated lime are the two general classes of lime on the market. Pure quicklime is the oxide of calcium, but all commercial limes contain magnesia and other oxides, sometimes as much as 45 per cent. Hydrated lime, as its name implies, has been slaked or hydrated by the addition of water. In the chemical action between quicklime and water the calcium oxide is converted to calcium hydroxide. Hydrated lime possesses the advantages of keeping better and of being more easily handled than quicklime. Its principal use, for building purposes, accounted for about 35 per cent of the total consumption in 1917. The chemical industry consumed 20 per cent and agriculture 18 per cent in 1917.

Quicklime may be shipped in bulk, in wooden barrels of about 200 pounds capacity, or in iron casks holding 400 pounds. Hydrated lime is sold in 100-pound burlap sacks or in 40-pound paper sacks.

Production.—Pennsylvania by a large margin is the largest producing State. Ohio, with a production over half of that of Pennsylvania, is then followed by Virginia and West Virginia. Pennsylvania and Ohio together produce a little over one-third of the total production of the United States. The greatest increase in State production since 1910 is that of West Virginia, whose output has been tripled. Virginia has also shown a large increase.

The tendency in recent years has been to concentrate the manufacture of lime in larger and more economically operated plants. The railroads have been a large factor in bringing about this centralization of the industry into a comparatively few advantageous positions. The greatest improvement in marketable lime is that of hydrated lime, which is increasing in use and in the favor of the consumer. The following table shows the amount and value of lime sold in the United States in 1916-1920.

| Year. | Quantity (short tons). | Value. ¹ | Average value per ton. | Number of plants in oper- ation. |
|-----------|---------------------------|---------------------|------------------------------|---|
| 1916..... | 4,073,433 | \$18,509,305 | \$4.54 | 778 |
| 1917..... | 3,786,364 | 23,807,877 | 6.29 | 595 |
| 1918..... | 3,206,016 | 26,808,909 | 8.36 | 496 |
| 1919..... | 3,330,347 | 29,448,553 | 8.84 | 539 |
| 1920..... | 3,570,141 | 37,543,840 | 10.52 | 515 |

¹ The value given represents the value of bulk lime f. o. b. at point of shipment and does not include cost of barrel or package.

Imports have been less than 1 per cent of the domestic production. Of these imports, approximately 90 per cent has come from Canada and the remainder, a special grade of high-priced lime, from Europe. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------------------|----------|---------|------------------------|
| | <i>100 pounds.</i> | | | |
| 1918..... | 132,998 | \$73,458 | \$3,673 | 5 |
| 1919..... | 173,576 | 128,519 | 6,426 | 5 |
| 1920..... | 453,769 | 392,137 | 19,607 | 5 |
| 1921 (9 months)..... | 176,904 | 190,350 | | |

Exports have been less than 1 per cent of production, 90 per cent going to Canada. This exchange of lime has caused severe competition between producers in British Columbia and the State of Washington. Washington, however, has furnished less than 1 per cent of domestic production since 1911. Exports for calendar years since 1917 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-----------|-----------|-----------|---------------------|
| Quantity (barrels)..... | 71,907 | 63,719 | 59,211 | 38,595 |
| Value..... | \$105,803 | \$108,370 | \$123,290 | \$86,314 |

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Limestone, unmanufactured, and not suitable for use as monumental or building stone is exempt from duty under the act of 1913 (par. 614).

Suggested changes.—Page 27, line 6: Strike out "barrel or package" and insert "container." The word "package" includes contents; the word "container" stands for barrel or any other kind of container.

PARAGRAPH 205.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 205. Plaster rock or gypsum, crude, 25 cents per ton; if ground or calcined, \$1.40 per ton; white non-staining Portland cement, 8 cents per one hundred pounds, including weight of barrel or package; Keene's cement, or other cement of which gypsum is the component material of chief value, if valued at \$14 per ton or less, \$3.50 per ton; if valued above \$14 and not above \$20 per ton, \$5 per ton; if valued above \$20 and not above \$40 per ton, \$10 per ton; if valued above \$40 per ton, \$14 per ton.

ACT OF 1909.

PAR. 88. Plaster rock or gypsum, crude, thirty cents per ton; if ground or calcined, one dollar and seventy-five cents per ton; pearl hardening for paper makers' use, twenty per centum ad valorem; Keene's cement, or other cement of which gypsum is the component material of chief value, if valued at ten dollars per ton or less, three dollars and fifty cents per ton; if valued above ten dollars and not above fifteen dollars per ton, five dollars per ton; if valued above fifteen dollars and not above thirty dollars per ton, ten dollars per ton; if valued above thirty dollars per ton, fourteen dollars per ton.

PAR. 86. * * * Portland * * * cement, in barrels, sacks, or other packages, eight cents per one hundred pounds, including weight of barrel or package; * * *

ACT OF 1913.

PAR. 74. Plaster rock or gypsum, crude, ground or calcined, pearl hardening for paper makers' use; white, non-staining Portland cement, Keene's cement, or other cement of which gypsum is the component material of chief value, * * * 10 per centum ad valorem.

GYPSUM, KEENE'S CEMENT, ETC.

(See Survey B-2.)

Description and uses.—Plaster rock or gypsum is a naturally occurring form of calcium sulphate crystallized with two molecules of water. Gypsum when calcined at about 105° C. loses one molecule of water to form plaster of Paris; when heated further, it loses all

of its water of crystallization and also its property of hardening when treated with water. It is then known as "dead" or "over-burnt" plaster. Pearl hardening is the name applied to artificial or natural calcium sulphate used as a filler in writing paper; it is more commonly applied to artificial calcium sulphate, provided for in paragraph 71. About 500,000 tons of gypsum are sold annually without calcining. The bulk of this material is used as a retarder in Portland cement. White, nonstaining Portland cement is a white cement with a very low iron content. Minor quantities are used as a pigment base in making cold-water paints and crayons, as a filler for paper and cloth, as a base for insecticides, and as hand plaster or fertilizer. The calcined product is used for plaster casts and molds, and is an important ingredient in the manufacture of Keene's cement and plaster board and block. Small amounts are used for art statuary.

Keene's cement is a hard-finish wall plaster. Essentially it is completely calcined gypsum which has been heated with small quantities of alum or borax. It differs from ordinary gypsum wall plasters in the time required for setting and in superior hardness.

Production.—The United States possesses extensive deposits of high-grade gypsum, and domestic production is the largest in the world. The deposits are close to the surface and are mined very cheaply. The fact that only low temperatures are required for calcining and the habit of the mineral to disintegrate on heating both help to keep down the cost of the finished product. Plant and mining expenses and capital requirements are small as compared with other mining industries, consequently a large number of small operators compete keenly in the open market. Cement manufacturers often own gypsum mines. Gypsum is mined extensively in 18 States and in Alaska. New York, Iowa, Michigan, and Ohio lead in production. The general tendency is to decrease the amount used in a crude state and to increase the use of the calcined material as plaster and plaster board. France, Great Britain, and Canada lead as foreign producers.

Production of crude gypsum, 1912-1915, was constant at about 2,500,000 short tons. Later statistics of domestic production follow:

| Year. | Crude mined (short tons). | Value of crude and calcined sold. |
|-----------|---------------------------|-----------------------------------|
| 1916..... | 2,757,730 | \$7,959,032 |
| 1917..... | 2,696,226 | 11,118,452 |
| 1918..... | 2,057,015 | 11,470,854 |
| 1919..... | 2,420,163 | 15,727,907 |
| 1920..... | 3,129,142 | 24,533,065 |

Imports of gypsum and plaster of Paris before 1918 were less than 1 per cent of domestic production. They have been mostly from Nova Scotia and New Brunswick and are entered at various Atlantic ports. Large blocks of gypsum are occasionally received from England. Later statistics follow:

Gypsum and gypsum products.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

PLASTER ROCK OR GYPSUM, CRUDE.

| | Tons. | | | Per cent. |
|----------------------|---------|----------|---------|-----------|
| 1918..... | 44,826 | \$55,004 | \$5,500 | 10 |
| 1919..... | 153,833 | 211,946 | 21,195 | 10 |
| 1920..... | 252,220 | 397,942 | 39,794 | 10 |
| 1921 (9 months)..... | 167,085 | 240,677 | | |

PLASTER ROCK OR GYPSUM, GROUND OR CALCINED.

| | | | | |
|----------------------|--------|----------|---------|----|
| 1918..... | 5,462 | \$70,028 | \$7,003 | 10 |
| 1919..... | 9,299 | 126,405 | 12,641 | 10 |
| 1920..... | 13,322 | 179,191 | 17,919 | 10 |
| 1921 (9 months)..... | 3,783 | 49,491 | | |

KEENE'S CEMENT, OR OTHER CEMENT OF WHICH GYPSUM IS THE COMPONENT MATERIAL OF CHIEF VALUE.

| | | | | |
|----------------------|-----|---------|-------|----|
| 1918..... | 99 | \$2,259 | \$225 | 10 |
| 1919..... | 167 | 5,984 | 598 | 10 |
| 1920..... | 180 | 7,238 | 723 | 10 |
| 1921 (9 months)..... | 129 | 5,735 | | |

PORTLAND CEMENT, WHITE, NONSTAINING.

| | | | | |
|----------------------|-----|--------|-------|----|
| 1918..... | 1 | \$15 | \$1 | 10 |
| 1919..... | 72 | 1,273 | 127 | 10 |
| 1920..... | 582 | 23,815 | 2,381 | 10 |
| 1921 (9 months)..... | | 14 | | |

PEARL HARDENING FOR PAPER MAKERS' USE.

| | | | | |
|----------------------|--|-------|------|----|
| 1918..... | | \$450 | \$45 | 10 |
| 1919..... | | 139 | 14 | 10 |
| 1920..... | | 226 | 23 | 10 |
| 1921 (9 months)..... | | | | |

Exports of plaster of Paris have been small; the maximum value was \$28,144 in 1917. Small amounts are shipped to Canada. No exports of gypsum are recorded.

Important changes in classification.—Pearl hardening, provided for under that name in the act of 1913 (par. 74), is natural gypsum ground to a fine powder or precipitated calcium sulphate. As natural gypsum it comes within paragraph 205; as precipitated calcium sulphate it comes within paragraph 71 of H. R. 7456.

Suggested changes.—Page 27, line 10: Strike out "barrel or package" and insert "container." The word "package" includes contents; the word "container" stands for barrel or any other kind of container.

Page 27, lines 10, 11: Change "or" to "and" between "cement" and "other."

Page 27, lines 8, 12, 13, 14, 15: Strike out "if" as unnecessary and to agree with similar provisions elsewhere.

PARAGRAPH 206.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 206. Pumice stone, unmanufactured, valued at \$15 or less per ton, two-tenths of 1 cent per pound; valued at more than \$15 per ton, three-tenths of 1 cent per pound; wholly or partly manufactured, fifty-five one-hundredths of 1 cent per pound; manufactures of pumice stone or of which pumice stone is the component material of chief value, not specially provided for, 26 per centum ad valorem.

ACT OF 1909.

PAR. 89. Pumice stone, wholly or partially manufactured, three-eighths of one cent per pound; unmanufactured, valued at fifteen dollars or less per ton, thirty per centum ad valorem; valued at more than fifteen dollars per ton, one-fourth of one cent per pound; manufactures of pumice stone or of which pumice stone is the component material of chief value not specially provided for in this section, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 75. Pumice stone, unmanufactured, 5 per centum ad valorem; wholly or partially manufactured, $\frac{1}{4}$ cent per pound; manufactures of pumice stone, or of which pumice stone is the component material of chief value, not specially provided for in this section, 25 per centum ad valorem.

PUMICE.

(See Survey B-3.)

Description and uses.—Pumice is a form of porous volcanic glass used as an abrasive, chiefly in metal polishes, scouring soaps, and lithographic work.

Production.—The domestic product prior to 1917 was principally a fine volcanic dust or ash, improperly called pumice. It is, for ordinary requirements, a satisfactory substitute for ground Italian pumice originating in the Lipari Islands as a massive, vesicular, glassy lava. The only domestic deposits of lump pumice approaching this product are located in California and Arizona. Difficulty of shipping from Mediterranean ports and an embargo on imports stimulated production of lump pumice in 1917. Production of volcanic dust increased from 27,591 tons, valued at \$59,172, in 1914, to 35,293 tons, valued at \$84,814, in 1917. Nebraska led in production until 1916, when Kansas took the lead.

Production statistics of pumice follow:

| | 1918 | 1919 | 1920 |
|----------------------------|----------|-----------|-----------|
| Quantity (short tons)..... | 30,637 | 36,051 | 41,841 |
| Value..... | \$91,178 | \$116,835 | \$114,433 |

Imports of unmanufactured pumice in 1913 were 5,558 tons, valued at \$44,474. In 1913 imports of wholly or partially manufactured pumice were 3,845,326 pounds, valued at \$17,417; in 1917, 7,796,173

pounds. Imports of manufactures of pumice have been small—in 1913, \$12,231; in 1915, \$115. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|---------------------------------------|----------------|----------|---------|--------------------------------|
| UNMANUFACTURED. | | | | |
| | <i>Tons.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,086 | \$10,535 | \$527 | 5.00 |
| 1919..... | 5,234 | 73,620 | 3,681 | 5.00 |
| 1920..... | 10,379 | 143,778 | 7,189 | 5.00 |
| 1921 (9 months)..... | 1,906 | 20,768 | | |
| WHOLLY OR PARTLY MANUFACTURED. | | | | |
| | <i>Pounds.</i> | | | |
| 1918..... | 1,938,488 | \$22,205 | \$4,846 | 21.82 |
| 1919..... | 4,422,927 | 44,692 | 11,057 | 24.74 |
| 1920..... | 8,842,674 | 103,683 | 22,107 | 21.32 |
| 1921 (9 months)..... | 1,476,363 | 13,555 | | |
| MANUFACTURES OF. | | | | |
| 1918..... | | \$274 | \$68 | 25.00 |
| 1919..... | | 1,469 | 367 | 25.00 |
| 1920..... | | 2,534 | 634 | 25.00 |
| 1921 (9 months)..... | | 124,772 | | |

Export statistics of pumice stone are not given.

Suggested changes.—Page 27, line 20: Insert a comma after “stone.”

PARAGRAPH 207.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 207. Clays or earths, unwrought or unmanufactured, including common blue clay and Gross-Almerode glass pot clay, not specially provided for, \$1 per ton; wrought or manufactured, not specially provided for, \$2 per ton; china clay or kaolin, \$2.50 per ton; bauxite or beauxite, crude, not refined or otherwise advanced in condition in any manner, \$1 per ton; fuller's earth, unwrought and unmanufactured, \$1.50 per ton; wrought or manufactured, \$3 per ton of 2,000 pounds; silica, crude, not specially provided for, \$4 per ton; silica, suitable for use as a pigment, not specially provided for, \$7.50 per ton; fluorspar, \$5 per ton of 2,000 pounds: *Provided*, That after the expiration of one year beginning on the day following the passage of this Act, the duty on fluorspar shall be \$4 per ton of 2,000 pounds.

ACT OF 1909.

PAR. 90. Clays or earths, unwrought or unmanufactured, not specially provided for in this section, one dollar per ton; wrought or manufactured, not specially provided for in this section, two dollars per ton; china clay or kaolin, two dollars and fifty cents per ton; * * * bauxite, or beauxite, crude, not refined or otherwise advanced in condition from its natural state, one dollar per ton; fuller's earth, unwrought and unmanufactured, one dollar and fifty cents per ton; wrought or manufactured, three dollars per ton; fluorspar, three dollars per ton.

PAR. 534. Clay: Common blue clay and Gross-Almerode glass-pot clay, in cases or casks suitable for the manufacture of crucibles and glass melting pots or tank blocks [Free].

PAR. 693. Terra alba, not made from gypsum or plaster rock [Free].

[No corresponding provision for silica, crude (in finest form might have been classified as sand); nor for silica suitable for use as a pigment (powdered silica was held free as sand; if suitable for use as pigment might have been classified under paragraph 56 as a pigment).]

ACT OF 1913.

PAR. 76. Clays or earths, unwrought or unmanufactured, not specially provided for in this section, 50 cents per ton; wrought or manufactured, not specially provided for in this section, \$1 per ton; china clay or kaolin, \$1.25 per ton; fuller's earth, unwrought and unmanufactured, 75 cents per ton; wrought or manufactured, \$1.50 per ton; fluorspar, \$1.50 per ton; *Provided*, That the weight of the casks or other containers shall be included in the dutiable weight.

PAR. 411. Bauxite or beauxite, crude, not refined or otherwise advanced in condition from its natural state [Free].

PAR. 450. Common blue clay and Gross-Almerode glass-pot clay, in cases or casks, suitable for the manufacture of crucibles and glass melting pots or tank blocks [Free].

PAR. 629. Terra alba, not made from gypsum or plaster rock [Free].

[No corresponding provision for silica crude (in finest form might have been classified as sand); nor for silica, suitable for use as a pigment (powdered silica was held free as sand; if suitable for use as a pigment, it might have been classified under paragraph 63 as a pigment).]

CLAYS OR EARTHS N. S. P. F.

(See Survey B-4.)

Description and uses.—Ball clay is impure china clay. It is usually off-color when green, but burns white in the kilns when used in a mixture with pure kaolin. Pure kaolin, or china clay, is not plastic, and for that reason can not be worked on the jiggers and other pottery machines. Ball clay makes the mass plastic without appreciably affecting the color.

Gross-Almerode, also known in the glass trade as glass-pot clay, is a highly refractory clay much used by glassmakers for the pots in which fine glass is melted. Clay for glass pots must be refractory, and, in addition, must be free from all metal salts which would color the mix. Iron and manganese are especially objectionable since their silicates are highly colored. Similar high-grade plastic clays are used by the manufacturers of pencils, crucibles, abrasives, and enamel ware.

Common refractory, or fire clay, includes all clays capable of withstanding high temperatures. It is manufactured into fire brick and other rough clay ware, and is used loose or raw for lining steel furnaces and other metallurgical apparatus.

Production.—Prior to the war the domestic glass industries depended largely upon foreign producers for their Gross-Almerode clay, but during the war period domestic deposits of high-grade fire clays were developed, which have been successfully substituted for the foreign material. The domestic deposits were known long before the war, but were not widely used as long as cheap supplies of high-grade foreign clays were available.

Fire clay is very widely distributed throughout the United States. As the deposits are of both high and low grade, practically any variety can be supplied from domestic pits. Thirty-three States reported fire clay production in 1918. Pennsylvania, Missouri, Ohio, and New Jersey were the largest producers, but enormous undeveloped resources exist in sections which at present mine very little clay. Geographical location is an important factor in the production and the important producing States are those which inclose or are near the large consuming centers.

The quality of the domestic material has been somewhat variable and not as satisfactory for some uses as the foreign article. This was particularly true of ball clays used by the pottery industry, in which slight irregularities in the clay mix frequently result in disastrous breakage and deformation losses in the kilns. Since 1916 the glass-pot and crucible clay used by domestic consumers has been almost entirely native, and appears to be satisfactory. Great Britain possesses large deposits of high-grade, uniform ball clay that is easily accessible for foreign shipment, while freight rates from point of export to consuming points in Ohio were, prior to the war, often lower than the rail rate from domestic clay pits to the same market. German glass-pot clay, known as Gross-Almerode, was formerly exclusively employed in certain operations in which domestic clays are now being used with good results. The competitive situation is complicated by the fact that the cost of clay is a minor item of expense, compared to possible breakage losses due to the use of inferior material, and unless the domestic clay is satisfactory in every respect the foreign producer will regain the market regardless of the cost of material. Statistics of production follow:

Domestic clay marketed in the United States, 1913 and 1915-1920.

| Year. | Kaolin. | | Paper clay. | | Slip clay. | | Ball clay. | | Fire clay. | |
|-------------------------|------------------------|-----------|------------------------|------------------|------------------------|----------|------------------------|-----------|------------------------|-------------|
| | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. |
| 1913..... | 28,834 | \$235,457 | 126,877 | \$567,977 | 10,902 | \$24,505 | 67,134 | \$237,672 | 1,820,879 | \$2,592,591 |
| 1915..... | 28,031 | 241,520 | 113,033 | 539,622 | 7,846 | 18,774 | 75,348 | 301,910 | 1,570,481 | 2,361,482 |
| 1916..... | 47,723 | 306,819 | 163,434 | 768,911 | 14,084 | 47,939 | 89,761 | 391,152 | 2,057,814 | 3,708,009 |
| 1917..... | 31,835 | 301,378 | 174,449 | 962,421 | 16,972 | 70,505 | 107,406 | 599,240 | 2,347,972 | 5,625,095 |
| 1918..... | 37,969 | 391,109 | 141,725 | 1,068,420 | 13,552 | 49,898 | 89,896 | 590,631 | 2,805,053 | 5,664,064 |
| 1919 ¹ | 39,000 | 427,000 | 148,000 | 1,221,000 | 3,000 | 12,000 | 93,000 | 637,000 | 1,715,000 | 4,148,000 |
| 1920 ¹ | 264,000 | 2,285,000 | (²) | (²) | 10,000 | 49,000 | 145,000 | 1,340,000 | 2,400,000 | 7,720,000 |

| Year. | Stoneware clay. | | Brick clay. | | Miscellaneous clay. | | Total. | |
|-------------------------|------------------------|-----------|------------------------|------------------|------------------------|-----------|------------------------|-------------|
| | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. |
| 1913..... | 153,353 | \$143,587 | 158,800 | \$137,976 | 282,120 | \$240,694 | 2,647,989 | \$4,180,459 |
| 1915..... | 134,297 | 126,429 | 101,968 | 93,863 | 332,150 | 288,341 | 2,862,954 | 3,971,941 |
| 1916..... | 135,958 | 137,779 | 97,164 | 76,854 | 336,672 | 314,311 | 2,932,590 | 5,751,774 |
| 1917..... | 81,352 | 113,839 | 93,779 | 94,703 | 260,029 | 305,365 | 3,113,844 | 8,042,546 |
| 1918..... | 86,800 | 147,098 | (³) | (³) | 301,388 | 421,421 | 2,976,361 | 8,332,041 |
| 1919 ¹ | 68,000 | 137,000 | (³) | (³) | 300,000 | 500,000 | 2,363,000 | 7,077,000 |
| 1920 ¹ | 90,000 | 250,000 | (³) | (³) | 250,000 | 350,000 | 3,159,000 | 12,094,000 |

¹ Estimated.

² Paper clay included under "Kaolin."

³ Included under "Miscellaneous clay."

Imports of common blue clay and Gross-Almerode glass-pot clay (practically all from Germany) in 1914 were 20,587 tons, valued at \$180,524. They were highest in 1913 (23,213 tons, valued at \$211,005), the small quantity indicating the specialized use of these clays. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|------|------|------|---------------------|
|--|------|------|------|---------------------|

COMMON BLUE CLAY.

| | | | | |
|----------------------|-------|-------|-----------|----------|
| Quantity (tons)..... | 77 | 4 | 4,470 | 2,351 |
| Value..... | \$401 | \$133 | \$113,895 | \$49,308 |

GROSS ALMERODE GLASS-POT CLAY.

| | | | | |
|----------------------|--|--|----------|----------|
| Quantity (tons)..... | | | 1,335 | 857 |
| Value..... | | | \$43,306 | \$14,170 |

ALL OTHER, N. S. P. F.—UNWROUGHT OR UNMANUFACTURED.

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------------|-----------|-----------|----------|--------------------------------|
| | Tons. | | | Per cent. |
| 1918..... | 24,093 | \$163,484 | \$12,046 | 7.37 |
| 1919..... | 21,213 | 187,550 | 10,606 | 5.66 |
| 1920..... | 30,582 | 272,524 | 15,291 | |
| 1921 (9 months)..... | 29,445 | 283,886 | | |

ALL OTHER, N. S. P. F.—WROUGHT OR MANUFACTURED.

| | | | | |
|----------------------|-----|---------|-------|-------|
| 1918..... | 122 | \$1,087 | \$122 | 11.22 |
| 1919..... | 445 | 4,262 | 445 | 10.44 |
| 1920..... | 617 | 10,287 | 617 | 6.01 |
| 1921 (9 months)..... | 28 | 1,299 | | |

¹ July 1 to Dec. 31, 1918.

Exports of clay in 1914 amounted to \$306,916, and went to Europe and Canada. Exports of clays not specially provided for, 1918-1921, are shown in the following table. The principal countries of destination were Canada and Norway.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------|-----------|-----------|-----------|---------------------|
| Quantity.....tons.. | 21,739 | 27,663 | 58,960 | 17,013 |
| Value..... | \$192,053 | \$249,571 | \$775,222 | \$141,114 |

Important changes in classification, etc.—See General Notes on Paragraph, page 279.

CHINA CLAY OR KAOLIN.

(See Survey B-4.)

Description and uses.—China clay or kaolin is a white-burning clay of residual origin. This clay is largely used in the manufacture of white earthenware and china pottery, in high-grade tile, and as filler in paper, paint, rubber, and oilcloth. Kaolin forms from 20 to 50 per cent of the body in china, with varying proportions of ball clay, flint or quartz, and feldspar. The clay gives plasticity and working properties and acts as a bond during early stages of firing. Ball clay is the most plastic ingredient; kaolin, although less plastic, is used because of the whiteness it imparts. Much of the domestic paper clay and some of the ball clay have similar uses, though not called kaolin because of different geologic origin.

Production.—Domestic deposits of kaolin are extensive, but the crude product is generally regarded as inferior to that imported from England. The industry in this country has suffered from shortage and high cost of labor and from adverse transportation conditions, and yet has shown considerable progress both in increased output to regular customers and in the development of new markets.

It is doubtful if domestic kaolin can entirely replace the imported product, unless the quality improves, either through the discovery of new high-grade deposits or better systems of purifying and standardizing the product now mined. For production statistics see foregoing table under clays, not specially provided for.

Imports of kaolin, which include clays used in the paper, pottery, and other industries, were 241,935 short tons, valued at \$1,590,054 in 1914. Of the china clay used in American potteries, 56 per cent is imported from England, because it has been considered indispensable for the higher-grade ware. Some imports are from Canada. Recent statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------------|--------------|-------------|-----------|--------------------------------|
| | <i>Tons.</i> | | | <i>Per cent.</i> |
| 1918..... | 150,089 | \$1,153,240 | \$187,611 | 16.27 |
| 1919..... | 161,243 | 1,965,393 | 201,554 | 10.26 |
| 1920..... | 323,036 | 3,568,677 | 403,795 | 11.31 |
| 1921 (9 months)..... | 79,381 | 873,989 | ..... | ..... |

BAUXITE, CRUDE.

(See Survey C-16.)

Description and uses.—Crude bauxite is a form of aluminum oxide, the commercial grade containing at least 52 per cent of alumina, although material is mined of varying content ranging from 40 to 70 per cent. The silica and iron should not run over 15 per cent. Bauxite is the chief ore of aluminum, but also has many other im-

portant uses. It is employed in the manufacture of artificial abrasives, and is also the crude material from which alum, aluminum sulphate, and several other chemicals for water purification, dyeing, and tanning are made. A rapidly growing application is in the manufacture of bauxite brick for furnace linings. In 1917 nearly 65 per cent of the domestic output went into metallic aluminum, nearly 13 per cent into aluminum salts, 19 per cent into bauxite abrasives, and 8 per cent to makers of bauxite refractories. The purest varieties are used in high-grade chemicals.

Production.—The principal bauxite deposits of the world are in the Provinces of Var and Herault, southern France; in the former Empire of Austria-Hungary; in Arkansas, Georgia, and Alabama; in British and Dutch Guiana; and in northwestern Ireland. Minor deposits are located in Germany, Russia, Venezuela, French Guiana, Brazil, Africa, Australia, and probably China. It is believed that the tropical countries contain immense reserves. The largest producing bauxite deposits are controlled politically by the United States and France. Great Britain rules a large share of the equatorial regions which probably contain most of the undeveloped deposits. Bauxite may also be found in the colonial possessions of Portugal and Belgium and in those formerly owned by Germany. The aluminum works of the world are controlled by the United States, Great Britain, France, Germany, Switzerland, Italy, and Norway.

Bauxite produced and consumed in the United States, 1916-1920.

| Year. | Domestic production. | | | | | |
|-----------|----------------------------------|-----------|-----------------------|-------------|-----------------------|-------------|
| | Georgia, Alabama, and Tennessee. | | Arkansas. | | Total. | |
| | Quantity (long tons). | Value. | Quantity (long tons). | Value. | Quantity (long tons). | Value. |
| 1916..... | 49,190 | \$284,810 | 375,910 | \$2,011,590 | 425,100 | \$2,296,400 |
| 1917..... | 62,134 | 395,051 | 508,556 | 2,724,007 | 568,690 | 3,119,058 |
| 1918..... | 42,829 | 314,112 | 662,892 | 3,133,890 | 605,721 | 3,447,992 |
| 1919..... | 43,076 | 346,588 | 333,490 | 1,855,159 | 376,566 | 2,201,747 |
| 1920..... | 40,029 | 349,453 | 481,279 | 2,897,892 | 521,308 | 3,247,345 |

World's production of bauxite, 1913 and 1916-1920, by countries, in metric tons.

| Country. | 1913 | 1916 | 1917 | 1918 | 1919 | 1920 |
|------------------------------------|---------|-----------|-----------|-----------|---------|-----------|
| Austria (Dalmatia and Istria)..... | (1) | * 142,326 | * 163,122 | * 155,000 | (1) | (2) |
| British Guiana..... | | | 2,070 | 4,268 | 2,008 | * 27,872 |
| British India..... | 1,203 | 762 | 1,885 | 1,211 | 1,709 | (1) |
| France..... | 309,294 | * 106,170 | * 120,883 | (1) | 159,103 | * 186,693 |
| Hungary..... | (1) | (1) | 16,213 | (1) | (1) | (1) |
| Italy..... | 6,952 | 8,887 | 7,789 | 7,800 | 2,972 | * 37,960 |
| Spain..... | | | | 460 | 1,780 | (1) |
| United Kingdom..... | 6,152 | 10,495 | 14,960 | 9,743 | 9,369 | 11,197 |
| United States..... | 213,615 | 431,923 | 577,817 | 615,443 | 382,610 | 529,675 |

1 Figures not yet available.

2 Unofficial.

* Production of Dalmatia and Istria (33,800 tons) included under Italy.

Imports.—Before the war the United States generally imported between 10 and 20 per cent of its supply, which was of French origin. Imports of bauxite in 1914 were 24,844 tons, valued at \$86,871. Later statistics for calendar years follow:

Bauxite, or beauzite, crude, not refined or advanced.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|----------|----------|-----------|---------------------|
| Quantity (tons)..... | 3,653 | 6,062 | 42,895 | 24,883 |
| Value..... | \$14,791 | \$36,830 | \$251,284 | \$150,479 |

Imports above shown are chiefly from France and British Guiana.

Exports consist largely of purified alumina, or bauxite concentrates, by one company to a Canadian subsidiary. Exports of bauxite concentrates since 1917 are shown as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|---------------------|
| Quantity (tons)..... | 19,711 | 17,701 | 22,257 | 4,455 |
| Value..... | \$1,523,688 | \$1,372,094 | \$1,843,596 | \$371,873 |

Important changes in classification, etc.—See General Notes on Paragraph, page 279.

FULLER'S EARTH.

(See Survey B-4.)

Description and uses.—Fuller's earth is a clay having the power of absorbing greasy substances and of decolorizing fats and oils. Its variations in chemical composition and in physical properties determine its value. It is used principally for bleaching, clarifying, or filtering fats, greases, and oils. Other uses are in pigments for printing wall paper, in detecting certain coloring matters in food products, and as a substitute for talcum powder. The domestic industry first assumed importance in 1895.

Production.—Domestic deposits of fuller's earth are of high grade, and home production could easily be made to supply the entire domestic demand. The industry is unorganized and some properties are idle a large part of the time. Almost 99 per cent of the output originates in the Southern States, but California yields sufficient material to supply the petroleum refineries located on the Pacific slope.

Great Britain and Germany are normally large producers, but the English product is the only one entering the domestic market to any extent.

The domestic industry occupies a strong position in all home markets except along the Atlantic seaboard from New Jersey to New England. Domestic material sent here must absorb a heavy rail

and water freight charge, while foreign material can in many cases be shipped direct from England to the consuming plant at a lower cost for transportation. Statistics of production of Fuller's earth produced and marketed in the United States follow:

| Year. | Number of operators reporting sales. | Quantity (short tons). | Value. | Average price per ton. |
|--------------------------|--------------------------------------|------------------------|-----------|------------------------|
| 1911-1915 (average)..... | | 40,178 | \$390,252 | \$9.71 |
| 1916..... | 10 | 67,822 | 706,951 | 10.42 |
| 1917..... | 11 | 72,567 | 772,087 | 10.64 |
| 1918..... | 14 | 84,468 | 1,146,354 | 13.57 |
| 1919..... | 10 | 106,145 | 1,998,829 | 18.83 |
| 1920..... | 12 | 128,487 | 2,506,189 | 19.51 |

Imports are as follows: Unwrought or unmanufactured in 1913, 1,597 short tons, valued at \$10,359; in 1917, 975 short tons, valued at \$7,486. Wrought or manufactured have been greater, amounting in 1913 to 15,269 short tons, valued at \$135,229; in 1917 to 15,077 short tons, valued at \$159,071.

Imports amount to about 15 per cent of the domestic production. The material enters through New York and New England ports, and is consumed at the refining plants located in that section. Statistics of imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

FULLER'S EARTH, UNWROUGHT AND UNMANUFACTURED.

| | Tons. | Value. | Duty. | Per cent. |
|----------------------|-------|----------|-------|-----------|
| 1918..... | 999 | \$12,636 | \$727 | 5.75 |
| 1919..... | 333 | 4,301 | 250 | 5.81 |
| 1920..... | 1,355 | 19,793 | 1,016 | 5.13 |
| 1921 (9 months)..... | 205 | 2,438 | | |

FULLER'S EARTH, WROUGHT OR MANUFACTURED.

| | Tons. | Value. | Duty. | Per cent. |
|----------------------|--------|-----------|----------|-----------|
| 1918..... | 14,140 | \$213,599 | \$21,210 | 9.93 |
| 1919..... | 12,054 | 185,410 | 18,081 | 9.75 |
| 1920..... | 15,622 | 202,100 | 23,433 | 11.59 |
| 1921 (9 months)..... | 5,761 | 76,713 | | |

Export figures are not available.

SILICA.

Description and uses.—Silica is used in the manufacture of wood filler, pottery, paints, and scouring soaps, as a polisher, as foundry mold wash, in metallurgic and chemical processes, and for cosmetics and dentifrices.

Production.—The following table summarizes the data available to show the silica of the specified forms marketed in the United States from 1918 to 1920, inclusive.

Silica sold for pottery, paints, fillers, polishers, abrasives, and other uses in the United States, 1918-1920.

| Material. | 1918 | | 1919 | | 1920 | |
|---|------------------------|-------------|------------------------|-----------|------------------------|-----------|
| | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. |
| Quartz (vein quartz, pegmatite, and quartzite)..... | 71,740 | \$259,330 | 63,332 | \$373,571 | 68,190 | \$320,350 |
| Sand and sandstone ¹ | 98,956 | 620,584 | 47,277 | 288,890 | 158,395 | 1,183,014 |
| Tripoli (ground and otherwise prepared)..... | 19,982 | 199,854 | 24,292 | 181,541 | 40,233 | 569,677 |
| Diatomaceous earth..... | * 2,965 | * 24,947 | 42,642 | 531,960 | 61,922 | 1,079,693 |
| | * 193,643 | * 1,104,715 | 177,543 | 1,375,962 | 328,740 | 3,152,734 |

¹ Includes only finely ground material. Figures probably incomplete.

* Excludes California product used for filters and as insulating and fireproofing material.

Quartz sold in the United States, 1916-1920.

| Year. | Crude. | | Ground. | | Total. | |
|-----------|------------------------|----------|------------------------|-----------|------------------------|-----------|
| | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. |
| 1916..... | 70,417 | \$78,283 | 18,097 | \$164,503 | 88,514 | \$242,786 |
| 1917..... | 126,575 | 120,856 | 16,098 | 197,213 | 142,673 | 318,069 |
| 1918..... | 61,008 | 121,888 | 10,732 | 137,442 | 71,740 | 259,330 |
| 1919..... | 51,774 | 135,187 | 17,558 | 238,394 | 63,332 | 373,571 |
| 1920..... | 59,423 | 142,397 | 8,767 | 177,953 | 68,190 | 320,350 |

Imports.—The Bureau of Foreign and Domestic Commerce records imports of “flint, flints, and flint stones, unground,” from several countries. These imports are mainly flint pebbles for use in grinding mills but partly material for uses such as are listed in this report. The figures can not be accurately separated.

Value of pebbles and flint imported for consumption in the United States, 1916-1920.

| | | | |
|-----------|-----------|-----------|-----------|
| 1916..... | \$313,120 | 1919..... | \$250,096 |
| 1917..... | 197,158 | 1920..... | 338,630 |
| 1918..... | 127,808 | | |

Important changes in classification.—See General Notes on Paragraph, page 279.

FLUORSPAR.

(See Survey B-4.)

Description and uses.—Fluorspar or fluorite, chemically calcium fluoride (CaF₂), contains 48.9 per cent fluorine and 51.1 per cent calcium. It is translucent to transparent and has about the same hardness as calcite. The general grades are lump, ground, and gravel spar. The principal uses in order of importance are (1) metallurgical work, (2) manufacture of opalescent glass and enameled ware, and (3) chemical manufactures, especially hydrofluoric acid. The

bulk of domestic production and practically all of the imported supply appear as gravel spar, 80 per cent of the domestic production being used in the basic open-hearth steel furnaces.

In metallurgy fluorite makes extremely fluid slags, with great solvent power for refractory substances. It has a comparatively low melting point, and at high temperatures it has a higher quantitative efficiency as a flux than limestone. In the making of ferromanganese and ferrosilicon it gives great fluidity to the slag without too high temperature and greatly reduces the amount of phosphorus, sulphur, and other impurities in the pig. The most important use is in basic open-hearth steel furnaces, where, with limestone, it is of value as a desulphurizing agent. It makes the melt more fluid and permits the use of greater quantities of lower grades and scrap. Very little lump is used for metallurgical purposes. Theoretically gravel spar runs in sizes from one-half inch down, but as a matter of fact it may vary from egg size to "fines."

The highest grade is white or clear, pale green, or blue and is the material used by glass, enameling, and chemical industries, including the manufacture of hydrofluoric acid, which accounts for the bulk of the consumption. Some sodium fluoride is used in the preservation of wood. For most chemical uses a purity of 95 to 98 per cent is necessary.

Miscellaneous uses for the mineral are as a binding agent in emery wheels and for carbon electrodes, in the extraction of potash from feldspar, and for increasing the volatilization of potassium in the recovery of potash from Portland cement clinker. As an electrode bond, fluorite increases the lighting efficiency and decreases the current required. Small amounts of fluorspar are used annually for optical purposes. Only the purest, clearest specimens—pieces as small as one-quarter inch in diameter—are used in making lenses.

Production.—Until 1916 over 90 per cent of the output of ground fluorspar was mined near Rosiclare, Ill. The field extends across the Ohio River into the adjoining counties of Kentucky. Fluorspar is also produced in New Hampshire, Arizona, and Colorado.

Prior to 1905 the domestic output was less than 50,000 tons annually and fluctuated considerably. In 1909, its use for open-hearth steel being more generally recognized, the mining and milling facilities in the Illinois-Kentucky fields expanded greatly, and production increased rapidly until 1912.

Fluorspar is mined by the usual underground methods. On account of the comparatively low value of the product, extensive or costly treatment is not possible, and only those deposits which furnish sufficiently pure material with a minimum of preparation can be worked advantageously.

The latest available records rank England next to the United States in production, with Germany third, and France fourth. A few hundred tons are annually produced in Spain. Austria-Hungary, which formerly produced 8,000 to 9,000 tons a year, had no output in 1911. Canada and Mexico possess deposits containing fluorspar, but little is known as to their grade or extent. Canada began to produce regularly in 1917.

With the English steel industry in normal state, more than 50 per cent of the fluorspar output of Great Britain was exported to the

United States, where it was able to compete with the American product as far west as Pittsburgh. The production from old mine dumps was cheaply obtained and exceeded English requirements. This material is rapidly disappearing, while the greatly expanded steel industry of the United Kingdom will continue to make larger demands on the output of spar. It is therefore doubtful if, in the future, there will be much excess for export. Domestic supplies are ample for any probable requirement for a great many years. The cost of mining exceeds that in foreign countries, but the material has a higher average purity.

Fluorspar produced¹ in the United States, 1916-1920.

| Year. | Quantity (short tons). | Value. |
|-----------|------------------------------|------------|
| 1916..... | 155,735 | \$922,654 |
| 1917..... | 218,828 | 2,287,722 |
| 1918..... | 263,817 | 5,465,481 |
| 1919..... | 138,290 | 3,525,574 |
| 1920..... | 186,778 | 4,718,547 |
| | 2,126,409 | 24,001,045 |

¹ Figures represent shipments from mines.

Imports, until 1916, were from 100 to 300 tons annually of ground fluorspar from Germany. In recent years nearly all has been the medium-grade gravel spar, chiefly from England. The supply was derived largely from old mine dumps, and was purchased at the docks in Liverpool for about \$2 a ton and brought over as ballast. The lowest average valuation of the material at the port of entry was \$2.46 in 1911 (calendar year) and the highest, not including duty or freight, was \$15.10 in 1918.

Imports in 1910 were 42,488 short tons, valued at \$135,152; in 1914, 10,206 short tons, at \$38,943. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------------|--------------|-----------|----------|--------------------------------|
| | <i>Tons.</i> | | | <i>Per cent.</i> |
| 1918..... | 11,225 | \$169,364 | \$16,837 | 9.94 |
| 1919..... | 6,199 | 107,631 | 9,298 | 8.64 |
| 1920..... | 21,975 | 265,630 | 32,962 | 12.41 |
| 1921 (9 months)..... | 3,812 | 43,318 | | |

Exports.—None recorded.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The following articles covered by this paragraph are exempt from duty under the act of 1913: Common blue clay and Gross-Almerode glass-pot clay, in cases or casks, suitable for the manufacture of crucibles and glass-melting pots or tank blocks (par. 450); terra alba, not made from gypsum or plaster rock (par. 629); and bauxite or beauxite, crude, not refined or otherwise advanced in condition from its natural state (par. 411).

Conflicting provisions.—The provision in this paragraph for “silica, crude, not specially provided for, \$4 per ton” may be in conflict with the provision in paragraph 1661 exempting from duty “sand, crude or manufactured.” The provisions for silica are new.

Suggested changes.—Page 28, line 2: Strike out “or beauzite” to agree with paragraph 6.

PARAGRAPH 208.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 208. Mica, unmanufactured, or rough trimmed only, 4 cents per pound and 17 per centum ad valorem; mica, cut or trimmed, mica splittings, mica plates, and built-up mica, and all manufactures of mica or of which mica is the component material of chief value, 10 cents per pound and 17 per centum ad valorem; ground mica, 4 cents per pound and 20 per centum ad valorem.

ACT OF 1909.

PAR. 91. Mica, unmanufactured, or rough trimmed only, five cents per pound and twenty per centum ad valorem; mica, cut or trimmed, mica plates or built-up mica, and all manufactures of mica or of which mica is the component material of chief value, ten cents per pound and twenty per centum ad valorem.

[No corresponding provision for ground mica.]

ACT OF 1913.

PAR. 77. Mica, unmanufactured, valued at not above 15 cents per pound, 4 cents per pound; valued above 15 cents per pound, 25 per centum ad valorem; cut mica, mica splittings, built-up mica, and all manufactures of mica, or of which mica is the component material of chief value, 30 per centum ad valorem; ground mica, 15 per centum ad valorem.

MICA.

(See Survey B-5.)

Description and uses.—Mica is a mineral marketed as cut or uncut blocks and sheets, as splittings, and in a ground form. Mica splittings is a form of rough-trimmed mica which has been separated into sheets. Cut mica is separated into sheets and accurately trimmed to size—either squares, oblongs, discs, or washers. The value of mica of same quality depends upon the size of the sheets and whether it is clear or stained. Sheet mica, nonflammable and insulating, is essential in the manufacture of electrical machinery. Other uses, including windows for stoves, goggles, and lanterns, are dependent upon its transparency and resistance to heat and shock. It is used in phonograph diaphragms. Built-up mica, or mica board, an insulating material having various trade names, utilizes the splittings. Ground mica is used in patent roofing, in annealing steel, in lubrication, and in decoration.

Production.—Deposits of mica of economic value may be found in small quantities in many parts of the world, but India, the United States, and Canada now produce 95 per cent of the world's output. Brazil, Argentina, the British East Africa Protectorate, and Australia are rapidly becoming important producers. Guatemala, the Union of South Africa, Madagascar, Nyasaland, China, and Ceylon have deposits which will undoubtedly be exploited in the near future.

In the United States, North Carolina and New Hampshire are the principal mica producers.

The following States contain mica deposits which are now being worked or which have been worked in recent years: North Carolina, Georgia, Virginia, South Carolina, Alabama, New Hampshire, Maine, South Dakota, Idaho, New Mexico, Colorado, and Texas.

The Appalachian region has usually produced the best quality of sheet mica, although good deposits are known in South Dakota and Idaho. In general, however, a greater percentage of scrap mica is taken from the western than from the eastern deposits. It is the relatively large quantity of good sheet mica in the deposits in the East that has made the mining of mica more profitable there than in the West. The following table shows the mica produced and sold in the United States, 1914-1919:

Mica produced and sold in the United States, 1914-1919.

| Year. | Sheet mica. | | Scrap mica. | | Total quantity (short tons). | Total value. |
|-----------|--------------------|-----------|------------------------|----------|------------------------------|--------------|
| | Quantity (pounds). | Value. | Quantity (short tons). | Value. | | |
| 1914..... | 556,933 | \$278,540 | 3,730 | \$51,416 | 4,008 | \$329,956 |
| 1915..... | 553,821 | 378,259 | 3,959 | 50,510 | 4,236 | 428,769 |
| 1916..... | 865,863 | 524,485 | 4,433 | 69,906 | 4,866 | 594,391 |
| 1917..... | 1,276,533 | 753,874 | 3,429 | 52,908 | 4,067 | 806,782 |
| 1918..... | 1,644,200 | 731,810 | 2,292 | 33,130 | 3,114 | 764,940 |
| 1919..... | 1,545,709 | 493,567 | 3,258 | 58,084 | 4,031 | 541,651 |

Imports of unmanufactured mica in 1913 were 2,339,587 pounds, valued at \$819,902, an increase over previous years; but imports declined during the war period to about \$500,000 annually. Cut mica, mica splittings, and manufactures increased from \$398,580 in 1914 to \$1,002,821 in 1917. In 1917 unmanufactured mica, except the ground variety, was valued at \$453,978. Very little ground mica is imported. Imports of all kinds of mica are from India (directly and through England), Canada, Germany, and South America. Later statistics follow:

Mica.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

CUT MICA, MICA SPLITTINGS, BUILT-UP MICA, AND ALL MANUFACTURES OF MICA, ETC.

| | Pounds | Value. | Duty. | Per cent. |
|----------------------|--------|-----------|-----------|-----------|
| 1918..... | | \$880,906 | \$264,272 | 30.00 |
| 1919..... | | 762,228 | 228,668 | 30.00 |
| 1920..... | | 2,011,434 | 603,430 | 30.00 |
| 1921 (9 months)..... | | 588,688 | | |

GROUND.

| | Pounds | Value. | Duty. | Per cent. |
|----------------------|--------|---------|-------|-----------|
| 1918..... | 11,587 | \$1,647 | \$247 | 15.00 |
| 1919..... | 62 | 9 | 1 | 15.00 |
| 1920..... | 760 | 1,756 | 263 | 15.00 |
| 1921 (9 months)..... | 33,850 | 573 | | |

Mica—Continued.

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------|-----------|--------|-------|--------------------------------|
|----------------|-----------|--------|-------|--------------------------------|

UNMANUFACTURED, VALUED ABOVE 15 CENTS PER POUND.

| | Pounds. | | | Per cent. |
|----------------------|-----------|-----------|-----------|-----------|
| 1918..... | 675,117 | \$652,106 | \$163,027 | 25.00 |
| 1919..... | 645,637 | 718,389 | 179,597 | 25.00 |
| 1920..... | 1,190,517 | 1,163,486 | 290,871 | 25.00 |
| 1921 (9 months)..... | 179,660 | 234,281 | | |

UNMANUFACTURED, VALUED AT NOT ABOVE 15 CENTS PER POUND.

| | | | | |
|----------------------|---------|---------|---------|-------|
| 1918..... | 66,312 | \$6,467 | \$2,652 | 41.02 |
| 1919..... | 78,076 | 8,143 | 3,123 | 38.35 |
| 1920..... | 107,260 | 12,702 | 4,290 | 33.78 |
| 1921 (9 months)..... | 69,690 | 7,213 | | |

Exports of unmanufactured mica declined from \$25,962 in 1914 to about \$4,000 in 1917, while exports of manufactures increased over 100 per cent to \$84,755 in 1917. Later exports of mica and manufactures of (by calendar years) have been valued as follows: 1918, \$74,529; 1919, \$109,348; 1920, \$316,169; 1921 (9 months), \$112,883. Exports have been destined chiefly to England, Canada, France, and Japan.

Important changes in classification.—The provisions in the act of 1909 (par. 91) for mica rough-trimmed only, for mica trimmed, and for mica plates are here revived.

Suggested changes.—It has been represented to the Tariff Commission that mica splittings are a material in the class with rough-trimmed block mica rather than with mica plates, built-up mica, and manufactures of mica.

PARAGRAPH 209.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 209. Talc, steatite or soapstone, and French chalk, crude and unground, one-fourth of 1 cent per pound; ground, washed, powdered, or pulverized, except toilet preparations, one-half of 1 cent per pound; cut or sawed, or in blanks, crayons, cubes, disks, or other forms, 1 cent per pound; manufactures (except toilet preparations), of which talc, steatite or soapstone, or French chalk is the component material of chief value, wholly or partly finished, and not specially provided for, if not decorated, 25 per centum ad valorem; if decorated, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 13. * * * French chalk, one cent per pound; * * *.

PAR. 95. Articles and wares composed wholly or in chief value of

PAR. 69. Talcum, ground talc, steatite, and French chalk, cut, powdered, washed, or pulverized, 15 per centum ad valorem.

earthy or mineral substances, * * * if not decorated in any manner, thirty-five per centum ad valorem; if decorated, forty-five per centum ad valorem; * * *.

PAR. 480. * * * articles manufactured, in whole or in part, not provided for in this section, * * * twenty per centum ad valorem.

PAR. 626. Minerals, crude, * * * [Free].

PAR. 81. Earthy or mineral substances wholly or partially manufactured and articles and wares composed wholly or in chief value of earthy or mineral substances, not specially provided for in this section, whether susceptible of decoration or not, if not decorated in any manner, 20 per centum ad valorem; if decorated, 25 per centum ad valorem; * * *.

PAR. 621. Talcum, steatite, and French chalk, crude and unground [Free].

TALC—FRENCH CHALK.

(See Survey A-19.)

Description and uses.—Talc is a natural magnesium hydrous silicate. It has a greasy or soapy feel, and is one of the softest minerals known. The massive, compact variety is known as steatite or soapstone.

Talc has a great variety of uses. As soapstone it is cut into slabs and used for table tops in hospitals and laboratories; it is also made into sinks and laundry tubs and into vessels for storing acids. As a heat resistant it is used for griddles, foot warmers, and hearthstones; as an insulator, for electric switchboards and floors of electrical plants.

Ground or powdered talc is used as a filler in the manufacture of paper and paint and as a dressing for rubber, cloth, and leather. It is extensively employed in the manufacture of toilet powders; as a preservative coating for stonework and as a nonconductive material for covering steam pipes; and as an adulterant for soaps and other goods.

French chalk is high-grade talc in its natural state cut to shape and size for marking cloth, metals, slate, etc. Talc is used in making tips for gas burners, and some varieties are substituted for graphite in lubricants.

Production.—The United States produces more talc than all other countries; Italy and France produce the finest varieties. Before the war France ranked second to the United States in total production. Virginia produces all the soapstone mined in this country, and New York produces most of the fibrous talc used in paper making.

In 1915 the total production of talc and soapstone in the United States was 186,891 short tons and in 1917 it was 218,848 short tons. Later statistics follow:

Talc mined and sold in the United States in 1918 and 1919, by States.

| State. | 1918 | | | 1919 | | |
|--|------------------------|-----------|------------------------|------------------------|-----------|------------------------|
| | Quantity (short tons). | Value. | Average value per ton. | Quantity (short tons). | Value. | Average value per ton. |
| California..... | 11,864 | \$185,775 | \$15.66 | 9,837 | \$147,470 | \$14.99 |
| New York..... | 71,167 | 902,100 | 12.68 | 62,495 | 750,765 | 12.01 |
| North Carolina..... | 1,661 | 72,348 | 43.56 | 2,602 | 76,158 | 29.27 |
| Vermont..... | 90,537 | 775,012 | 8.56 | 78,661 | 665,652 | 8.46 |
| Virginia..... | 3,265 | 24,723 | 7.57 | 14,744 | 182,467 | 12.38 |
| Georgia, Maryland, Massachusetts, New Jersey, Pennsylvania, and Washington.. | 14,483 | 145,002 | 10.01 | | | |
| | 192,977 | 2,104,600 | 10.91 | 168,339 | 1,822,512 | 10.83 |

Domestic talc sold in the United States, 1913 and 1915-1920, by classes.

| Year. | Rough (crude). | | Manufactured into pencils and blanks. ¹ | | Ground. ² | | Total. | |
|-----------|------------------------|----------|--|------------------|------------------------|------------------------|------------------------|-------------|
| | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. |
| 1913..... | 2,454 | \$11,597 | 138 | \$36,272 | 146,679 | \$1,232,151 | 149,271 | \$1,280,020 |
| 1915..... | 8,235 | 58,867 | 39 | 11,941 | 158,062 | 1,330,339 | 166,336 | 1,401,197 |
| 1916..... | 11,299 | 106,928 | 828 | 102,674 | 181,182 | 1,553,240 | 193,309 | 1,762,342 |
| 1917..... | 12,269 | 68,440 | 5,781 | 176,404 | 180,563 | 1,644,828 | 198,613 | 1,889,672 |
| 1918..... | 13,263 | 106,228 | 945 | 114,002 | 177,209 | 1,869,730 | 191,477 | 2,089,960 |
| 1919..... | 15,625 | 73,437 | 921 | 147,339 | 151,793 | 1,601,736 | 168,339 | 1,822,512 |
| 1920..... | 30,955 | 137,388 | (³) | (³) | ⁴ 167,594 | ⁴ 2,174,453 | 198,549 | 2,311,841 |

¹ Includes slate pencils and metal workers' crayons and blanks used in making acetylene burners and other objects.

² For foundry facings, filler for paper, paint, and rubber goods, toilet powder, foot ease, lubricators for dressing skins and leather, etc.

³ Figures for talc manufactured into pencils and blanks included under "Ground."

The total sales of soapstone in the United States in 1920 amounted to 24,175 short tons, valued at \$740,197, as compared with 15,330 short tons, valued at \$576,059 in 1918.

Imports.—Most of the talc, ground or prepared, imported before the war came from France and Italy, with smaller amounts from Canada and Austria-Hungary. After 1914 the imports from France fell, but those from Italy increased. The total imports during 1914 were 29,690,092 pounds, and during 1917 were 34,288,429 pounds.

In 1914 the imports of crude and unground talcum and French chalk amounted to 2,807,974 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

TALCUM, STEATITE, AND FRENCH CHALK, CRUDE AND UNGROUND.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|-----------|---------|-------|-----------|
| 1918..... | 2,868,510 | \$9,253 | | |
| 1919..... | 3,281,353 | 10,105 | | |
| 1920..... | 1,882,279 | 7,206 | | |
| 1921 (9 months)..... | 255,703 | 1,385 | | |

TALCUM, GROUND TALC, OR STEATITE, CUT, POWDERED, WASHED, OR PULVERIZED.

| | Quantity. | Value. | Duty. | Per cent. |
|----------------------|-------------------------|-----------|----------|-----------|
| 1918..... | 25,469,657 | \$251,323 | \$37,698 | 15 |
| 1919..... | 25,916,193 | 248,576 | 37,280 | 15 |
| 1920..... | ¹ 43,477,182 | 443,514 | 66,527 | 15 |
| 1921 (9 months)..... | 15,633,622 | 165,856 | | |

FRENCH CHALK, CUT, POWDERED, WASHED, OR PULVERIZED.

| | Quantity. | Value. | Duty. | Per cent. |
|-----------|-----------|--------|-------|-----------|
| 1918..... | | \$266 | \$0 | 15 |
| 1919..... | 6,313 | 323 | 48 | 15 |

¹ Includes French chalk.

Imports since 1918 have come principally from Canada and Italy.

Exports.—None recorded.

Important changes in classification.—Talcum, steatite, and French chalk, crude and unground, are exempt from duty under the act of

1913 (par. 621). The provisions for talc, cut or sawed or in blocks or other forms and manufactures, are new.

Suggested changes.—Page 28, line 21: Put the words “except toilet preparations” in parentheses to agree with line 24.

[See par. 1449, page 1200, in connection with crayons.]

PARAGRAPH 210.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 210. Common yellow, brown, or gray earthenware made of natural, unwashed, and unmixed clay, plain or embossed; common salt-glazed stoneware; stoneware and earthenware crucibles; all the foregoing not ornamented, incised, or decorated in any manner, and manufactures wholly or in chief value of such ware, not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

PAR. 92. Common yellow, brown, or gray earthenware, plain, embossed, or salt-glazed common stoneware, and earthenware or stoneware crucibles, all the foregoing not decorated in any manner, twenty-five per centum ad valorem; yellow earthenware, plain or embossed, coated with white or transparent vitreous glaze but not otherwise ornamented or decorated, * * * forty per centum ad valorem.

ACT OF 1913.

PAR. 78. Common yellow, brown, or gray earthenware made of natural unwashed and unmixed clay; plain or embossed, common salt-glazed stoneware; stoneware and earthenware crucibles; all the foregoing, not ornamented, incised, or decorated in any manner, 15 per centum ad valorem; * * * and manufactures wholly or in chief value of such ware, not specially provided for in this section, 20 per centum ad valorem; * * *.

COMMON YELLOW, BROWN, OR GRAY EARTHENWARE.

(See Survey B-6.)

Description and uses.—Common earthenware, yellow, brown, or gray, includes kitchen and culinary utensils; common stoneware, crocks, butter jars, churns, fruit jars, water filters, etc.; red earthenware, flower pots, jardinières, vases, fern pots, window boxes, etc. Common stoneware is an opaque, highly fired, vitrified pottery, composed of plastic clay, the body being gray, buff, brown, or other color, caused by iron and other impurities present, with the natural color of the crude clay after being burned in the kiln. Red earthenware, usually porous, is made from red-burning clays; yellow, brown, or gray earthenwares are made from natural clays, the colors being brought out by burning.

Production.—In 1918 stoneware was made in 20 States, Ohio producing nearly one-half the output; red earthenware, in 31 States, Ohio being the largest producer. Statistics of production follow:

| Year. | Stoneware and yellow and Rockingham ware | Red earthenware. | Total. |
|-----------|--|------------------|-------------|
| 1914..... | \$3,349,301 | \$1,059,904 | \$4,409,205 |
| 1916..... | 3,096,288 | 1,156,351 | 4,852,639 |
| 1918..... | 4,454,164 | 906,861 | 5,361,025 |
| 1920..... | 5,475,660 | 1,766,919 | 7,242,579 |

Imports.—From 1908 to 1913 the average value of imports was \$67,000, but decreased to \$27,173 in 1918 (fiscal year). Later statistics follow:

Common yellow, brown, or gray earthenware, made of natural unwashed and unmixed clay, and plain or embossed common salt-glazed stoneware.

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|---------|-------|------------------|
| NOT DECORATED, ORNAMENTED, OR INCISED IN ANY MANNER. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$5,251 | \$788 | 15 |
| 1919..... | 5,048 | 757 | 15 |
| 1920..... | 14,248 | 2,137 | 15 |
| 1921 (9 months)..... | 12,067 | | |

DECORATED, ORNAMENTED, OR INCISED IN ANY MANNER, AND MANUFACTURES OF SUCH WARE.

| | | | |
|----------------------|---------|-------|----|
| 1918..... | \$2,726 | \$545 | 20 |
| 1919..... | 4,829 | 966 | 20 |
| 1920..... | 9,649 | 1,930 | 20 |
| 1921 (9 months)..... | 5,835 | | |

CRUCIBLES OF STONE AND EARTHENWARE.

| | | | |
|----------------------|---------|-------|----|
| 1918..... | \$3,010 | \$453 | 15 |
| 1919..... | 7,486 | 1,123 | 15 |
| 1920..... | 9,145 | 1,372 | 15 |
| 1921 (9 months)..... | 4,675 | | |

Exports.—None recorded.

ROCKINGHAM EARTHENWARE.

(See Survey B-6.)

Description and uses.—Rockingham ware imported from England is of cheap brown, yellow, or reddish clay, often elaborately decorated; the domestic make is of yellow or buff clays. It is covered with a rich brown glaze which gives its distinctive characteristic, manganese being the chief color ingredient. Except for its glaze it is the same as other common ware made of domestic clays. It is used largely for teapots.

Production.—The statistics of production include stoneware and yellow ware with Rockingham earthenware. See common yellow, brown, or gray earthenware, *supra*.

Import value in 1908-9 was \$20,000; in 1911, \$89,692; in 1913, \$75,006. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|----------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$43,137 | \$12,941 | 30 |
| 1919..... | 47,513 | 14,254 | 30 |
| 1920..... | 99,931 | 29,979 | 30 |
| 1921 (9 months)..... | 62,949 | | |

Important changes in classification.—The words “plain or embossed” qualify earthenware instead of stoneware, and provision for earthenware, ornamented or decorated or incised has been omitted. Separate provision for Rockingham ware was not made in H. R. 7456, because it is equal in all respects to other earthenware covered by paragraph 212.

PARAGRAPH 211.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 211. Graphite or plumbago, crude or refined, not specially provided for, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 654. Plumbago [Free].

PAR. 579. Plumbago [Free].

GRAPHITE OR PLUMBAGO.

(See Survey FL-24.)

Description and uses.—Plumbago, or graphite, is a soft, black variety of carbon. It occurs in nature in two forms, crystalline and amorphous, and is also produced artificially in the electric furnace from coal or other carbonaceous material. Graphite is employed for crucibles, as a lubricant, in paints, foundry facings, shoe polish, stove polish, dry batteries, electrodes, and boiler compounds, and for other purposes. For the making of good crucibles, its chief use, crystalline graphite, with flakes large enough to add to the binding power of clay, is essential.

Production.—In the order of their importance, the following lists show the principal graphite producing countries or those in which graphite deposits have been reported:

CRYSTALLINE GRAPHITE.

(a) Vein graphite: Ceylon could produce up to 35,000 short tons per year, all grades; the United States, small production from Montana; Canada, small amount recently produced.

(b) Flake graphite: Madagascar could produce up to nearly 50,000 short tons per year; Bavaria produced 40,000 metric tons in 1917; the United States could readily produce 4,000 tons of flake, exclusive of dust; Rumania, important deposits recently reported; Greenland and Brazil, large deposits reported, very little development; German East Africa (former), deposits of supposed large extent reported.

AMORPHOUS GRAPHITE.

German Austria and Czechoslovakia have long produced large amounts of graphite annually; Chosen could probably produce 12,000 tons per annum; Italy could probably produce 12,000 tons per annum; Mexico could probably produce 6,000 tons per annum; the United States could readily produce 6,000 tons of natural and 6,000 tons of artificial amorphous graphite; Siberia, large amounts available but undeveloped.

Amorphous graphite is so widely distributed that no serious difficulty is likely to be encountered by any of the great commercial nations in filling their vital needs. The most important deposits of crystalline graphite are controlled by Great Britain through her sovereignty over Ceylon and by France through sovereignty over Madagascar. Part of the Madagascar deposits are owned by a British company and part by Belgian capital. Japan controls the deposits of Chosen. American capital controls the deposits of the United States, of Mexico, and in part those of Canada. British interests own a part of the Italian and a part of the Spanish deposits.

The United States has heretofore not been considered independent in the matter of crucible graphite. Crucible makers, who use about 15,000 tons a year, have insisted on having Ceylon graphite. Montana produces a graphite that has been accepted by crucible manufacturers as equal to Ceylon material. The quantity ultimately available has not been proved, but may be sufficient to satisfy domestic demands for many years. It would appear that crucibles properly made from Alabama flake will give as good service as those made from the Ceylon material.

There is a larger degree of independence in the matter of amorphous graphite, of which the consumption is in the neighborhood of 15,000 tons annually. Practically all of this can be furnished from domestic sources, including both natural and artificial graphite, but during the war American-owned mines in Mexico and Canada were drawn upon to some extent and, more recently, Korean graphite has again been imported.

It is probable that Ceylon lump, regardless of price, will continue to be imported for some years as raw material for crucible manufacture on account of its established reputation. Extreme reluctance to use more than 20 per cent of domestic graphite in place of Ceylon is evinced by crucible manufacturers, but it is by no means clear as yet, either to those within the trade or without, that this is a necessary restriction. Foreign manufacturers were using up to 100 per cent Madagascar flake during the war period.

Production of natural graphite in the United States previous to 1914 was under 5,000 tons annually. Stimulated by war prices, the output rose to 8,088 tons in 1916 and to 13,593 tons valued at \$1,167,879 in 1917. In 1920 the production had declined to 9,510 tons valued at \$626,202; there were 17 producers. Operations in 1921 were practically discontinued at several mines. The following table shows the domestic natural graphite sold, 1916-1920:

| Year. | Amorphous. | | Crystalline. | | Total. | |
|-----------|------------------------|----------|------------------------|-----------|------------------------|-----------|
| | Quantity (short tons). | Value. | Quantity (short tons). | Value. | Quantity (short tons). | Value. |
| 1916..... | 2,622 | \$20,723 | 5,466 | \$914,748 | 8,088 | \$935,471 |
| 1917..... | 8,301 | 73,481 | 5,292 | 1,094,398 | 13,593 | 1,167,879 |
| 1918..... | 6,560 | 69,455 | 6,431 | 1,454,799 | 12,991 | 1,524,254 |
| 1919..... | 3,379 | 47,716 | 4,043 | 731,141 | 7,422 | 778,857 |
| 1920..... | 4,694 | 49,758 | 4,816 | 576,444 | 9,510 | 626,202 |

Imports of plumbago in 1917 amounted to 42,270 tons, valued at \$9,678,160. Later statistics follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|---------------------|
| Quantity (tons)..... | 17,053 | 23,773 | 18,835 | 6,825 |
| Value..... | \$2,983,250 | \$2,973,006 | \$1,711,000 | \$424,261 |

The principal sources of importation, 1918-1921, were the British East Indies, England, and France.

Exports.—Some graphite is normally exported. The quantity in 1914 was 2,688 tons, valued at \$387,075. Later statistics follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------------|-----------|-----------|-----------|---------------------|
| Manufactures of: (Value)..... | \$731,518 | \$783,755 | \$610,261 | \$530,203 |
| Unmanufactured: | | | | |
| Quantity (pounds)..... | 1,907,719 | 1,268,040 | 1,213,616 | 911,192 |
| Value..... | \$121,555 | \$90,185 | \$112,771 | \$59,904 |

The principal countries of destination were the United Kingdom, Canada, Mexico, Japan, and Denmark.

Important changes in classification.—Plumbago is exempt from duty under the act of 1913 (par. 579).

Suggested changes.—Page 29, lines 11, 12: Paragraph 211 is out of place. It should be renumbered 213; paragraph 212 should be renumbered 211, and paragraph 213 should be renumbered 212.

PARAGRAPH 212.

H. R. 7456.

SENATE AMENDMENTS.

PAB. 212. Earthenware and crockery ware composed of a nonvitrified absorbent body, including white granite and semiporcelain earthenware, and cream-colored ware, and stoneware, including clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, lamps, and all other articles composed wholly or in chief value of such ware; if plain white, plain yellow, plain brown, plain red, or plain black, not painted, colored, tinted, stained, enameled, gilded, printed, ornamented, or decorated in any manner, and manufactures in chief value of such ware not specially provided for, 25 per centum ad valorem; if painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner, and manufactures in chief value of such ware, not specially provided for, 28 per centum ad valorem.

ACT OF 1909.

PAR. 93. * * * earthen, stone and crockery ware, including clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, and lamps, all the foregoing wholly or in chief value of such ware; painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner; and manufactures in chief value of such ware not specially provided for in this section, sixty per centum ad valorem.

PAR. 94. * * * earthen, stone and crockery ware, plain white, plain brown, including clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, and lamps, all the foregoing wholly or in chief value of such ware, not painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner and manufactures in chief value of such ware not specially provided for in this section, fifty-five per centum ad valorem.

PAR. 95. * * * filter tubes, thirty-five per centum ad valorem; * * *

PAR. 92. * * * Rockingham earthenware, forty per centum ad valorem.

ACT OF 1913.

PAR. 79. Earthenware and crockery ware composed of a nonvitrified absorbent body, including white granite and semiporcelain earthenware, and cream-colored ware, and stoneware, including clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, lamps, and all other articles composed wholly or in chief value of such ware; if plain white, plain yellow, plain brown, plain red, or plain black, not painted, colored, tinted, stained, enameled, gilded, printed, ornamented or decorated in any manner, and manufactures in chief value of such ware not specially provided for in this section, 35 per centum ad valorem; if painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner, and manufactures in chief value of such ware not specially provided for in this section, 40 per centum ad valorem.

PAR. 82. * * * filter tubes, 30 per centum ad valorem; * * *

PAR. 78. * * * Rockingham earthenware, 30 per centum ad valorem.

WHITE WARE.

(See Survey B-6.)

Description and uses.—Earthenware and crockery ware composed of a nonvitrified absorbent body, including white granite and semiporcelain earthenware, and cream-colored ware (and plain earthenware articles of corresponding grades made of mixed, washed, or prepared clays other than white) are known to manufacturers and the trade as earthenware. They are made of materials which result in an absorbent body usually covered with a brilliant transparent glaze.

The manufactured articles include plates, cups, saucers, dishes, toilet and kitchen ware, and other articles, made ordinarily in three grades, as follows: White earthenware, semiporcelain, and "cream color." These terms are used for the best quality of white earthenware. Queen's ware, ironstone china, and white granite ware are names used indiscriminately by the trade for the next grade of white earthenware. They are made of a superior quality of materials, and the body is slightly stained by a solution of cobalt, which gives it a bluish white cast. C. C. ware is a variety of goods made of low-grade china clays, the name being an abbreviation of the words "cream-colored ware." It is considered the cheapest quality of white pottery product. Fine stoneware, covered by the above paragraph, differs from common stoneware in the use of prepared clays and in greater care in the process of manufacture. Articles made of mixed, washed, or prepared clays, other than white, including fine yellow

carmelite and red white-lined cooking ware, jet ware teapots, and others as mentioned, are included in this classification.

Production.—In 1917-18 there were 55 potteries, with a capacity of 413 kilns. Sixty-five per cent of the total production was made in Ohio, nearly 20 per cent in West Virginia, and 15 per cent in seven other States. The principal materials used in the United States in the production of white ware are kaolin or china clay, ball clay, quartz, and feldspar. Nearly 39 per cent of white earthenware material is china clay, almost 15 per cent is ball clay, 32 per cent is flint, and 14 per cent feldspar. A large proportion of imported English china and ball clays is relied upon to bring American ware to the desired standard of quality. Before the war 56 per cent of the china clays and 77 per cent of the ball clays were imported from England. In 1917-18 about 50 per cent of the ball clays were imported, and this reduction in the proportion used resulted in a deterioration of the ware. The proportion of imported china clays has remained unchanged. Flint and feldspar are almost entirely of domestic origin. The domestic production of white ware, including C. C. ware, white granite, semiporcelain ware and semivitreous porcelain ware has been as follows: 1914, \$14,268,079; 1916, \$18,191,390; 1918, \$25,305,926; 1920, \$40,048,355. The great increase in value is due chiefly to an increase of about 100 per cent in cost rather than to an increase in quantity.

In the years prior to the war imports of white ware, of a competitive character, from France, Germany, Austria, and Japan were small. The better grades of English earthenware and of French, German, and Austrian china are not directly competitive with domestic production but do displace it indirectly. This was true also of a large proportion of German and Austrian china of a cheap character. Japanese chinaware at the present time also displaces American earthenware. In 1919 the exports from Japan of china were \$2,042,055 and of earthenware \$227,220 (foreign value). The exports of pottery to the United States in the calendar years immediately before the war were: 1913, from England, \$2,029,939, mainly earthenware; 1912, from Germany, china, \$3,017,364, earthenware, \$182,546; 1913, from Austria, china, \$458,825, earthenware, \$8,491; 1913, from France, \$1,704,440, china; 1912, from Japan, \$1,231,507, mainly china.

In 1913 an investigation of the cost of producing earthenware and chinaware in the United States and competing European countries was conducted, the full report of which is found in the Department of Commerce reports, Miscellaneous Series, No. 21, entitled "The Pottery Industry."

The comparative net value of the products of the various countries, based upon the cubic-foot measurement, is indicative of the total cost value of the glost-kiln (trade unit), as follows:

| | United States. | England. | Germany. | Austria. |
|-----------------------------------|----------------|----------|----------|----------|
| Earthenware ratio of values..... | \$377.08 | \$239.00 | \$213.81 | ..... |
| Ratio of direct labor values..... | 126.97 | 65.91 | 67.10 | ..... |
| Chinaware ratio of values..... | 701.47 | ..... | 233.03 | \$286.46 |
| Ratio of direct labor values..... | 206.39 | ..... | 47.87 | 68.64 |

Imports in 1918 were valued at \$2,433,945. Prior to the act of 1913, import statistics of china and earthenware were combined. For the five years, 1909-1913, imports from Germany averaged \$3,942,057; from Japan, \$1,200,114; from Austria-Hungary, \$735,625. These values are largely for cheap chinaware competitive with American earthenware. During the same period imports from England averaged \$2,192,495, chiefly for earthenware. Shipments from Japan and from England have increased since the elimination of German and Austrian competition.

In 1914 indications were that foreign ware brought higher prices than domestic ware, and that the difference between the cost to the domestic retailer and his selling price was 66 per cent on American earthenware, 65 per cent on Austrian china, 78 per cent on German china, 89 per cent on French china, and 67 per cent on English earthenware. Later statistics follow:

Earthen and crockery ware, etc.

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|-----------|-----------|------------------|
| PAINTED, COLORED, ETC., TABLE AND TOILET WARE. | | | |
| 1918..... | \$976,934 | \$390,796 | Per cent. 40 |
| 1919..... | 2,342,742 | 837,093 | 40 |
| 1920..... | 3,124,977 | 1,249,991 | 40 |
| 1921 (9 months)..... | 2,222,547 | | |
| PAINTED, COLORED, ETC., PLAQUES, ORNAMENTS, TOYS, CHARMS, VASES, STATUES, AND STATUETTES. | | | |
| 1918..... | \$113,406 | \$5,363 | 40 |
| 1919..... | 76,453 | 30,581 | 40 |
| 1920..... | 201,185 | 80,474 | 40 |
| 1921 (9 months)..... | 116,061 | | |
| PAINTED, COLORED, ETC., ALL OTHER, INCLUDING PILL TILES. | | | |
| 1918..... | \$90,223 | \$36,091 | 40 |
| 1919..... | 57,015 | 22,806 | 40 |
| 1920..... | 479,793 | 191,917 | 40 |
| 1921 (9 months)..... | 373,209 | | |
| PLAIN WHITE, YELLOW, BROWN, RED OR BLACK—TABLE AND TOILET WARES. | | | |
| 1918..... | \$146,027 | \$51,109 | 35 |
| 1919..... | 331,918 | 116,165 | 35 |
| 1920..... | 254,780 | 89,173 | 35 |
| 1921 (9 months)..... | 251,851 | | |
| PLAIN WHITE, YELLOW, BROWN, RED, OR BLACK—PLAQUES, ORNAMENTS, TOYS, CHARMS, VASES, STATUES, AND STATUETTES. | | | |
| 1918..... | \$1,594 | \$558 | 35 |
| 1919..... | 13,096 | 4,582 | 35 |
| 1920..... | 30,049 | 10,517 | 35 |
| 1921 (9 months)..... | 17,027 | | |
| PLAIN WHITE, YELLOW, BROWN, RED, OR BLACK—ALL OTHER, INCLUDING PILL TILES. | | | |
| 1918..... | \$26,224 | \$9,176 | 35 |
| 1919..... | 5,630 | 1,970 | 35 |
| 1920..... | 55,847 | 19,546 | 35 |
| 1921 (9 months)..... | 50,731 | | |

¹ July 1 to Dec. 31, 1918.

The above imports were chiefly from England, Japan, and Canada. *Exports* of earthen and stone ware, principally to Canada, Cuba, and Mexico, have been as follows: 1918, \$783,577; 1919, \$1,148,051; 1920, \$1,241,938; 1921 (first nine months), \$855,203.

SANITARY EARTHENWARE.

(See Survey B-6.)

Description and uses.—Sanitary earthenware consists of bathtubs, lavatories, bowls, sinks, and other bathroom fixtures. The ware is composed of a mixture of china and other white clays throughout, or of high-grade fire clays coated with porcelain.

Production.—The domestic production is sufficient to supply the home market and furnishes a considerable volume of exports. The raw materials are all found in considerable quantities within the borders of the United States. High-grade china and ball clays are imported to a large extent, but domestic deposits of fire clays and coal are equal or superior to any found abroad. The equipment and structural materials necessary to the manufacturing process are all produced or manufactured in the United States. The manufacture of sanitary ware is largely handwork. Most of the material is built up and shaped by hand. The industries are operated in large plants usually located near sources of raw material and fuel. New Jersey is the largest producer of sanitary ware, while Ohio holds an important position.

Great Britain, France, Germany, and Austria are large producers. Sanitary ware was first developed in England, and continental potteries have brought the manufacture of porcelain ware to a high state of perfection. England formerly exported considerable quantities of sanitary ware to the United States; but with the improvement of the domestic product only small amounts, chiefly specialties, are now imported.

The domestic production of sanitary ware has been as follows: 1910, \$7,874,269; 1916, \$11,111,417; 1918, \$11,241,138; 1920, \$22,014,657.

Imports of sanitary earthenware (closet bowls, lavatories, sinks, and similar articles) are shown in the following table:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|----------|---------|------------------|
| PLAIN WHITE, YELLOW, BROWN, RED, OR BLACK. | | | |
| 1918..... | \$5,624 | \$1,968 | 35 |
| 1919..... | 4,307 | 1,507 | 35 |
| 1920..... | 5,984 | 2,094 | 35 |
| 1921 (9 months)..... | 2,952 | | |
| PAINTED, COLORED, ETC. | | | |
| 1918..... | \$12,710 | \$5,084 | 40 |
| 1919..... | 3,673 | 1,469 | 40 |
| 1920..... | 7,084 | 2,834 | 40 |
| 1921 (9 months)..... | 4,020 | | |

Exports of sanitary earthenware, principally to Cuba, Canada, Argentina, and the Philippines, have been as follows: 1918, \$377,527; 1919, \$563,734; 1920, \$778,714; 1921 (first 9 months), \$456,260.

FILTER TUBES.

Description and uses.—Filter tubes are usually made of porous earthenware and are used for filtering drinking water and solutions in chemical works.

Imports have varied in value from \$7,432 in 1914 to \$2,769 in 1916, \$3,394 in 1918, and \$3,096 in 1920.

Exports.—None recorded.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Filter tubes are not specifically provided for in H. R. 7456.

Suggested changes.—Page 29, lines 20, 24: Strike out "if," to agree with practice elsewhere.

Page 29, line 22: Insert "or" before "ornamented" and strike out the comma after "ornamented," to agree with line 25.

PARAGRAPH 213.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 213. China, porcelain, and other vitrified wares, including chemical porcelain ware and chemical stoneware, composed of a vitrified nonabsorbent body which when broken shows a vitrified or vitreous, or semi-vitrified or semivitreous fracture, and all bisque and parian wares, including clock cases with or without movements, plaques, ornaments, toys, charms, vases, statuettes, mugs, cups, steins, lamps, and all other articles composed wholly or in chief value of such ware, if plain white, or plain brown, not painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner, and manufactures in chief value of such ware not specially provided for, 35 per centum ad valorem; if painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner, and manufactures in chief value of such ware not specially provided for, 40 per centum ad valorem.

ACT OF 1909.

PAR. 93. China, porcelain, parian, bisque, * * * ware, including clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms,

ACT OF 1913.

PAR. 80. China and porcelain wares composed of a vitrified nonabsorbent body which when broken shows a vitrified or vitreous, or semivitrified or

vases, statues, statuettes, mugs, cups, steins, and lamps, all the foregoing wholly or in chief value of such ware; painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner; and manufactures in chief value of such ware not specially provided for in this section, sixty per centum ad valorem.

PAR. 94. China, porcelain, parian, bisque, * * * ware, plain white, plain brown, including clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, and lamps, all the foregoing wholly or in chief value of such ware, not painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner; and manufactures in chief value of such ware not specially provided for in this section, fifty-five per centum ad valorem.

semivitreous fracture, and all bisque and parian wares, including clock cases with or without movements, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, lamps, and all other articles composed wholly or in chief value of such ware, if plain white, or plain brown, not painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner; and manufactures in chief value of such ware not specially provided for in this section, 50 per centum ad valorem; if painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner and manufactures in chief value of such ware not specially provided for in this section, 55 per centum ad valorem.

CHINAWARE.

(See Survey B-6.)

Description and use.—China or porcelain is a fine, translucent ware having a white body. Domestic vitreous china, however, includes heavy, opaque hotel and club china of superior quality, besides a general line of translucent tableware rivaling the high-grade products of Europe in durability and beauty. High-grade bone china tableware is made in this country which equals in beauty, texture, and artistic decoration the china of famous English potteries. China and porcelain wares include dinner sets, kitchen, toilet, and art wares, and electrical porcelain. Parian and bisque are unglazed porcelain.

Chemical stoneware consists of hard-burned articles such as valves, crocks, digestors, and other objects which are used to contain or convey corrosive liquids.

Production.—Vitreous china is manufactured in the United States in 8 potteries, having 74 kilns capacity (1919). Seventy-eight per cent of the total production is made in the States of New Jersey and New York and 22 per cent in 3 other States. Vitreous china or porcelain is made from the same materials as earthenware by increasing the feldspar and decreasing the clay content; by firing to a higher temperature the transition from white earthenware to vitreous china is made. Bone china contains from 40 to 50 per cent bone ash, 20 to 30 per cent Cornish stone, and 25 to 30 per cent clay, and is a typical English product.

Statistics of foreign production of chinaware are not obtainable, but potential foreign competitive power is indicated in exports. For the year 1913, the total exports of chinaware from Germany, France, England, Japan, and Austria were valued at \$23,532,930, and of this the amount imported by the United States from these countries was approximately \$7,500,000, or 32 per cent. In that year we imported the following percentages of the total exports of

the countries mentioned: France, 62; Japan, 31; Germany, about 27; Austria, about 22; and England, about 52.

The Bureau of Foreign and Domestic Commerce made an international investigation of china pottery costs during the year 1913 and up to the outbreak of the war in 1914. The report shows that, per unit of product, the average cost of production f. o. b. factory of vitreous china not decorated was 129 per cent higher in four typical American china potteries than in Austrian china potteries, and 197.4 per cent higher than in German china potteries.

The increased costs of imported chinaware into the United States borne by the Austrian and German china potteries above the factory costs of production and above their selling prices were from 60 to 75 per cent and included the rate of duty of 50 per cent, local and ocean rates of transportation, package charges and duties, insurance, consular, and other fees.

The average labor cost per unit of product in the American vitreous china potteries was very much greater than in American earthenware potteries, owing to the slower processes of manufacture and the difficulty in firing and in manipulating the material in all stages. The American vitreous china labor cost was 73.3 per cent higher than in American earthenware, 182.3 per cent higher than in Austrian china, and 314 per cent higher than in German china potteries.

The average wage per full-time week of jiggermen (typical skilled workingmen) was \$23.87 in American vitreous china potteries, \$6.65 in German, and \$6.37 in Austrian china potteries. As an evidence of greater efficiency in production it was noted that while the labor cost per unit of production was 182 per cent higher than in Austrian potteries, the wage rate was 275 per cent higher in the typical occupation of jiggermen than in Austrian potteries. The contrary was true with regard to German china, for while the American vitreous china labor cost per unit was 314 per cent higher than for German china, the vitreous china wage rate was 259 per cent higher than for German china. The following table shows the value of the chinaware produced in the United States in specified years:

| Year. | China. | Chemical stoneware and porcelain. | Porcelain electrical supplies. |
|-----------|-------------|-----------------------------------|--------------------------------|
| 1914..... | \$2,384,686 | (1) | \$4,130,270 |
| 1915..... | 3,478,372 | \$1,054,061 | 7,034,420 |
| 1918..... | 6,307,349 | 1,769,710 | 12,505,970 |
| 1920..... | 9,466,662 | \$1,014,622 \$ 258,688 | 20,218,924 |

¹ Not separately classified prior to 1916.

² Chemical stoneware.

³ Chemical porcelain.

Import value in 1913 from the five principal countries was about \$7,525,000; 49 per cent from Germany, 22 per cent from France, 14 per cent from Japan, 8 per cent from Austria, and 7 per cent from England. After the war the Japanese imports more than doubled. Japan, Germany, and France have remained the principal source of imports since 1918. Statistics for 1918-1921 are tabulated as follows:

China, porcelain, parian, and bisque wares.

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------|--------|-------|------------------|
|----------------|--------|-------|------------------|

PLAIN WHITE OR BROWN—PORCELAIN ELECTRIC WARE.

| | | | Per cent. |
|----------------------|-------|-------|-----------|
| 1918..... | 1 88 | 84 | 50 |
| 1919..... | 460 | 230 | 50 |
| 1920..... | 4,474 | 2,237 | 50 |
| 1921 (9 months)..... | 548 | | |

PLAIN WHITE OR BROWN—PARIAN AND BISQUE WARES, PLAQUES, ORNAMENTS TOYS, CHARMS, VASES, STATUES, AND STATUETTES.

| | | | |
|----------------------|-----------|---------|----|
| 1918..... | 1 \$2,003 | \$1,001 | 50 |
| 1919..... | 3,982 | 1,991 | 50 |
| 1920..... | 24,729 | 12,365 | 50 |
| 1921 (9 months)..... | 9,642 | | |

PLAIN WHITE OR BROWN—TABLE AND TOILET WARES.

| | | | |
|----------------------|-------------|----------|----|
| 1918..... | 1 \$100,800 | \$50,404 | 50 |
| 1919..... | 342,522 | 171,261 | 50 |
| 1920..... | 330,768 | 165,384 | 50 |
| 1921 (9 months)..... | 422,768 | | |

PLAIN WHITE OR BROWN.—ALL OTHER.

| | | | |
|----------------------|------------|----------|----|
| 1918..... | 1 \$22,922 | \$11,461 | 50 |
| 1919..... | 12,596 | 6,298 | 50 |
| 1920..... | 71,665 | 35,832 | 50 |
| 1921 (9 months)..... | 46,330 | | |

PAINTED, COLORED, TINTED, STAINED, ENAMELED, GILDED, PRINTED, ORNAMENTED, OR DECORATED—PARIAN, AND BISQUE WARES, PLAQUES, ORNAMENTS, TOYS, CHARMS, VASES, STATUES, AND STATUETTES.

| | | | |
|----------------------|------------|---------|----|
| 1918..... | 1 \$13,168 | \$7,242 | 55 |
| 1919..... | 90,137 | 49,575 | 55 |
| 1920..... | 295,802 | 162,691 | 55 |
| 1921 (9 months)..... | 121,980 | | |

PAINTED, COLORED, ETC.—TABLE AND TOILET WARES.

| | | | |
|----------------------|---------------|-----------|----|
| 1918..... | 1 \$1,570,771 | \$863,924 | |
| 1919..... | 5,433,349 | 1,888,342 | 55 |
| 1920..... | 5,072,859 | 2,790,072 | 55 |
| 1921 (9 months)..... | 4,939,275 | | |

CLOCK CASES, WITH OR WITHOUT MOVEMENTS, COMPOSED OF CHINA AND PORCELAIN, BISQUE AND PARIAN WARE—DECORATED.

| | | | |
|----------------------|-------|-------|----|
| 1918..... | \$314 | \$173 | 55 |
| 1919..... | 32 | 18 | 55 |
| 1920..... | 1,195 | 657 | 55 |
| 1921 (9 months)..... | 270 | | |

PAINTED, COLORED, ETC.—ALL OTHER.

| | | | |
|----------------------|-------------|----------|----|
| 1918..... | 1 \$112,975 | \$62,136 | 55 |
| 1919..... | 203,209 | 111,785 | 55 |
| 1920..... | 437,728 | 240,128 | 55 |
| 1921 (9 months)..... | 386,971 | | |

1 July 1 to Dec. 31, 1918.

Imports of clock cases, with or without movements, composed of china and porcelain, bisque and parian ware, plain, white, or brown, were negligible.

Exports of chinaware, chiefly to Canada, Cuba, and Mexico, have been as follows: 1914, \$166,635; 1918, \$318,448; 1919, \$523,861; 1920, \$816,817; 1921 (9 months), \$248,627.

Suggested changes.—Page 30, line 6: Insert a comma after “semi-vitreous.”

Page 30, lines 11 and 15: Strike out “if” to agree with similar provisions elsewhere.

As pill tiles are made of porcelain as well as of earthenware, but are mentioned only in paragraph 212 of H. R. 7456, they might be mentioned in paragraph 213 of H. R. 7456 between “movements” and “plaques,” page 30, line 8.

Omission of the words “vitrified nonabsorbent” before “body,” in line 5, page 30, would avoid conflict with the words “semivitrified or semivitreous,” in line 6, page 30, before “fracture.”

PARAGRAPH 214.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 214. Earthy or mineral substances wholly or partly manufactured and articles, wares, and materials, crude or advanced in condition, composed wholly or in chief value of earthy or mineral substances, not specially provided for, whether susceptible of decoration or not, if not decorated in any manner, 21 per centum ad valorem; if decorated, 28 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 95. Articles and wares composed wholly or in chief value of earthy or mineral substances, not specially provided for in this section, whether susceptible of decoration or not, if not decorated in any manner, thirty-five per centum ad valorem; if decorated, forty-five per centum ad valorem; * * *.

PAR. 81. Earthy or mineral substances wholly or partially manufactured and articles and wares composed wholly or in chief value of earthy or mineral substances, not specially provided for in this section, whether susceptible of decoration or not, if not decorated in any manner, 20 per centum ad valorem; if decorated, 25 per centum ad valorem; unmanufactured carbon, not specially provided for in this section, 15 per centum ad valorem; * * *.

EARTHY AND MINERAL SUBSTANCES, N. S. P. F.

(See Surveys B-4 and B-7.)

GENERAL.

Description and use.—These include too many items for special description.

Production.—The classification is too general for statistics.

Imports of plain articles and wares were valued at \$90,326 and of decorated articles and wares at \$22,089 in 1914. Later statistics follow:

Earthy and mineral substances, n. s. p. f.

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|---|-----------|----------|------------------|
| EARTHY OR MINERAL SUBSTANCES, WHOLLY OR PARTLY MANUFACTURED, N. S. P. F.¹ | | | |
| 1918..... | \$189,897 | \$37,896 | Per cent. 20 |
| 1919..... | 189,711 | 37,941 | ..... |
| 1920..... | 172,777 | 34,555 | 20 |
| 1921 (9 months)..... | 114,920 | ..... | ..... |

OTHER ARTICLES AND WARES COMPOSED, ETC., OF EARTHY OR MINERAL SUBSTANCES, WHETHER SUSCEPTIBLE OF DECORATION OR NOT, N. S. P. F.—NOT DECORATED.

| | | | |
|----------------------|-----------|----------|-------|
| 1918..... | \$176,556 | \$35,311 | 20 |
| 1919..... | 35,889 | 7,178 | 20 |
| 1920..... | 67,572 | 13,514 | 20 |
| 1921 (9 months)..... | 26,360 | ..... | ..... |

OTHER ARTICLES AND WARES COMPOSED, ETC., OF EARTHY OR MINERAL SUBSTANCES, WHETHER SUSCEPTIBLE OF DECORATION OR NOT, N. S. P. F.—DECORATED.

| | | | |
|----------------------|----------|---------|-------|
| 1918..... | \$11,632 | \$2,908 | 25 |
| 1919..... | 3,122 | 780 | 25 |
| 1920..... | 14,482 | 3,620 | 25 |
| 1921 (9 months)..... | 7,022 | ..... | ..... |

CARBON—UNMANUFACTURED, N. S. P. F.²

| | | | |
|-----------|-------|-------|-------|
| 1918..... | \$493 | \$74 | 15 |
| 1919..... | 799 | 120 | 15 |
| 1920..... | 3 | ..... | ..... |

FLATTENING STONES.³

| | | | |
|-----------|-------|-------|----|
| 1918..... | \$576 | \$115 | 20 |
| 1919..... | 2,873 | 575 | 20 |
| 1920..... | 4,908 | 982 | 20 |

¹ Mainly from England. Includes dental supplies (false teeth), roofing compositions, silica ware, cements, etc.² Mostly from Germany.³ From England and Italy.*Exports.*—Statistics not available.**SEWER PIPE, DRAINTILE, AND FIREPROOFING TILE OR BLOCK.**

(See Survey B-7.)

Description and uses.—Sewer pipe is salt-glazed clay pipe used for conveying water or sewage and as conduit pipe for subsurface electric cables. Draintile are unglazed clay pipes used for draining the surplus water from marshy or flooded farm lands. Fireproofing tile or block are solid or hollow blocks of burned clay used in place of brick or concrete for walls and floors. Combustible material, such as straw, sawdust, or coal, is often added to the clay mix, so that the burned product is light in weight and very porous.

Production.—The domestic industry manufactures practically the entire domestic supply of these products. All machinery and equipment are produced or manufactured in the United States, and the domestic processes are at least as efficient as those used in any foreign country. Sewer pipe is produced in heavy presses, which shape the article from a clay slug; draintile and fireproofing block are made by forcing the clay through a die at the discharge end of the mixing or pug mill. In this manner finished green tile are produced in one operation.

The industry is widely distributed throughout the United States. There was \$70,900,000 invested therein in 1914, divided among 769 establishments manufacturing sewer pipe and draintile, and 115 establishments manufacturing fireproofing tile or block. Ohio, New Jersey, Pennsylvania, Illinois, Missouri, Indiana, and Iowa are the most important producing States.

The manufacture of sewer pipe and draintile originated in England and continental Europe, but fireproofing tile is an American development growing out of the local steel-construction practice. The manufactures of sewer pipe and draintile are local industries in all foreign countries, the domestic industries producing enough to satisfy the home market.

The cost of these articles per-unit of weight is small, and the careful packing necessary when long-distance shipments are to be made restricts the market of the domestic plants and practically prohibits international shipments. The production of specified clay products in the United States in specified years has been as follows:

| | 1914 | 1918 | 1919 ¹ | 1920 ¹ |
|--------------------------------|--------------|--------------|-------------------|-------------------|
| Drain tile..... | \$3,522,039 | \$8,196,199 | \$10,420,000 | \$13,080,000 |
| Hollow building tile or block: | | | | |
| Quantity (tons)..... | | 1,953,392 | 2,310,450 | 2,457,000 |
| Value..... | \$28,385,337 | \$13,037,102 | \$16,620,000 | \$25,900,000 |
| Sewer pipe..... | 14,014,767 | 15,333,673 | 16,170,000 | 22,240,000 |

¹ Estimated.

² Includes "fireproofing."

³ Includes fireproofing and terra-cotta lumber.

Imports.—No statistics are available, but the amount is negligible. At times small amounts of Canadian pipe and tile are imported from plants close to the international boundary.

Exports.—Small shipments of sewer pipe and building tile are exported to Canada, but the amount is usually negligible.

Important changes in classification.—"Materials, crude or advanced in condition," have been added to cover materials not "substances wholly or partly manufactured" nor "articles and wares" within the meaning of this provision.

Suggested changes.—Strike out comma after "materials" in line 20, page 30.

PARAGRAPH 215.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 215. Gas retorts, 15 per centum ad valorem; lava tips for burners, and magnesia clay supporters, consisting of rings, rods, and other forms for gas mantles, 35 per centum ad valorem.

ACT OF 1909.

PAR. 90. Gas retorts, twenty per centum ad valorem; lava tips for burners, ten cents per gross and fifteen per centum ad valorem; * * *.

ACT OF 1913.

PAR. 82. Gas retorts, 10 per centum ad valorem; lava tips for burners, 15 per centum ad valorem; * * *.

PAR. 81. Earthy or mineral substances wholly or partially manufactured and articles and wares composed wholly or in chief value of earthy or mineral substances, not specially provided for in this section, whether susceptible of decoration or not, if not decorated in any manner, 20 per centum ad valorem; * * *.

GAS RETORTS.

Description and use.—Gas retorts for use in the manufacture of coal gas are made usually of fire clay or silica.

Production figures are not available, but most of the retorts used are of domestic manufacture.

Imports have been small—in 1914, 455 retorts, valued at \$17,627; in 1915, 152 retorts.

Exports.—None recorded.

LAVA TIPS FOR BURNERS.

Description and uses.—Lava tips for burners are not made of lava, but of talc.

Imports before the war were almost entirely from Germany, amounting in 1913 to 17,148 gross, valued at \$9,759. In 1914, 2,955 gross were imported, and in 1915, 1,680 gross. Imports are not shown separately since 1915.

Exports.—None recorded.

Important changes in classification.—Magnesia clay supporters are for the first time specifically provided for.

Suggested changes.—Page 31, line 3: Insert comma after "forms."

PARAGRAPH 216.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 216. Carbons and electrodes, of whatever material composed, and wholly or partly manufactured, for producing electric arc light; electrodes, composed wholly or in part of carbon or graphite, and wholly or partly manufactured, for electric furnace or electrolytic purposes; brushes, of whatever material composed, and wholly or partly manufactured, for electric motors, generators, or other electrical machines or appliances; plates, rods, and other forms, of whatever material composed, and wholly or partly manufactured, for manufacturing into the aforesaid brushes; and articles or wares (composed wholly or in part of carbon or graphite), wholly or partly manufactured, not specially provided for, 35 per centum ad valorem.

ACT OF 1909.

PAR. 95. * * * carbon, not specially provided for in this section, twenty per centum ad valorem; electrodes, brushes, plates, and disks, all the foregoing composed wholly or in chief value of carbon, thirty per centum ad valorem.

PAR. 96. * * * carbons for electric lighting, wholly or partly finished, made entirely from petroleum coke, thirty-five cents per hundred feet; if composed chiefly of lampblack or retort carbon, sixty-five cents per hundred feet; * * * porous carbon pots for electric batteries, without metallic connections, twenty per centum ad valorem.

ACT OF 1913.

PAR. 81. * * * electrodes for electric furnaces, electrolytic and battery purposes, brushes, plates, and disks, all the foregoing composed wholly or in chief value of carbon, 25 per centum ad valorem; manufactures of carbon not specially provided for in this section, 20 per centum ad valorem.

PAR. 82. * * * carbons for electric lighting, wholly or partly finished, made entirely from petroleum coke, 15 cents per hundred feet; if composed chiefly of lampblack or retort carbon, 40 cents per hundred feet; carbons for flaming arc lamps, not specially provided for in this section, * * * 30 per centum ad valorem; porous carbon pots for electric batteries, 15 per centum ad valorem.

CARBON PRODUCTS.

(See Surveys B-8 and C-31.)

GENERAL.

Description and uses.—Carbon products in recent years have been rapidly increasing in importance. While carbon arc lamps for street lighting are now becoming obsolete, new fields have developed, chief among which are the manufacture of steel, ferro-alloys, aluminum, and chemical products, electrolytically or in the electric furnace. Other important uses are for the telephone, dry batteries, motion-picture projection, photography, searchlights, brushes for motors and generators, and many miscellaneous purposes.

Production.—The bulk of production in the United States is by the aluminum industry, manufacturing electrodes for its own use, and by two other large producers, which specialize in the graphitic and amorphous types. There are a considerable number of smaller manu-

facturers. Our export trade in certain lines was considerable before the war, and was generally increased by the large European war demands.

The chief foreign producers are Germany, England, and France. English and French competition in the domestic market is almost entirely in brushes; that of Germany largely in electric-lighting carbons. Carbon products are also made in other countries of Europe and in Japan. Foreign manufacturers have no advantage in obtaining materials. Success depends largely on careful supervision, requiring relatively highly paid labor. Labor forms a large proportion of the total cost. In the case of large electrodes, running in size up to 24 inches in diameter, labor is a smaller part of the total cost than in lighting carbons of half-inch size.

Production of all classes of carbons in 1919 amounted to \$13,-292,000, included in which were furnace carbons, \$5,846,594; brushes, battery, and miscellaneous carbons, \$5,342,633; and lighting carbons, \$1,248,683. Brushes alone, produced during 1914-1919, were valued as follows:

| | | | |
|-----------|-----------------|-----------|-------------------|
| 1914----- | \$822, 226. 80 | 1917----- | \$2, 336, 462. 44 |
| 1915----- | 1, 572, 449. 18 | 1918----- | 2, 834, 249. 00 |
| 1916----- | 1, 768, 778. 39 | 1919----- | 4, 088, 411. 40 |

ELECTRIC-LIGHT CARBONS.

(See Survey B-8.)

Description and uses.—Electric lighting carbons are cylindrical rods used for the production of the arc light. Two carbons, connected to a source of current, are brought together, end to end, completing the circuit and starting a current, and are then separated slightly; a portion of the carbon is vaporized, and the current continues across the bridge of carbon vapor, called the arc. Carbon arcs are of two general types, (a) the ordinary arc, in which the light is produced by the high temperature to which the end of one or both of the carbons is raised, and (b) the flaming arc, in which the light is produced by the arc itself. In the ordinary arc, the arc of carbon vapor gives very little light, but by adding to one or both of the carbon rods certain salts, the hot vapor becomes very luminous, producing the flaming arc.

Each of the types of arc mentioned requires a carbon of a special composition; and further, there is required a large variety of carbons the choice of which depends upon the purpose for which the light is to be used. Petroleum coke carbons, used for the open arc lamp, are nearly obsolete, though still employed to some extent for old type locomotive headlights and for street lighting. Lampblack carbons, solid or having a core containing neutral salts, are widely used for motion-picture projection. Lampblack carbons, with core containing flaming salts, are adapted to projectors used with certain types of current, and also to indoor photography and photoengraving. Homogeneous mixtures of carbons and flaming salts are now little used.

Production.—The value of carbons for electric lighting produced in the United States in 1914 was about \$800,000.

Imports have been principally of carbon composed chiefly of lamp-black or retort carbon. These amounted in 1913 to 17,600,380 feet; in 1914 to 15,690,763 feet. Imports of carbons made entirely from petroleum coke amounted in 1913 to 642 feet; in 1914 to 51,950 feet.

Imports of carbons for recent years, for electric lighting, chiefly from Germany and England, have been as follows:

| Calendar year. | Quantity | Value. | Duty. | Equiva- lent ad valorem. |
|--|------------------|---------|--------|--------------------------------|
| FOR FLAMING ARC LAMPS, N. S. P. Y. | | | | |
| | <i>100 feet.</i> | | | <i>Per cent.</i> |
| 1918..... | 4 | \$13 | \$4 | 30.00 |
| 1919..... | 3 | 24 | 7 | 30.00 |
| 1920..... | 42 | 45 | 13 | 30.00 |
| 1921 (9 months)..... | 50 | 218 | | |
| MADE ENTIRELY FROM PETROLEUM COKE. | | | | |
| 1918..... | | | | |
| 1919..... | | | | |
| 1920..... | 660 | \$3,517 | \$84 | 2.39 |
| 1921 (9 months)..... | 42 | 170 | | |
| COMPOSED CHIEFLY OF LAMPBLACK OR RETORT CARBON. | | | | |
| 1918..... | 24 | \$101 | \$10 | 9.51 |
| 1919..... | 3,224 | 20,947 | 1,290 | 6.15 |
| 1920..... | 41,868 | 217,947 | 16,747 | 7.68 |
| 1921 (9 months)..... | 558,723 | 177,428 | | |

Exports.—See below, electrodes, brushes, etc.

Important changes in classification.—The separate provisions for three types of lighting carbons in the act of 1913, two of which carried a specific and the other an ad valorem duty, have been replaced by a single classification, covering all electrodes for electric lighting, of whatever material composed, and providing an ad valorem duty.

ELECTRODES, BRUSHES, PLATES, DISKS.

(See Survey B-8.)

Description and uses.—Carbon electrodes are rods of carbon, ordinarily ranging from 3 to 24 inches in diameter, but sometimes as small as 1 inch in diameter. They are used either in (1) the electric furnace, or (2) electrolytic processes.

Furnace electrodes are used in furnaces of the arc type, in which a high temperature is produced by the passage of a current through an arc formed between two carbons or between a carbon and the conducting contents of an electric furnace. Carbon is the only material suitable for this purpose on account of its high vaporizing temperature and its electrical conductivity. Owing to their resistance to chemical action, carbon electrodes are used for the manufacture of chemicals by electrolytic processes.

Carbon brushes are small pieces of carbon which convey electrical current to revolving parts of machines by bearing against the

revolving surface. The greater number of the articles classed as carbon plates, disks, and specialties are used for electrical equipment, some of the more important of which are granulated carbon and disks for telephones, battery carbons, carbon contacts, and packing rings.

Production.—The materials used in the manufacture of these articles are anthracite coal, coal-gas coke or petroleum coke, lampblack, graphite, hard and soft pitch, and coal tar. For electrical brushes, copper powder is sometimes mixed with the carbon to increase the conductivity. The coke is ground, the ingredients mixed, pressed into the desired shape by hydraulic pressure, and then baked to drive off volatile products.

Graphite electrodes are graphitized by the heat of the electric furnace instead of being baked, as in the amorphous forms.

Imports of brushes, electrodes, disks, and plates in 1914 were valued at \$147,771. The value was slightly lower in 1915.

Recent imports have been principally from France and the United Kingdom. Statistics of imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

BRUSHES.

| | Number. | Value. | Duty. | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | 1,877,754 | \$855,004 | \$13,751 | 25 |
| 1919..... | 1,786,730 | 173,122 | 43,281 | 25 |
| 1920..... | 2,708,774 | 140,791 | 35,198 | 25 |
| 1921 (9 months)..... | 740,998 | 52,478 | | |

ELECTRODES FOR ELECTRIC FURNACES, ELECTROLYTIC AND BATTERY PURPOSES.

| | Number. | Value. | Duty. | Per cent. |
|----------------------|-----------|----------|---------|-----------|
| 1918..... | 1,108,512 | \$37,406 | \$6,661 | 25 |
| 1919..... | 71,385 | 6,309 | 1,552 | 25 |
| 1920..... | 216 | 220 | 57 | 25 |
| 1921 (9 months)..... | 13,436 | 3,196 | | |

PLATES AND DISKS.

| | Number. | Value. | Duty. | Per cent. |
|----------------------|-----------|----------|---------|-----------|
| 1918..... | 1,772,354 | \$21,666 | \$5,416 | 25 |
| 1919..... | 579,759 | 11,867 | 2,957 | 25 |
| 1920..... | 536,805 | 18,358 | 3,331 | 25 |
| 1921 (9 months)..... | 111,620 | 2,498 | | |

July 1 to Dec. 31, 1918.

Exports of electrical carbons, principally to Canada, Japan, Italy, and England, have been as follows (calendar years): 1918, \$1,600,920; 1919, \$1,391,765; 1920, \$1,477,831; 1921 (9 months), \$347,306.

Important changes in classification.—The provision for electrodes has been broadened to include those in part of carbon as well as those in chief value of carbon. All electric brushes of whatever material composed have been included in this paragraph, as well as all wholly or partly manufactured material for manufacture into brushes. This is of importance, as material for brushes has been imported as manufactures of metal.

ALL OTHER MANUFACTURES OF CARBON.

Imports.—In 1918 Germany contributed nearly 50 per cent of the total imports (\$38,868). Since 1915 the imports have been mostly from France, Japan, and Canada. The value in 1917 was \$135,424.

"All other manufactures" were reported as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|---------------------|
| 1918..... | \$107,480 | \$21,496 | <i>Per cent.</i> 20 |
| 1919..... | 51,255 | 10,251 | 20 |
| 1920..... | 98,644 | 19,720 | 20 |
| 1921 (9 months)..... | 46,356 | | |

Imports of porous carbon pots for batteries were valued at less than \$100 a year since 1914.

Important changes in classification.—The paragraph has been broadened to include all manufactures in part of carbon.

Suggested changes.—The parentheses near the end of the paragraph inclosing the words "composed wholly or in part of carbon or graphite" have no effect, and should be omitted.

PARAGRAPH 217.

H. R. 7456.

SENATE AMENDMENTS.

PAB. 217. Plain green or colored, molded or pressed, and flint, lime, or lead glass bottles, vials, jars, and covered or uncovered demijohns, and carboys, any of the foregoing, filled or unfilled, not specially provided for, and whether their contents be dutiable or free (except such as contain merchandise subject to an ad valorem rate of duty, or to a rate of duty based in whole or in part upon the value thereof, which shall be dutiable at the rate applicable to their contents), shall pay duty as follows: If holding more than one pint, 1 cent per pound; if holding not more than one pint and not less than one-fourth of a pint, 1½ cents per pound; if holding less than one-fourth of a pint, 50 cents per gross: *Provided*, That none of the above articles shall pay a less rate of duty than 28 per centum ad valorem: *Provided further*, That the terms "bottles," "vials," "jars," "demijohns," and "carboys," as used herein, shall be restricted to such articles when suitable for use as and of the character ordinarily employed as containers for the holding and transportation of merchandise, and not as appliances or implements in chemical or other operations.

ACT OF 1909.

PAR. 97. Plain green or colored, molded or pressed, and flint, lime, or lead glass bottles, vials, jars, and covered or uncovered demijohns, and carboys, any of the foregoing, filled or unfilled, not otherwise specially provided for in this section, and whether their contents be dutiable or free (except such as contain merchandise subject to an ad valorem rate of duty, or to a rate of duty based in whole or in part upon the value thereof which shall be dutiable at the rate applicable to their contents), shall pay duty as follows: If holding more than one pint, one cent per pound; if holding not more than one pint and not less than one-fourth of a pint, one and one-half cents per pound; if holding less than one-fourth of a pint, fifty cents per gross: *Provided*, That none of the above articles shall pay a less rate of duty than forty per centum ad valorem: *Provided further*, That the terms bottles, vials, jars, demijohns, and carboys, as used herein, shall be restricted to such articles when suitable for use as and of the character ordinarily employed as containers for the holding or transportation of merchandise, and not as appliances or implements in chemical or other operations.

ACT OF 1913.

PAR. 83. Plain green or colored, molded or pressed, and flint, lime, or lead glass bottles, vials, jars, and covered and uncovered demijohns, and carboys, any of the foregoing, filled or unfilled, not otherwise specially provided for in this section, and whether their contents be dutiable or free (except such as contain merchandise subject to an ad valorem rate of duty, or to a rate of duty based in whole or in part upon the value thereof which shall be dutiable at the rate applicable to their contents), 30 per centum ad valorem: *Provided*, That the terms bottles, vials, jars, demijohns, and carboys, as used herein, shall be restricted to such articles when suitable for use as and of the character ordinarily employed as containers for the holding or transportation of merchandise, and not as appliances or implements in chemical or other operations.

GLASS CONTAINERS, ETC.

(See Survey B-9.)

Description and uses.—Molded, pressed, or other glass containers, which may be plain green or colored, include fruit jars, milk bottles, medicine bottles, and bottles for liquors, preserves, and other food-stuffs. Lime glass is used for ordinary large bottles; small vials are usually made of lead glass. The principal materials used are sand, soda ash, ground limestone, salt cake, lead oxide, and small amounts of arsenic, all of domestic origin.

Production.—The number of establishments engaged in the manufacture of glass bottles, jars, etc., was, in 1914, 150; in 1919, 139. The total value of the product in 1914 was \$51,959,000, and in 1919, \$87,762,000.

In 1918, 45 per cent of the output came from automatic machines, 35 per cent from semiautomatic machines, and about 20 per cent from hand labor. In 1914 the output was 4,898,416 gross druggist's bottles, etc., 4,573,610 gross beer, soda, and mineral-water bottles, 2,689,022 gross liquor bottles and flasks; 1,198,952 gross fruit jars, 1,188,891 gross milk bottles, 1,384,689 gross patent-medicine bottles, 3,271,184 gross food-preserving and packer's containers; 79,211 gross battery jars and electric goods; and 160,796 dozen demijohns and carboys. The value of production increased 54.5 per cent between 1904-1914, this form of glass constituting 42 per cent in value of the total production.

Statistics of foreign production are not available. For the year 1913, however, the figures of imports of bottles by 82 foreign countries show that in value they amounted to \$14,051,082, and of this amount the exports from the United States amounted to \$808,327. Of the total, the principal glass-producing countries imported from each other a total of \$5,775,620, including Germany, Austria, France, Netherlands, Italy, and the United Kingdom. The same year the exports of hollow glassware from Germany were valued at 16½ millions of dollars, from Austria 7½ millions, from France 6½ millions, Belgium 4½ millions, United Kingdom 3 millions, Netherlands 600 thousand. In none of these countries is domestic consumption indicated, but to some extent their potential power is indicated by the above figures.

A report on the condition of the Belgian glass industry by Consul Charles Roy Nasmith, Brussels, under date of March 13, 1919, states that "there was only one bottle factory in 1914 and that was at Jumet, where two furnaces were in operation. They were in operation during the war and continue to work. A new factory is being constructed at Merxem, near Antwerp."

The makers of bottles by automatic machines apparently have no fear of foreign competition. They expect to hold the domestic market by the superior quality of their bottles made in modernly constructed factories, with improved methods for the systematic factory handling of their product.

The makers of bottles by hand, however, are depending upon a protective tariff upon the ground of labor cost.

Imports, including filled and empty bottles, were valued at \$1,185,015 in 1914. Imports are chiefly from France and Germany. Later statistics follow:

Bottles, vials, and jars, plain green or colored, molded or pressed, and flint, lime, or lead, n. s. p. f.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|----------|----------|------------------|
| EMPTY. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 160,883 | \$6,656 | \$1,997 | 30 |
| 1919..... | 239,561 | 11,129 | 3,338 | 30 |
| 1920..... | 1,278,622 | 75,695 | 23,708 | 30 |
| 1921 (9 months)..... | 749,135 | 43,475 | | |
| FILLED. | | | | |
| 1918..... | | \$89,791 | \$26,896 | 30 |
| 1919..... | 1,453,549 | 67,550 | 20,264 | 30 |
| 1920..... | 2,446,754 | 122,336 | 36,699 | 30 |
| 1921 (9 months)..... | 3,033,032 | 137,472 | | |
| FILLED, CONTAINING MINERAL WATERS. | | | | |
| 1918..... | | \$50,022 | \$5,002 | 10 |
| 1919..... | 1,139,464 | 51,567 | 5,157 | 10 |
| 1920..... | 1,896,744 | 85,863 | 5,636 | 10 |
| 1921 (9 months)..... | 1,615,965 | 42,172 | | |

Bottles, vials, and jars, plain green or colored, etc.—Continued.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|---------|-------|------------------|
| DEMIJOHNS AND CARBOYS (COVERED OR UNCOVERED), EMPTY. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1919..... | 5,065 | \$3,051 | \$915 | 30 |
| 1920..... | 218 | 53 | 15 | 30 |
| 1921 (9 months)..... | 18,200 | 3,244 | | |

DEMIJOHNS AND CARBOYS (COVERED OR UNCOVERED), FILLED.

| | | | | |
|----------------------|---------|-------|-------|----|
| 1918..... | | \$908 | \$242 | 30 |
| 1919..... | 53,880 | 2,553 | 767 | 30 |
| 1920..... | 136,145 | 6,695 | 2,008 | 30 |
| 1921 (9 months)..... | 76,222 | 2,851 | | |

DEMIJOHNS AND CARBOYS (COVERED OR UNCOVERED), FILLED, CONTAINING MINERAL WATERS.

| | | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | | \$33,210 | \$3,321 | 10 |
| 1919..... | 5,218 | 264 | 26 | 10 |
| 1920..... | 175,271 | 6,900 | 690 | 10 |
| 1921 (9 months)..... | 145,088 | 2,919 | | |

Exports go to Canada, Cuba, England, Argentina and other South American countries. They have been as follows (calendar years): 1918, \$2,781,076; 1919, \$5,283,655; 1920, \$9,575,543; 1921 (9 months), \$3,989,579.

PARAGRAPH 218.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 218. Bottles, and all articles of every description, composed wholly or in chief value of glass or paste, blown or partly blown in the mold or otherwise, colored, cut, engraved, etched, frosted, gilded, ground (except such grinding as is necessary for fitting stoppers or for purposes other than ornamentation), painted, printed in any manner, sand-blasted, silvered, stained, or decorated or ornamented in any manner, whether filled or unfilled, or whether their contents be dutiable or free, 40 per centum ad valorem: *Provided*, That the foregoing containers of merchandise subject to an ad valorem rate of duty or to a rate of duty based in whole or in part upon the value thereof, shall be dutiable at the rate applicable to their contents, but not less than the rate provided for in this paragraph: *Provided further*, That for the purposes of this Act, bottles with cut-glass stoppers shall with the stoppers be deemed articles.

ACT OF 1909.

PAB. 98. Glass bottles, decanters, and all articles of every description composed wholly or in chief value of glass, ornamented or decorated in any manner, or cut, engraved, painted, decorated, ornamented, colored, stained, silvered, gilded, etched, sand blasted, frosted, or printed in any manner, or ground (except such grinding as is necessary for fitting stoppers or for purposes other than ornamentation), and all articles of every description, including bottles and bottle glassware, composed wholly or in chief value of glass blown either in a mold or otherwise; all of the foregoing, not specially provided for in this section, filled or unfilled, and whether their contents be dutiable or free, sixty per centum ad valorem: *Provided*, That for the purposes of this Act, bottles with cut glass stoppers shall, with the stoppers, be deemed entireties.

ACT OF 1913.

PAB. 84. Glass bottles, decanters, and all articles of every description composed wholly or in chief value of glass, ornamented or decorated in any manner, or cut, engraved, painted, decorated, ornamented, colored, stained, silvered, gilded, etched, sand blasted, frosted, or printed in any manner, or ground (except such grinding as is necessary for fitting stoppers or for purposes other than ornamentation), and all articles of every description, including bottles and bottle glassware, composed wholly or in chief value of glass blown either in a mold or otherwise; all of the foregoing, not specially provided for in this section, filled or unfilled, and whether their contents be dutiable or free, 45 per centum ad valorem: *Provided*, That for the purposes of this Act; bottles with cut-glass stoppers shall, with the stoppers, be deemed entireties.

BLOWN AND PRESSED GLASSWARE, ETC.

(See Survey B-9.)

Description.—The principal groups of blown and pressed glassware are pressed table and lighting glassware, blown tumblers, stem ware and bar goods, lamps and lamp chimneys, cut glass, and decorated ware, pressed jelly glasses, tumblers, and goblets.

Production.—The number of establishments manufacturing pressed and blown glass in 1914 was 107 and in 1919, 130. The value of the product in the corresponding years was \$30,279,000 and \$70,708,000. In 1917, 8,282 skilled workmen were employed in this industry. The raw materials used are sand, soda ash, lime, lead oxide (all of domestic origin), and carbonate of potash, nitrate of soda, manganese, antimony compounds, arsenic, and powdered blue (partly or wholly of foreign origin). Red lead, saltpeter, and barium carbonate also are used in crystal and cut glassware. Lime glass is used for the cheapest pressed ware, but the better grades are made of lead glass.

Statistics of foreign production are not available. The export trade of the European glass-producing countries is an index of their competitive power. Their exports in 1913 of all kinds of glassware were \$93,500,000, those from Germany representing 30.8 per cent; Belgium, 21.6; Austria, 18.8; France, 10; Netherlands, 9.8; and the United Kingdom, 9.5 per cent. Forty per cent of the European exports were of hollow glassware. The exports of all glass products to the United States were a little over 4 per cent of the total.

Imports were valued at \$2,223,387 in 1914. Little pressed tableware has been imported, while other pressed ware consisted largely of door knobs. Imports of fine grades of blown ware, both decorated and undecorated, were considerable. Cut or ornamental glassware, valued at \$1,151,875, was imported in 1914, 34.5 per cent from Austria, 28 per cent from Germany, 14 per cent from Belgium, 10 per cent from France, 9.6 per cent from England, and about 4 per cent from other countries. Competition has been particularly felt in the

fine grades of blown ware and decorated blown ware, 34 per cent of these imports coming from Austria and 28 per cent from Germany. Later statistics follow:

Glassware, blown either in mould or otherwise, n. s. p. f.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

BOTTLES AND BOTTLE GLASSWARE.

| | Pounds. | | | Per cent. |
|----------------------|---------|---------|---------|-----------|
| 1918..... | 172,322 | \$9,811 | \$4,415 | 45 |
| 1919..... | 89,921 | 40,159 | 18,072 | 45 |
| 1920..... | 124,917 | 25,010 | 11,254 | 45 |
| 1921 (9 months)..... | 277,542 | 72,597 | | |

BULBS FOR INCANDESCENT LAMPS AND TUBES FOR MAKING THEM.

| | | | | |
|----------------------|-----|-------|-------|----|
| 1919..... | 670 | \$280 | \$126 | 45 |
| 1920..... | | 1,045 | 470 | 45 |
| 1921 (9 months)..... | | 777 | | |

CHEMICAL GLASSWARE.

| | | | | |
|----------------------|---------|----------|----------|----|
| 1918..... | 178,536 | \$33,786 | \$15,204 | 45 |
| 1919..... | 268,494 | 62,181 | 27,931 | 45 |
| 1920..... | | 190,624 | 85,781 | 45 |
| 1921 (9 months)..... | | 133,866 | | |

CHIMNEYS FOR OIL LAMPS.

| | Number. | | | |
|----------------------|---------|-------|-----|----|
| 1918..... | 1,144 | \$12 | \$5 | 45 |
| 1919..... | 11,164 | 1,252 | 563 | 45 |
| 1920..... | 21,806 | 863 | 368 | 45 |
| 1921 (9 months)..... | 142,376 | 6,795 | | |

CHIMNEYS FOR GAS LAMPS AND TUBING FOR SAME.

| | Number. | | | |
|----------------------|---------|---------|---------|----|
| 1920..... | 133,964 | \$5,081 | \$2,286 | 45 |
| 1921 (9 months)..... | 451,922 | 18,719 | | |

GLOBES AND SHADES FOR GAS AND ELECTRIC LIGHT.

| | | | | |
|----------------------|---------|--------|---------|----|
| 1918..... | 16 | \$2 | | 45 |
| 1919..... | 56,067 | 2,433 | \$1,095 | 45 |
| 1920..... | 34,408 | 1,886 | 849 | 45 |
| 1921 (9 months)..... | 371,976 | 21,770 | | |

TABLEWARE AND BAR GLASS.

| | | | | |
|----------------------|---------|---------|---------|----|
| 1918..... | 131,787 | \$8,939 | \$4,023 | 45 |
| 1919..... | 910,756 | 83,626 | 37,632 | 45 |
| 1920..... | | 38,347 | 17,256 | 45 |
| 1921 (9 months)..... | | 79,131 | | |

ALL OTHER ARTICLES.

| | | | | |
|----------------------|------------|----------|----------|----|
| 1918..... | 12,032,736 | \$61,241 | \$27,558 | 45 |
| 1919..... | 4,816,065 | 217,416 | 97,637 | 45 |
| 1920..... | | 926,235 | 416,806 | 45 |
| 1921 (9 months)..... | | 865,917 | | |

¹ July 1 to Dec. 31, 1918.

² Chemical glassware entered free of duty as philosophical and scientific apparatus has been valued as follows (calendar years): 1918, \$27,525; 1919, \$3,123; 1920, \$20,963; 1921 (9 months), \$21,396.

Glassware of every description, ornamented or decorated, etc.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

BOTTLES AND DECANTERS.

| | Number. | | | Per cent. |
|----------------------|-----------|----------|----------|-----------|
| 1918..... | 1,265,187 | \$33,773 | \$15,197 | 45 |
| 1919..... | 1,308,045 | 190,431 | 85,604 | 45 |
| 1920..... | 2,473,937 | 226,834 | 102,075 | 45 |
| 1921 (9 months)..... | 1,205,312 | 149,431 | ..... | ..... |

CANDLESTICKS, CANDELABRA, CHANDELIERS, AND PARTS OF, AND OTHER ARTICLES, THAT CAN BE USED IN CONNECTION WITH ARTIFICIAL METHODS OF ILLUMINATION, N. S. P. F.

| 1918..... | 1,059 | \$390 | \$175 | 45 |
|----------------------|--------|--------|--------|-------|
| 1919..... | 52,416 | 6,142 | 2,764 | 45 |
| 1920..... | ..... | 41,631 | 18,734 | 45 |
| 1921 (9 months)..... | ..... | 85,787 | ..... | ..... |

GLOBES AND SHADES FOR GAS AND ELECTRIC LIGHTS.

| 1918..... | 1,647 | \$271 | \$122 | 45 |
|----------------------|--------|-------|-------|-------|
| 1919..... | 487 | 437 | 192 | 45 |
| 1920..... | 12,476 | 2,173 | 978 | 45 |
| 1921 (9 months)..... | 48,890 | 6,080 | ..... | ..... |

TABLEWARE AND BAR GLASS.

| | Pieces. | | | |
|----------------------|----------|----------|---------|-------|
| 1918..... | 1,14,029 | \$14,890 | \$6,696 | 45 |
| 1919..... | 405,440 | 95,313 | 44,241 | 45 |
| 1920..... | ..... | 112,575 | 50,650 | 45 |
| 1921 (9 months)..... | ..... | 166,066 | ..... | ..... |

ALL OTHER ARTICLES.

| 1918..... | 1,236,814 | \$20,323 | \$9,145 | 45 |
|----------------------|-----------|----------|---------|-------|
| 1919..... | 2,213,732 | 133,731 | 60,179 | 45 |
| 1920..... | ..... | 761,999 | 342,899 | 45 |
| 1921 (9 months)..... | ..... | 695,648 | ..... | ..... |

¹ July 1 to Dec. 31, 1918.

Exports were valued at \$2,671,164 in 1914 and at \$5,411,995 in 1917. The increase, due to cessation of European production, was: To Canada, 41 per cent; to Cuba, 228 per cent; to South America, 372 per cent; to Asia, 556 per cent; and to Australia and other countries, 80 per cent.

Exports of cut or engraved glassware have been as follows (for calendar years): 1918, \$139,449; 1919, \$269,125; 1920, \$422,864; 1921, \$146,698.

Exports of chemical glassware have been: 1918, \$179,682; 1919, \$200,969; 1920, \$262,391; 1921 (9 months), \$189,008.

Exports have been largely to Canada, England, Cuba, China, Mexico, and Brazil.

Important changes in classification.—The provision for partly blown glassware and also the first proviso in paragraph 218 are new. The word "paste" has also been inserted to correspond with the language in paragraph 230.

Suggested changes.—The word "or" inserted before "colored" would make the provision applicable to blown or partly blown glassware whether or not colored, etc., and also to glassware colored, etc., whether or not blown or partly blown.

To prevent the possible restriction of paragraph 218 to containers the first proviso might be changed by striking out in line 22, page 32, of H. R. 7456 the words "containers of" and inserting the words "when imported containing."

PARAGRAPH 219.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 219. Cylinder, crown, and sheet glass, by whatever process made, unpolished, not exceeding one hundred and fifty square inches, $1\frac{1}{4}$ cents per pound; above that, and not exceeding three hundred and eighty-four square inches, $1\frac{1}{2}$ cents per pound; above that, and not exceeding seven hundred and twenty square inches, $2\frac{1}{4}$ cents per pound; above that, and not exceeding eight hundred and sixty-four square inches, $2\frac{1}{2}$ cents per pound; above that, and not exceeding one thousand two hundred square inches, $3\frac{1}{4}$ cents per pound; above that, and not exceeding two thousand four hundred square inches, $3\frac{1}{2}$ cents per pound; above that, 4 cents per pound; *Provided*, That none of the foregoing shall pay less duty than 35 per centum ad valorem: *Provided further*, That unpolished cylinder, crown, and sheet glass, imported in boxes, shall contain fifty square feet, as nearly as sizes will permit, and the duty shall be computed thereon according to the actual weight of glass.

ACT OF 1909.

ACT OF 1913.

PAR. 99. Unpolished, cylinder, crown, and common window glass, not exceeding one hundred and fifty square inches, valued at not more than one and one-half cents per pound, one and one-fourth cents per pound; valued at more than one and one-half cents per pound, one and three-eighths cents per pound; above that, and not exceeding three hundred and eighty-four square inches, valued at not more than one and three-fourths cents per pound, one and three-fourths cents per pound; valued at more than one and three-fourths cents per pound, one and seven-eighths cents per pound; above that, and not exceeding seven hundred and twenty square inches, valued at not more than two and one-eighth cents per pound, two and one-fourth cents per pound; valued at more than two

PAR. 85. Unpolished, cylinder, crown, and common window glass, not exceeding one hundred and fifty square inches, $\frac{1}{2}$ of 1 cent per pound; above that, and not exceeding three hundred and eighty-four square inches, 1 cent per pound; above that, and not exceeding seven hundred and twenty square inches, $1\frac{1}{4}$ cents per pound; above that, and not exceeding one thousand two hundred square inches, $1\frac{1}{2}$ cents per pound; above that, and not exceeding two thousand four hundred square inches, $1\frac{3}{4}$ cents per pound; above that, 2 cents per pound: *Provided*, That unpolished, cylinder, crown, and common window glass, imported in boxes, shall contain fifty square feet, as nearly as sizes will permit, and the duty shall be computed thereon according to the actual weight of glass.

and one-eighth cents per pound, two and three-eighths cents per pound; above that, and not exceeding eight hundred and sixty-four square inches, two and three-fourths cents per pound; above that, and not exceeding one thousand two hundred square inches, three and one-fourth cents per pound; above that, and not exceeding two thousand four hundred square inches, three and three-fourths cents per pound; above that, four and one-fourth cents per pound: *Provided*, That unpolished cylinder, crown, and common window glass, imported in boxes, shall contain fifty square feet, as nearly as sizes will permit, and the duty shall be computed thereon according to the actual weight of glass.

COMMON WINDOW GLASS, ETC.

(See Survey B-9.)

Description.—Common window glass is usually blown into cylinder form, by hand or machine, and afterwards flattened into sheets, annealed, and cut to desired commercial sizes. A method of drawing the glass in a continuous flat sheet is still in an experimental stage in the United States, but is said to be successfully employed in Belgium. The materials used—silica sand, crushed limestone, carbonate of soda or soda ash, ground carbon, sulphate of soda or salt cake, are all of domestic origin. Manganese dioxide or pyrolusite and white arsenic are used in relatively small amounts. The use of crown glass for glazing is practically obsolete, but there is still a limited production for special purposes. It is made by blowing a hollow ball, which is opened and then flattened to a disk by centrifugal force.

Production statistics of window glass are as follows: Quantity, square feet, 1914, 400,998,893; 1919, 368,912,209. Value, 1914, \$17,496,000; 1919, \$41,106,000.

Sixty per cent of the total of about 9,000,000 50-foot boxes of window glass of the blast of 1916-17 was made in 27 factories by the machine method, and the remaining 40 per cent was made in 55 factories by the hand method. The present machine factories might readily produce all the window glass needed and eliminate the hand-blowing factories, but fear of a price war deters.

Statistics of foreign production are not obtainable. The question of foreign rivalry centers around the efficiency of the machine versus the hand process. It is believed that the American machine-made glass can compete favorably with the European handmade article. European competition is keenest in the smaller sizes of glass.

Imports were a little over 34,073,429 pounds, valued at \$1,259,497 in 1906, but decreased almost constantly until 1913, when they were only 20,458,970 pounds, valued at \$804,731. They increased to 31,197,530 pounds, valued at \$1,212,536, in 1914; for some years thereafter they were almost negligible. Of the imports during the period

1906-1914, from 80 to 95 per cent was of the small sizes, 8 by 16 to 16 by 21 inches, and mostly from Belgium. Later statistics follow:

Cylinder, crown, and common window glass, unpolished.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|----------------|----------|---------|------------------------|
| NOT EXCEEDING 150 SQUARE INCHES. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 149,615 | \$14,803 | \$1,309 | 8.84 |
| 1919..... | 404,443 | 50,708 | 3,539 | 6.98 |
| 1920..... | 3,190,492 | 319,395 | 27,917 | 8.74 |
| 1921 (9 months)..... | 5,631,852 | 358,285 | | |
| ABOVE 150 AND NOT EXCEEDING 384 SQUARE INCHES. | | | | |
| 1918..... | 140,926 | \$15,936 | \$1,409 | 8.84 |
| 1919..... | 112,811 | 10,870 | 1,128 | 10.38 |
| 1920..... | 1,166,053 | 101,795 | 11,661 | 11.45 |
| 1921 (9 months)..... | 9,140,585 | 482,105 | | |
| ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES. | | | | |
| 1918..... | 8,008 | \$2,074 | \$90 | 4.34 |
| 1919..... | 91,336 | 7,314 | 1,028 | 14.05 |
| 1920..... | 499,044 | 48,158 | 5,614 | 11.66 |
| 1921 (9 months)..... | 9,404,442 | 504,658 | | |
| ABOVE 720 AND NOT EXCEEDING 1,200 SQUARE INCHES. | | | | |
| 1918..... | 3,912 | \$821 | \$59 | 7.15 |
| 1919..... | 17,638 | 3,490 | 265 | 7.57 |
| 1920..... | 303,369 | 27,442 | 4,551 | 16.58 |
| 1921 (9 months)..... | 7,278,344 | 400,948 | | |
| ABOVE 1,200 AND NOT EXCEEDING 2,400 SQUARE INCHES. | | | | |
| 1918..... | 8,808 | \$1,159 | \$166 | 14.25 |
| 1920..... | 144,035 | 15,768 | 2,701 | 17.13 |
| 1921 (9 months)..... | 2,673,779 | 161,389 | | |
| ABOVE 2,400 SQUARE INCHES. | | | | |
| 1919..... | 465 | \$89 | \$9 | 10.45 |
| 1920..... | 16,037 | 1,021 | 321 | 31.41 |
| 1921 (9 months)..... | 323,825 | 21,615 | | |

The principal countries of origin of the above imports were the United Kingdom, Belgium, and Japan.

Exports, which in 1914 amounted to \$311,339, increased notably during the war, production in Belgium and in northern France having ceased and supplies from central Europe having failed. In 1915 the export trade was over \$1,000,000. Increases during the war to noncombatant countries and to Canada and Australia were notable. Exports of common window glass, since 1917 (calendar years),

largely to Canada, Mexico, Brazil, Cuba, and Argentina, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|---------------|---------------|---------------|---------------------|
| Quantity (boxes of 50 square feet)..... | 683, 215 | 955, 970 | 593, 808 | 63, 989 |
| Value..... | \$3, 812, 653 | \$6, 492, 608 | \$4, 097, 183 | \$430, 264 |

Important changes in classification.—A minimum rate of duty is added.

“Sheet glass” has been substituted for “common window glass.”

PARAGRAPH 220.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 220. Cylinder, crown, and sheet glass, by whatever process made, polished, not exceeding three hundred and eighty-four square inches, 5 cents per square foot; above that, and not exceeding seven hundred and twenty square inches, 6 cents per square foot; above that, and not exceeding one thousand four hundred and forty square inches, 12 cents per square foot; above that, 15 cents per square foot.

ACT OF 1909.

ACT OF 1913.

PAR. 100. Cylinder and crown glass, polished, not exceeding three hundred and eighty-four square inches, four cents per square foot; above that, and not exceeding seven hundred and twenty square inches, six cents per square foot; above that, and not exceeding one thousand four hundred and forty square inches, twelve cents per square foot; above that fifteen cents per square foot.

PAR. 86. Cylinder and crown glass, polished, not exceeding three hundred and eighty-four square inches, 8 cents per square foot; above that, and not exceeding seven hundred and twenty square inches, 4 cents per square foot; above that, and not exceeding one thousand four hundred and forty square inches, 7 cents per square foot; above that, 10 cents per square foot.

CYLINDER AND CROWN GLASS, POLISHED.

(See Survey B-9.)

Description and uses.—Cylinder and crown glass, blown in thick sheets which are subsequently ground down and polished in the same manner as plate glass, is superior to ordinary cylinder glass in that it is free from the wavy irregularities caused by flattening. A much thinner plate glass can be made at less expense by this process than by casting, as little material is wasted in the grinding and polishing. Polished cylinder glass is used where exceptionally clear but thin sheets are required—automobile wind shields, etc.

Production.—Polished cylinder and window glass is a minor product as compared to plain window glass and polished plate. There is a slight bow in window glass no matter how carefully the sheet is flattened and this causes a large amount of breakage during the polishing operation, unless most of the grinding is done by hand. No cylinder glass is polished in domestic plants, but domestic manufacturers of machine window glass are now producing thin glass of a grade satisfactory to most of the consumers who formerly used the polished product.

Thin, unpolished cylinder glass is a much cheaper product than any glass which has been polished, and now that domestic manufacturers are producing high-grade thin unpolished glass domestic consumers will use this in many places where polished glass was used before the war.

Imports prior to the war averaged about 600,000 square feet annually, amounting to 616,337 square feet, valued at \$121,814, in 1914. No imports are recorded for 1918 and 1919. Later statistics follow:

Cylinder and crown glass, polished.

| Calendar year., | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|-----------------|-----------|--------|-------|------------------------|
|-----------------|-----------|--------|-------|------------------------|

NOT EXCEEDING 384 SQUARE INCHES.

| | Square feet. | | | Per cent. |
|----------------------|--------------|---------|-------|-----------|
| 1920..... | 12,327 | \$7,877 | \$370 | 4.60 |
| 1921 (9 months)..... | 21,243 | 11,673 | | |

ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES.

| | | | | |
|----------------------|--------|----------|---------|------|
| 1920..... | 30,904 | \$22,075 | \$1,236 | 5.60 |
| 1921 (9 months)..... | 54,806 | 39,516 | | |

ABOVE 720 AND NOT EXCEEDING 1,440 SQUARE INCHES.

| | | | | |
|----------------------|--------|----------|---------|------|
| 1920..... | 16,696 | \$18,563 | \$1,168 | 6.30 |
| 1921 (9 months)..... | 35,915 | 28,130 | | |

ABOVE 1,440 SQUARE INCHES.

| | | | | |
|----------------------|-------|---------|-------|-------|
| 1920..... | 6,337 | \$5,887 | \$634 | 11.76 |
| 1921 (9 months)..... | 1,530 | 1,891 | | |

Exports.—None recorded.

Important changes in classification.—“Sheet glass” has been added so as to include drawn glass.

PARAGRAPH 221.

H. R. 7456.

SENATE AMENDMENTS.

PAB. 221. Fluted, rolled, ribbed, or rough plate glass, or the same containing a wire netting within itself (not including crown, cylinder, or sheet glass), not exceeding three hundred and eighty-four square inches, three-fourths of 1 cent per square foot; all above that, 1½ cents per square foot; and all fluted, rolled, ribbed, or rough plate glass, weighing over one hundred pounds per one hundred square feet, shall pay an additional duty on the excess at the same rates herein imposed: *Provided*, That all of the above plate glass, when ground, smoothed, or otherwise obscured, shall be subject to the same rate of duty as cast polished plate glass unsilvered.

ACT OF 1909.

PAB. 101. Fluted, rolled, ribbed, or rough plate glass, or the same containing a wire netting within itself, not including crown, cylinder, or common window glass, not exceeding three hundred and eighty-four square inches, three-fourths of one cent per square foot; above that, and not exceeding seven hundred and twenty square inches, one and one-fourth cents per square foot; all above that, one and three-fourths cents per square foot; and all fluted, rolled, ribbed, or rough plate glass, weighing over one hundred pounds per one hundred square feet, shall pay an additional duty on the excess at the same rates herein imposed: *Provided*, That all of the above plate glass, when ground, smoothed, or otherwise obscured, shall be subject to the same rate of duty as cast polished plate glass unsilvered.

ACT OF 1913.

PAB. 87. Fluted, rolled, ribbed, or rough plate glass, or the same containing a wire netting within itself, not including crown, cylinder, or common window glass, not exceeding three hundred and eighty-four square inches, ½ cent per square foot; all above that, 1 cent per square foot; and all fluted, rolled, ribbed, or rough plate glass, weighing over one hundred pounds per one hundred square feet, shall pay an additional duty on the excess at the same rates herein imposed: *Provided*, That all of the above plate glass, when ground, smoothed, or otherwise obscured, shall be subject to the same rate of duty as cast polished plate glass unsilvered.

ROUGH PLATE GLASS, ETC.

(See Survey B-9.)

Description and use.—Rough plate glass is an intermediate product which seldom enters the open market. Plastic glass is poured on the casting table, rolled to any desired thickness, and then annealed. In the ordinary course the rough slab is sent direct to the polishing room, but small amounts enter the market as substitutes for obscured glass. Rough or rolled plate glass is one of the cheapest forms of glazing where heavy glass is required. Fluted, ribbed, or other figured un-

polished plate glass is that which has had a pattern impressed upon one surface during the rolling. Flaws can not be detected in this product, and hence a grade of glass cheaper than that in polished plate may be used. Wire netting embedded in plate glass renders it much less susceptible to shattering from vibration or fire. Glass made translucent or opaque after the rolling is known as "obscured" glass. This is frequently used for windows in office partitions, etc. Rolled plate glass is consumed in large quantities for skylights, factory windows, and, in fact, for all work where transparency is unnecessary or objectionable. The product has many advantages not possessed by polished plate. It is cheaper than either polished or ground glass, because no material is lost through a polishing operation and the entire cost of grinding or polishing is eliminated. The rough surface acts similarly to a large number of prisms which disperse the light into an even illumination. The material is translucent and is ideal for all uses where transparency is not important.

Production.—The batch materials for rolled plate are sand, limestone, and salt cake, and other substances varying according to the quality of glass desired. The processes are almost entirely mechanical. The molten glass is poured upon an iron table and flattened by an iron roller; large sheets can thus be made as easily as small ones.

Domestic manufacturers are in a position to manufacture rolled plate glass very efficiently. Machine processes are largely employed. Rolled plate glass competes with polished plate glass, ground glass, and cylinder glass, is cheaper than the first two, but more expensive than common window glass. Rolled glass is produced by the plate and window glass manufacturers, and the production figures are not kept separate. In 1917, 21 companies operating 25 factories in 7 States were engaged in the manufacture of rough rolled, wire glass, and other flat glass specialties. The production is considerable and is increasing. Other statistics of production, although but partly applicable in some cases, are as follows:

| | 1914 | 1919 |
|---|-------------|-------------|
| Obscured glass, including cathedral and skylight: | | |
| Quantity (square feet)..... | 43,040,079 | 33,822,302 |
| Value..... | \$2,417,000 | \$4,300,000 |
| Rough wire glass: | | |
| Quantity (square feet)..... | 13,980,996 | |
| Value..... | \$1,056,312 | |
| Wire glass (total): | | |
| Quantity (square feet)..... | 15,688,844 | 15,691,496 |
| Value..... | \$1,591,000 | \$2,907,000 |
| Rough plate glass: | | |
| Quantity (square feet)..... | 131,492 | |
| Value..... | \$25,859 | |

Imports averaged about 1 per cent of the quantity and about 4 per cent of the value of obscured glass produced, amounting to 614,012 square feet, valued at \$126,917 in 1914. Rough and figured rolled plate glass, including wire glass, amounted to 436,586 square feet, valued at \$15,207, in 1914. Later statistics follow:

Plate glass, fluted, rolled, ribbed, or rough, or the same containing a wire netting.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

NOT EXCEEDING 384 SQUARE INCHES.

| | Square feet. | | | Per cent. |
|----------------------|--------------|---------|------|-----------|
| 1918..... | 10,181 | \$3,161 | \$50 | 1.87 |
| 1919..... | 3,375 | 2,435 | 17 | .69 |
| 1920..... | 28,159 | 2,804 | | |
| 1921 (9 months)..... | | | | |

ABOVE 384 SQUARE INCHES.

| | | | | |
|----------------------|---------|--------|------|-------|
| 1918..... | 8,256 | \$710 | \$83 | 11.66 |
| 1919..... | 15,474 | 1,448 | 155 | 10.69 |
| 1920..... | 20,658 | 2,941 | 207 | 7.02 |
| 1921 (9 months)..... | 202,385 | 17,304 | | |

Plate glass, fluted, rolled ribbed, etc., ground, smoothed, or otherwise obscured.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

NOT EXCEEDING 384 SQUARE INCHES.

| | Square feet. | | | Per cent. |
|----------------------|--------------|---------|-------|-----------|
| 1919..... | 5,455 | \$1,006 | \$327 | 16.40 |
| 1920..... | 19,007 | 14,630 | 1,140 | 7.80 |
| 1921 (9 months)..... | 29,052 | 20,307 | | |

ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES.

| | | | | |
|----------------------|--------|--------|-------|-------|
| 1919..... | 1,119 | \$900 | \$90 | 11.07 |
| 1920..... | 51,295 | 43,952 | 4,104 | 9.34 |
| 1921 (9 months)..... | 47,389 | 34,816 | | |

ABOVE 720 SQUARE INCHES.

| | | | | |
|----------------------|---------|----------|---------|-------|
| 1919..... | 15,850 | \$10,952 | \$1,902 | 17.37 |
| 1920..... | 284,785 | 194,932 | 34,168 | 17.53 |
| 1921 (9 months)..... | 51,758 | 41,870 | | |

Exports are not separately stated.

Important changes in classification.—“Sheet glass” has been substituted for “common window glass” in the exception in paragraph 221.

Suggested changes.—Page 34, line 5: Change “or” to “and.”

PARAGRAPH 222.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 222. Cast polished plate glass, finished or unfinished, and unsilvered, not exceeding three hundred and eighty-four square inches, 11 cents per square foot; above that, and not exceeding seven hundred and twenty square inches, 12½ cents per square foot; all above that, 20 cents per square foot. Plate glass described in this paragraph containing a wire netting within itself, not exceeding three hundred and eighty-four square inches, 12 cents per square foot; above that, and not exceeding seven hundred and twenty square inches, 15 cents per square foot; all above that, 25 cents per square foot.

ACT OF 1909.

PAR. 102. Cast polished plate glass, finished or unfinished and unsilvered, not exceeding three hundred and eighty-four square inches, ten cents per square foot; above that, and not exceeding seven hundred and twenty square inches, twelve and one-half cents per square foot; all above that, twenty-two and one-half cents per square foot.

ACT OF 1913.

PAR. 88. Cast polished plate glass, finished or unfinished and unsilvered, or the same containing a wire netting within itself, not exceeding three hundred and eighty-four square inches, 6 cents per square foot; above that, and not exceeding seven hundred and twenty square inches, 8 cents per square foot; all above that, 12 cents per square foot.

POLISHED PLATE GLASS, ETC.

(See Survey B-9.)

Description and uses.—The essential properties of polished plate glass are transparency, homogeneity, and strength. For some years it has been in general use for glazing in first-class buildings. It is practically the only glass used for mirrors. It is also used for tables, desks, and other furniture, for wind shields, ship lights, and many other purposes.

Production.—In 1917 there were nine companies operating 15 plate-glass factories. The production of plate glass in 1914 was 60,515,008 square feet (11.6 per cent of all building glass), valued at \$14,800,000. In 1919 it was 57,612,491 square feet, valued at \$33,519,000. Since its development the plate-glass industry has made inroads upon other branches of building glass manufacture. Besides the batch materials, its production requires finishing and other essential materials, such as carbon, copperas, grinding sand, rouge, felt, emery, gypsum, and pot clay. Turkish emery and German pot clay were prewar imports. Statistics of foreign production of plate glass are not obtainable, but the competitive power of European countries is indicated in their exports, which for six countries in 1913 were valued at \$11,493,122, of which Belgium exported 49 per cent; Germany, 25 per cent; England, 17 per cent; France,

4 per cent; Netherlands, 3 per cent; and Austria, 2 per cent. Of this the total imports into the United States were but \$247,015, with a revenue of \$156,017. Apparently the imports of much of the plate glass were to meet the requirements of American mirror manufacturers for high grades. Belgium has a plate-glass syndicate which regulates production, following the world's markets closely to prevent overproduction and to give stability to selling prices.

Imports are mainly of the finer and more expensive grades used for mirrors; 75 per cent of this glass is imported. In 1914 imports were valued at \$631,618, which was 4.27 per cent of the domestic production. In 1914, 78.68 per cent of the polished plate glass imported was of sizes not exceeding 720 square inches. No imports are reported for 1918. Later statistics follow:

Plate glass, cast, polished, unsilvered, finished or unfinished, or the same containing a wire netting.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|---------------------|-----------|---------|------------------------|
| NOT EXCEEDING 384 SQUARE INCHES. | | | | |
| | <i>Square feet.</i> | | | <i>Per cent.</i> |
| 1919..... | 705 | \$488 | \$42 | 8.67 |
| 1920..... | 262,808 | 167,913 | 15,768 | 9.39 |
| 1921 (9 months)..... | 363,605 | 194,104 | | |
| ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES. | | | | |
| 1919..... | 287 | \$228 | \$23 | 10.07 |
| 1920..... | 442,904 | 363,554 | 35,432 | 9.75 |
| 1921 (9 months)..... | 592,730 | 445,292 | | |
| ABOVE 720 SQUARE INCHES. | | | | |
| 1919..... | 3,181 | \$2,339 | \$392 | 16.32 |
| 1920..... | 1,825,991 | 1,697,205 | 219,119 | 12.91 |
| 1921 (9 months)..... | 806,957 | 694,786 | | |

In 1919 Canada, in 1920 Belgium and the Netherlands were the principal source of imports.

Exports in 1914 were valued at \$35,767; in 1917 they increased to \$2,223,329. Later statistics (for calendar years) of plate glass, unsilvered, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-------------|-------------|-------------|---------------------|
| Quantity (square feet)..... | 6,022,083 | 7,318,099 | 4,140,985 | 1,855,174 |
| Value..... | \$3,155,627 | \$4,221,360 | \$2,883,695 | \$1,125,854 |

The above exports were chiefly to Japan, Canada, Cuba, Australia, and Mexico.

Important changes in classification.—The provision for plate glass containing a wire netting within itself is new.

PARAGRAPH 223.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 223. Cast polished plate glass, silvered, cylinder and crown glass, silvered, and looking-glass plates, exceeding in size one hundred and forty-four square inches and not exceeding three hundred and eighty-four square inches, 11 cents per square foot; above that, and not exceeding seven hundred and twenty square inches, 13 cents per square foot; all above that, 22½ cents per square foot: *Provided*, That no looking-glass plates or glass, silvered, when framed, shall pay a less rate of duty than that imposed upon similar glass of like description not framed, but shall pay in addition thereto upon such frames the rate of duty applicable thereto when imported separate.

ACT OF 1909.

ACT OF 1913.

PAR. 103. Cast polished plate glass, silvered, cylinder and crown glass, silvered, and looking-glass plates, exceeding in size one hundred and forty-four square inches and not exceeding three hundred and eighty-four square inches, eleven cents per square foot; above that, and not exceeding seven hundred and twenty square inches, thirteen cents per square foot; all above that, twenty-five cents per square foot: *Provided*, That no looking-glass plates or plate glass, silvered, when framed, shall pay a less rate of duty than that imposed upon similar glass of like description not framed, but shall pay in addition thereto upon such frames the rate of duty applicable thereto when imported separate.

PAR. 89. Cast polished plate glass, silvered, cylinder and crown glass, silvered, and looking-glass plates exceeding in size one hundred and forty-four square inches, shall be subject to a duty of 1 cent per square foot in addition to the rates otherwise chargeable on such glass unsilvered: *Provided*, That no looking-glass plates or glass silvered, when framed, shall pay a less rate of duty than that imposed upon similar glass of like description not framed, but shall pay in addition thereto upon such frames the rate of duty applicable thereto when imported separate.

SILVERED GLASS.

(See Survey B-9.)

Description and uses.—Ordinary grades of silvered glass are made of cylinder glass, but for high-grade mirrors plate glass is used (imported before the war). The glass is seldom manufactured by the silvering concerns. Formerly there was used for the backing of mirrors a compound of mercury and tin. This has now been superseded by silver, which increases reflectivity from 20 to 25 per cent and is applied by chemical processes. Ornamental mirrors and looking-glasses comprise the larger part of the product under this paragraph, but silvered glass has many industrial and scientific uses.

Production of mirrors, framed and unframed, has been as follows: Number of establishments, 1914, 182; 1919, 186; value of products, 1914, \$10,189,000; 1919, \$20,831,000. These figures include the silvered glass under paragraphs 224 and 230. There is little

foreign competition in silvered glass, because of the additional tariff and liability to damage in transit.

Imports of silvered glass amounted to \$24,398 in 1914 and to \$21,618 in 1915—unprecedented records, as imports in former years averaged about \$300. Silvered plate glass imported in 1914 amounted to \$4,861, which was above the average. Later statistics follow:

Plate glass, cast, polished, silvered, and looking-glass plates.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|---------------------|--------|--------|------------------------|
| EXCEEDING IN SIZE 144 SQUARE INCHES, NOT EXCEEDING 384 SQUARE INCHES. | | | | |
| | <i>Square feet.</i> | | | <i>Per cent.</i> |
| 1918..... | 2 | \$10 | | |
| 1919..... | 1 | 1 | | |
| 1920..... | 13,309 | 10,495 | \$932. | 8.88 |
| 1921 (9 months)..... | 2,815 | 2,178 | | |

ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES.

| | | | | |
|----------------------|-------|-------|--------|-------|
| 1918..... | 9 | \$21 | | 3.86 |
| 1919..... | 5,667 | 4,410 | \$510. | 11.57 |
| 1921 (9 months)..... | 3,588 | 3,390 | | |

ABOVE 720 SQUARE INCHES.

| | | | | |
|----------------------|--------|--------|-------|-------|
| 1918..... | 21 | \$13 | \$3 | 21.00 |
| 1919..... | 86 | 153 | 11 | 7.31 |
| 1920..... | 16,162 | 12,838 | 2,101 | 16.37 |
| 1921 (9 months)..... | 16,678 | 12,233 | | |

Cylinder and crown glass, polished, silvered.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|-------------------------------|---------|-------|------------------------|
| NOT EXCEEDING 384 SQUARE INCHES. | | | | |
| 1920..... | <i>Square feet.</i> 10,173 | \$4,799 | \$407 | 8.53 |
| 1921 (9 months)..... | 32,194 | 16,748 | | |

ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES.

| | | | | |
|----------------------|--------|----------|---------|------|
| 1920..... | 22,628 | \$16,062 | \$1,141 | 7.09 |
| 1921 (9 months)..... | 39,736 | 21,990 | | |

ABOVE 720 AND NOT EXCEEDING 1,440 SQUARE INCHES.

| | | | | |
|----------------------|--------|-----------|---------|------|
| 1920..... | 55,052 | \$105,261 | \$4,404 | 4.18 |
| 1921 (9 months)..... | 21,411 | 23,012 | | |

ABOVE 1,440 SQUARE INCHES.

| | | | | |
|-----------|-------|---------|-------|------|
| 1920..... | 5,224 | \$6,300 | \$575 | 8.99 |
|-----------|-------|---------|-------|------|

Imports of cylinder, crown, and common window glass, unpolished, silvered, are negligible.

Exports were slight during the war, and to markets formerly supplied by Germany, France, and England: None are recorded since.

PARAGRAPH 924.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 224. Cast polished plate glass, silvered or unsilvered, and cylinder, crown, and sheet glass, by whatever process made, silvered or unsilvered, polished or unpolished, when bent, ground, obscured, frosted, sanded, enameled, beveled, etched, embossed, engraved, flashed, stained, colored, painted, ornamented, or decorated, shall be subject to a duty of 5 per centum ad valorem in addition to the rates otherwise chargeable thereon.

ACT OF 1909.

ACT OF 1913.

PAR. 104. Cast polished plate glass, silvered or unsilvered, and cylinder, crown, or common window glass, silvered or unsilvered, polished or unpolished, when bent, ground, obscured, frosted, sanded, enameled, beveled, etched, embossed, engraved, flashed, stained, colored, painted, ornamented, or decorated, shall be subject to a duty of five per centum ad valorem in addition to the rates otherwise chargeable thereon.

PAR. 90. Cast polished plate glass, silvered or unsilvered, and cylinder, crown, or common window glass, silvered or unsilvered, polished or unpolished, when bent, ground, obscured, frosted, sanded, enameled, beveled, etched, embossed, engraved, flashed, stained, colored, painted, ornamented, or decorated, shall be subject to a duty of 4 per centum ad valorem in addition to the rates otherwise chargeable thereon.

GLASS, BENT, GROUND, OBSCURED, ORNAMENTED, ETC.

(See Survey B-9.)

Description and uses.—The processes enumerated in this paragraph are applied principally to ornamented glass. Certain industrial uses, however, depend on these processes, e. g., colored glass for signal lights, concave reflectors for headlights and searchlights, and magnifying and reducing mirror lenses in instruments. Enamel is usually applied to glass in designs, portions of the surface remaining uncovered. Patterns may be made in the glass by etching with hydrofluoric acid, by engraving with copper disks, or by sand blasting. In the process of blowing, a thin layer of colored glass is sometimes applied; this is known as “flashing.” To obtain colored glass, coloring materials (usually metal oxides) are introduced into the molten mass. Beveled glass, used for heavy plate-glass mirrors and doors, has the edges ground at an angle of from 45 to 60°. (See also par. 221.)

Production of obscured glass, including cathedral and skylight glass, has been as follows:

| | 1914 | 1919 |
|------------------------|-------------|-------------|
| Quantity (square feet) | 43,040,079 | 33,872,302 |
| Value | \$2,417,000 | \$4,300,000 |

The following figures relate to the cutting, staining, and ornamenting of glass: Number of establishments, 1914, 635; 1919, 607; value of products, 1914, \$16,446,000; 1919, \$48,583,000.

Imports of "unpolished, unsilvered cylinder, crown, and common window glass, bent, ground, etc.," were usually the largest of the group, amounting, in 1914, to 1,703,186 square feet, valued at \$149,203; while "polished unsilvered cylinder, etc." were 147,482 square feet, valued at \$36,116; "polished, silvered cylinder, etc.," 138,158 square feet, valued at \$33,034; "polished, unsilvered plate, etc.," 140,805 square feet, valued at \$62,228; and "polished, silvered plate, etc.," 19,659 square feet, valued at \$5,854. Later statistics follow:

Cylinder, crown, and common window glass, unpolished—Bent, ground, obscured, frosted, sanded, enameled, beveled, etched, embossed, engraved, flashed, stained, colored, painted, ornamented or decorated.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|----------------|---------|-------|------------------------|
| NOT EXCEEDING 150 SQUARE INCHES. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 5,159 | \$1,429 | \$102 | 7.16 |
| 1919..... | 13,807 | 4,005 | 309 | 6.57 |
| 1920..... | 122,781 | 19,445 | 1,862 | 9.52 |
| 1921 (9 months)..... | 472,906 | 51,469 | | |
| ABOVE 150 AND NOT EXCEEDING 384 SQUARE INCHES. | | | | |
| 1918..... | 62,454 | \$9,294 | \$996 | 10.72 |
| 1919..... | 80,728 | 14,576 | 1,390 | 9.54 |
| 1920..... | 79,069 | 11,969 | 1,269 | 10.61 |
| 1921 (9 months)..... | 345,817 | 34,616 | | |
| ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES. | | | | |
| 1918..... | 11,036 | \$1,333 | \$177 | 13.31 |
| 1919..... | 124,155 | 17,768 | 2,107 | 11.88 |
| 1920..... | 207,218 | 16,271 | 2,962 | 18.33 |
| 1921 (9 months)..... | 81,662 | 7,579 | | |
| ABOVE 720 AND NOT EXCEEDING 1,200 SQUARE INCHES. | | | | |
| 1918..... | 24,265 | \$2,493 | \$464 | 18.60 |
| 1919..... | 16,424 | 2,629 | 352 | 13.37 |
| 1920..... | 81,574 | 8,111 | 1,593 | 19.64 |
| 1921 (9 months)..... | 15,486 | 1,911 | | |
| ABOVE 1,200 AND NOT EXCEEDING 2,400 SQUARE INCHES. | | | | |
| 1918..... | 25,791 | \$6,530 | \$745 | 11.41 |
| 1919..... | 69,420 | 16,987 | 1,941 | 12.14 |
| 1920..... | 249,533 | 32,242 | 5,969 | 18.51 |
| 1921 (9 months)..... | 164,410 | 19,797 | | |
| ABOVE 2,400 SQUARE INCHES. | | | | |
| 1918..... | 372 | \$76 | \$10 | 13.79 |
| 1919..... | 28,278 | 5,278 | 777 | 14.72 |
| 1920..... | 4,771 | 685 | 123 | 17.93 |
| 1921 (9 months)..... | 4,983 | 457 | | |

The imports of the above type of glass, polished or silvered, are negligible.

Plate glass—Cast, polished—Unsilvered, finished, or unfinished, etc.—Bent, ground, obscured.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|----------------------------|--------|-------|------------------------|
| NOT EXCEEDING 384 SQUARE INCHES. | | | | |
| 1918..... | <i>Square feet.</i> 132 | 994 | \$12 | Per cent. 12.43 |
| 1919..... | 7,013 | 4,277 | 562 | 13.84 |
| 1920..... | 50,199 | 23,884 | | |
| 1921 (9 months)..... | | | | |

ABOVE 384 AND NOT EXCEEDING 720 SQUARE INCHES.

| | | | | |
|----------------------|-------|-------|-----|-------|
| 1918..... | 76 | 866 | 90 | 13.21 |
| 1919..... | 3,903 | 2,486 | 419 | 16.88 |
| 1920..... | 2,325 | 2,006 | | |
| 1921 (9 months)..... | | | | |

ABOVE 720 SQUARE INCHES.

| | | | | |
|----------------------|--------|--------|-------|-------|
| 1918..... | 65 | \$50 | \$10 | 19.09 |
| 1919..... | 8,303 | 12,383 | 1,492 | 12.06 |
| 1920..... | 16,320 | 11,126 | | |
| 1921 (9 months)..... | | | | |

The imports of the silvered glass of the above type are negligible.

Exports.—Statistics not available.

Important changes in classification.—"Sheet glass" has been substituted for "common window glass."

PARAGRAPH 225.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 225. Spectacles, eyeglasses, and goggles, and frames for the same, or parts thereof, finished or unfinished, valued at not over 65 cents per dozen, 20 cents per dozen and 15 per centum ad valorem; valued at over 65 cents per dozen and not over \$2.50 per dozen, 60 cents per dozen and 20 per centum ad valorem; valued at over \$2.50 per dozen, 40 per centum ad valorem.

ACT OF 1909.

PAR. 105. Spectacles, eyeglasses, and goggles, and frames for the same, or parts thereof, finished or unfinished, valued at not over forty cents per dozen, twenty cents per dozen and fifteen per centum ad valorem; valued at over forty cents per dozen and not over one dollar and fifty cents per dozen, forty-five cents per dozen and twenty per centum ad valorem; valued at over one dollar and fifty cents per dozen, fifty per centum ad valorem.

ACT OF 1913.

PAR. 91. Spectacles, eyeglasses, and goggles, and frames for the same, or parts thereof, finished or unfinished, 35 per centum ad valorem.

SPECTACLES, EYEGLASSES, GOGGLES, ETC.

(See Survey B-10.)

Description and uses.—Spectacles are flat or toric glasses, prisms, and spherical or cylindrical lenses, mechanically adjusted to the eye to correct defects of vision. They are usually made of crown glass or rock crystal, the latter being somewhat lighter and cooler to wear. Spectacles and eyeglasses are usually mounted in rigid steel wire, shell or horn (real or imitation), or metal frames. Goggles have projecting eye tubes with plain glass to protect against dust, etc., or colored ones to soften the light.

Production.—Exact figures are not available. The estimated output for 1912 was valued at about \$8,500,000, produced by between 25 and 30 manufacturers, capitalized at \$7,500,000, and located mainly in Massachusetts, New Hampshire, Rhode Island, Connecticut, New York, Pennsylvania, and Michigan.

Imports in 1914 amounted to \$68,370, mostly from France, Germany, and England. They decreased to \$10,916 in 1916. Later statistics follow:

Spectacles, eyeglasses and goggles, and frames therefor, or parts thereof, finished or unfinished.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------------|----------|---------|------------------|
| | <i>Dozen.</i> | | | <i>Per cent.</i> |
| 1918..... | 5,517 | \$29,294 | \$7,103 | 35 |
| 1919..... | 2,414 | 11,480 | 4,018 | 35 |
| 1920..... | 8,625 | 20,508 | 7,178 | 35 |
| 1921 (9 months)..... | 2,445 | 7,590 | | |

Imports are chiefly from France, Germany, and England.

Exports before the war consisted of styles and qualities superior to foreign goods, comprising less than 10 per cent of the production. The export figures are consolidated with those for optical instruments.

PARAGRAPH 226.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 226. Lenses of glass or pebble, molded or pressed, or ground and polished to a spherical, cylindrical, or prismatic form, and ground and polished plano or coquill glasses, wholly or partly manufactured, with the edges unground, 40 per centum ad valorem; with the edges ground or beveled, 10 cents per dozen pairs and 85 per centum ad valorem; strips of glass not more than three inches wide, ground or polished on one or both sides to a cylindrical or prismatic form, including those used in the construction of gauges, and glass slides for magic lanterns, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 106. Lenses of glass or pebble, molded or pressed, or ground and polished to a spherical, cylindrical, or prismatic form, and ground and polished plano or coquill glasses, wholly or partly manufactured, with the edges unground, forty-five per centum ad valorem; if with their edges ground or beveled, ten cents per dozen pairs and forty-five per centum ad valorem.

PAR. 107. Strips of glass, not more than three inches wide, ground or polished on one or both sides to a cylindrical or prismatic form, including those used in the construction of gauges, and glass slides for magic lanterns, forty-five per centum ad valorem.

PAR. 92. Lenses of glass or pebble, molded or pressed, or ground and polished to a spherical, cylindrical, or prismatic form, and ground and polished plano or coquill glasses, wholly or partly manufactured, strips of glass, not more than three inches wide, ground or polished on one or both sides to a cylindrical or prismatic form, including those used in the construction of gauges, and glass slides for magic lanterns, 25 per centum ad valorem.

LENSES.

(See Survey B-10.)

Description and uses.—Lenses of glass are fashioned from rough optical glass and used chiefly in the manufacture of scientific, professional, and optical instruments and goods.

A pebble lens is a spectacle lens made of rock crystal, which is harder than glass. A plano lens is a flat plane of glass, while a coquill lens is a piece of glass of uniform thickness with concentric spherical surfaces.

Production figures for the particular items of paragraph 226 are not available, because part or parts of each are reported under "Instruments, professional and scientific," and "Optical goods." Statistics for these industries are as follows:

| | Instruments, professional and scientific. | Optical goods. |
|---------------------------|---|----------------|
| Number of establishments: | | |
| 1914..... | 307 | 314 |
| 1919..... | 380 | 509 |
| Value of products: | | |
| 1914..... | \$17,405,000 | \$18,188,000 |
| 1919..... | 58,135,000 | 53,718,000 |

Imports totaled \$169,951 in 1914, \$120,297 in 1915, \$54,483 in 1916, and \$40,971 in 1917. The decrease followed the war, with a consequent stimulation of domestic production. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|----------|---------|------------------|
| LENSES OF GLASS OR PEBBLE AND GROUND AND POLISHED PLANO OR COQUILL GLASSES, WHOLLY OR PARTLY MANUFACTURED. | | | | |
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$28,280 | \$7,070 | 25 |
| 1919..... | 481,503 | 69,019 | 17,255 | 25 |
| 1920..... | | 71,425 | 17,856 | 25 |
| 1921 (9 months)..... | | 105,718 | | |

STRIPS OF GLASS, NOT MORE THAN 3 INCHES WIDE, GROUND OR POLISHED TO A CYLINDRICAL OR PRISMATIC FORM, ETC.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|---------|------------------|
| 1918..... | | \$34,362 | \$8,540 | Per cent. 25 |
| 1919..... | | 28,051 | 7,013 | 25 |
| 1920..... | | 91,798 | 22,948 | 25 |
| 1921 (6 months)..... | | 18,925 | | |

Exports not recorded.

PARAGRAPH 227.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 227. Optical glass, or glass used in the manufacture of lenses or prisms for spectacles, or for optical instruments or equipment or optical parts, scientific or commercial, in any and all forms, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 577. Glass plates or disks, rough-cut or unwrought, for use in the manufacture of optical instruments, spectacles, and eyeglasses, and suitable only for such use: [Free] *Provided, however,* That such disks exceeding eight inches in diameter may be polished sufficiently to enable the character of the glass to be determined.

PAR. 494. Glass plates or disks, rough-cut or unwrought, for use in the manufacture of optical instruments, spectacles, and eyeglasses, and suitable only for such use: [Free] *Provided, however,* That such disks exceeding eight inches in diameter may be polished sufficiently to enable the character of the glass to be determined.

OPTICAL GLASS, ETC.

(See Survey B-10.)

Description and uses.—Optical glass is the essential element in the making of microscopes, field glasses, range finders, gun sights, periscopes, aiming circles, photographic lenses, etc. It is indispensable in directing and controlling the firing of modern artillery in general, but the quantities needed for range finders, gun sights, trench periscopes, etc., are not great in any country, even in time of war. However, its commercial uses will cause a steady and increasing, though limited, demand.

Production prior to 1918 was negligible. The failure of German imports and the necessities of the allied Governments practically exhausted our supply. In 1917 four manufacturers, assisted by Government and other scientists, succeeded in making certain varieties of optical glass for the Army and Navy, and factories were built and equipped to produce in sufficient quantities to supply domestic requirements. The principal materials used are silica sand, soda, potash, lime, lead oxides, baryta, zinc oxide, and borax. In seven months (April to October, 1918) the production of eight classes of optical glass was 475,924 pounds.

Statistics of foreign production are not available, but the potential power of foreign competitors is indicated in their export trade and in the great advantages they have had in the earlier scientific development of this product. The statistics of exports of this particular kind of glass are meager and not reported at all for some countries.

In 1913 Germany exported optical glass of various kinds, valued at \$7,900,172, classified as follows: Rough optical glass, \$271,320; lenses, \$2,528,274; and other optical glass, \$5,100,578. In the same year France exported lenses valued at \$493,887, and other optical glass, \$18,760.

The manufacture of optical glass requires scientific knowledge of a high order as well as exceptional skill. It is one of peculiar technical difficulties, both chemical and mechanical.

English, French, and German producers are offering optical glass of all grades and in any quantity for export to the United States.

Imports of optical glass plates and disks, rough cut and unwrought, were valued at \$499,364 in 1913 and \$612,830 in 1914, falling in 1916, 1917, and 1918 to less than one-half, partly the result of the new domestic industry. In 1913 and 1914 imports from Germany were 50 per cent and from England 27 per cent of the total. In 1918 the imports from England were 73 per cent, 40 per cent more than in 1913. Imports from France in 1913 were 18 per cent of the total; in 1918, 26 per cent. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------|-----------|-----------|-----------|--------------------|
| Quantity, (pounds)..... | | 562,983 | 941,960 | 572,667 |
| Value..... | \$341,734 | \$410,775 | \$960,299 | \$528,940 |

The above imports are chiefly from the United Kingdom and France.

Exports not reported.

Important changes in classification.—Transferred from free list (par. 494), act of 1913, and rewritten.

Suggested changes.—Page 36, lines 14-16: Provision is here made for glass for optical parts but none in paragraph 228 for parts of optical instruments, etc., n. s. p. f.

PARAGRAPH 228.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 228. Photographic and projection lenses, opera and field glasses, surveying instruments, telescopes, microscopes, and other optical instruments, and frames and mountings for the same; all the foregoing not specially provided for, 35 per centum ad valorem.

ACT OF 1909.

PAB. 108. Opera and field glasses, telescopes, microscopes, photographic and projection lenses and optical instruments, and frames or mountings for the same; all the foregoing not specially provided for in this section, forty-five per centum ad valorem.

ACT OF 1913.

PAB. 93. Opera and field glasses, optical instruments and frames and mountings for the same; all the foregoing not specially provided for in this section, 35 per centum ad valorem.

PAB. 94. Surveying instruments, telescopes, microscopes, photographic and projection lenses, and frames and mountings for the same, 25 per centum ad valorem.

PHOTOGRAPHIC AND PROJECTION LENSES.

(See Survey B-10.)

Description and uses.—Optical instruments are primarily used to aid or supplement human vision; they also include apparatus which depend for their operation on the passage of light through prismatic or lenticular glass.

Lenses and prisms are the primary constituents of optical instruments. Lenses are used for three purposes: (1) To concentrate and direct a ray of light (searchlight and automobile lenses); (2) to project a perfectly clear image on a sensitized plate (photography) or screen (motion pictures); (3) to magnify an image so that greater detail may be observed by the eye. The instrument which enlarges small objects at short range is known as the microscope, while those used for examining larger fields of vision located at a distance are known as telescopes or field or opera glasses. Eyeglasses are simple magnifying or field glasses composed of a single lens for each eye instead of the combination of lenses found in the adjustable instrument.

Production.—Prior to the war domestic manufacturers confined their operations to the production of those instruments which could be marketed in considerable quantities, and manufactured the special apparatus used by research organizations on special order only, if at all. They depended upon foreign producers for practically the entire supply of optical glass and in a great majority of cases imported finished lenses which could be inserted in domestic mounting without further manufacture.

Available production statistics are as follows:

| Industry. | Number of establishments. | | Value of products. | |
|---|---------------------------|------|--------------------|--------------|
| | 1914 | 1919 | 1914 | 1919 |
| Optical goods..... | 314 | 506 | \$18,188,000 | \$53,718,000 |
| Instruments, professional and scientific..... | 307 | 350 | 17,495,000 | 58,135,000 |
| Cameras..... | | | 1,254,331 | |

The optical goods listed above consist of spectacle, eyeglass, and goggle lenses and mountings. The bulk of the scientific and professional instruments produced fall outside the scope of this paragraph. The total includes, besides surveying instruments, tele-

scopes, microscopes, and like articles, a large variety of electrical, thermal, and various measuring instruments, some of which were sold in large numbers. The value of cameras produced included the value of the mounting as well as the lens, but in the better grades of cameras the lens is an important part of the total value, and large quantities of auxiliary lenses were produced, the value of which is included in that of other photographic materials.

Many optical instruments required in war time have little or no market during peace times. Manufacturers of miscellaneous apparatus are admirably situated to manufacture this material because the work is largely hand labor, and their plants can change from one class of work to another without loss of time. Some of the machinery used in the manufacture of bulk lines can be utilized to advantage, but the operatives do not usually possess the broad experience necessary for such a radical change in product. The free entrance of instruments for educational purposes deprives the hand manufacturer of a large part of his market and must eventually force him to restrict production to the lines which can be produced by machine.

Imports are shown in the following tables :

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|-----------|--------|-------|------------------|
| SURVEYING INSTRUMENTS, TELESCOPES, MICROSCOPES, PHOTOGRAPHIC AND PROJECTING LENSES, AND FRAMES AND MOUNTINGS FOR THE SAME. | | | | |

| | Number. | | | Per cent. |
|-------------------------|---------|-----------|----------|-----------|
| 1915 ¹ | | \$160,193 | \$40,048 | 25 |
| 1914 ² | | 117,183 | 29,285 | 25 |
| 1918..... | | 29,460 | 7,365 | 25 |
| 1919..... | 209,273 | 74,727 | 18,682 | 25 |
| 1920..... | | 284,495 | 71,105 | 25 |
| 1921 (9 months)..... | | 273,921 | | |

OPERA AND FIELD GLASSES, OPTICAL INSTRUMENTS, AND FRAMES AND MOUNTINGS FOR THE SAME.

| | | | | |
|-------------------------|--------|-----------|-----------|----|
| 1915 ¹ | | \$333,387 | \$116,685 | 35 |
| 1914 ² | | 186,602 | 63,307 | 35 |
| 1918..... | | 79,144 | 27,700 | 35 |
| 1919..... | 52,663 | 183,569 | 65,857 | 35 |
| 1920..... | | 523,141 | 183,090 | 35 |
| 1921 (9 months)..... | | 415,314 | | |

¹ Oct. 4, 1913, to June 30, 1914.

² Fiscal years.

Exports of optical instruments in 1914 were valued at \$865,074, of which England took 54 per cent, Canada 13 per cent, and South America 10 per cent. The 1915 figures show a value of \$1,018,016; 1916, \$2,593,500; and 1917, \$2,945,920. Of the 1918 total, \$1,073,339, 28 per cent went to England, 14 per cent to Canada, 17 per cent to South America, and 15 per cent to Russia. Export figures for the greater part of the articles covered by paragraphs 225 and 228 are included above, no separate figures being available.

Exports of optical instruments for scientific purposes were valued in 1919 (calendar years) at \$1,540,979, in 1920 at \$1,355,002, and for 9 months in 1921 at \$698,799. The United Kingdom, Argentina, and Canada were the principal countries of destination.

Important changes in classification.—Two paragraphs (93 and 94) of the act of 1913 have been combined in H. R. 7456.

Suggested changes.—Page 36, line 19: Paragraph 228 provides for surveying instruments not specially provided for at 35 per cent ad valorem. Paragraph 360, page 64, line 20, provides for surveying instruments wholly or of chief value of metal at 40 per cent ad valorem. Paragraph 360, furthermore, requires marking, while paragraph 228 does not. It might be better to have one provision for surveying instruments, irrespective of the component material of chief value and to treat all alike with respect to marking. If paragraph 360 should be left as it is, there will probably be controversies respecting the value of the chief component, and, furthermore, a question will arise whether any of the instruments provided for in paragraph 228 must be marked, although all of them are susceptible of being marked and are usually marked.

Azimuth mirrors, octants, and sextants are not within this paragraph. (*United States v. Bliss*, 6 Ct. Cust. Appls. 438, of 1915.)

PARAGRAPH 229.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 229. Incandescent electric-light bulbs and lamps, with or without filaments, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 109. * * * manufactures of glass * * * or of which glass * * * is the component material of chief value not specially provided for in this section, forty-five per centum ad valorem.

PAR. 95. * * * incandescent electric-light bulbs and lamps, with or without filaments, * * * 30 per centum ad valorem.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of * * * metal, and whether partly or wholly manufactured, forty-five per centum ad valorem.

INCANDESCENT ELECTRIC LAMPS.

(See Surveys B-9 and C-31.)

Description and uses.—An incandescent electric lamp is a vacuum (or gas filled) glass bulb containing filaments of some material with high melting point which an electric current will heat to incandescence. According to the nature of the filaments, the lamps are called carbon, metallized carbon, tantalum, and tungsten. The tungsten filament can be operated at a temperature which gives the maximum amount of light in proportion to the electrical energy used, and has practically superseded all the other forms.

Production.—Manufacturers of incandescent lamps do not always make the glass bulbs. In 1916 the bulbs were made by five plants, with an estimated production of 20,000,000 per month. The bulbs

are blown into iron molds coated with carbonaceous paste. A high polish is effected by rotating the blank in the mold during the blowing. Mechanical processes simulating the hand method of blowing have been devised. Many operations are required to complete the lamp, which, besides the bulb, consists of the base, the filament, the inside stem upon which the filament is mounted, and the leading-in wires. A number of companies make the finished lamps. In 1914, 74,484,059 tungsten lamps, valued at \$11,886,354, and 14,092,055 carbon lamps, valued at \$1,397,572, were produced. The production of "Gem, vacuum, and vapor, nitrogen, glower, and tantalum lamps" was valued at \$2,363,730 in 1914, decreasing about 12 per cent from 1909. In 1919 the production of all types amounted to \$59,372,000, of which by far the greater part was of the tungsten filament type.

Imports in 1914 were 1,374,697 carbon lamps, valued at \$78,409, and 6,809,585 metal filament lamps, valued at \$552,663, about 10 per cent of the number of carbon lamps and 9 per cent of the tungsten lamps produced in the United States. Imports of metal filament lamps were fairly constant during the war, amounting to 5,154,579 in 1917, though the valuation, \$198,025, was small. "All other," which includes bulbs, amounted to \$88,686 in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

INCANDESCENT LAMPS, INCLUDING BULBS—CARBON FILAMENT.

| | Number. | | | Per cent. |
|----------------------|-----------|----------|---------|-----------|
| 1918..... | 797,130 | \$16,131 | \$4,830 | 30 |
| 1919..... | 2,985,005 | 81,454 | 24,436 | 30 |
| 1920..... | 7,229,784 | 224,690 | 73,407 | 30 |
| 1921 (9 months)..... | 3,782,802 | 97,238 | | |

INCANDESCENT LAMPS, INCLUDING BULBS—METAL FILAMENT.

| | | | | |
|----------------------|-----------|----------|---------|----|
| 1918..... | 1,163,295 | \$32,140 | \$9,642 | 30 |
| 1919..... | 5,133,638 | 116,570 | 34,971 | 30 |
| 1920..... | 5,735,737 | 177,743 | 53,323 | 30 |
| 1921 (9 months)..... | 2,541,168 | 96,083 | | |

ALL OTHER, INCLUDING BULBS.

| | | | | |
|----------------------|--|---------|---------|----|
| 1918..... | | \$7,034 | \$2,110 | 30 |
| 1919..... | | 17,147 | 5,144 | 30 |
| 1920..... | | 41,934 | 12,580 | 30 |
| 1921 (9 months)..... | | 66,306 | | |

Imports consist principally of miniature lamps and, since the war, have been derived chiefly from Japan, the Netherlands, Canada, and the United Kingdom. More recently both Austria and Germany have resumed exports to this country. Much dissatisfaction has been expressed with the Japanese product.

Exports of carbon lamps amounted to 1,285,858, valued at \$172,064 in 1914, about 25 per cent of the production; those of all metal fila-

ments numbered 849,261, and were valued at \$219,439. Later statistics, for the calendar years 1918-1921, follow:

| | 1918 | 1919 | 1920 | 1921. (9 months) |
|-------------------------|-------------|-------------|-------------|---------------------|
| Carbon filament: | | | | |
| Number..... | 627,867 | 1,067,665 | 469,428 | 455,851 |
| Value..... | \$102,872 | \$202,590 | \$114,542 | \$115,396 |
| Metal filament: | | | | |
| Number..... | 14,585,166 | 17,071,960 | 16,142,663 | 9,513,695 |
| Value..... | \$3,369,192 | \$4,674,317 | \$4,051,835 | \$2,615,163 |

The principal countries of destination were Canada, Cuba, Brazil, Mexico, Argentina, and Australia.

Important changes in classification.—Electric bulbs and lamps have been removed from paragraph 95, act of 1913, including other manufactures of glass, and are provided for in a separate paragraph.

Conflicting provisions.—Incandescent electric-light bulbs and lamps having tungsten filaments might take the cumulative rate imposed in paragraph 305 on articles containing tungsten. There are administrative difficulties in the enforcement of such a provision.

PARAGRAPH 230.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 230. Stained or painted glass windows, or parts thereof, and all mirrors, not exceeding in size one hundred and forty-four square inches, with or without frames or cases; and all glass or manufactures of glass or paste, or of which glass or paste is the component material of chief value, not specially provided for, 30 per centum ad valorem.

ACT OF 1909.

PAR. 109. Stained or painted glass windows, or parts thereof, and all mirrors, not exceeding in size one hundred and forty-four square inches, with or without frames or cases, and all glass or manufactures of glass or paste or of which glass or paste is the component material of chief value, not specially provided for in this section, forty-five per centum ad valorem.

ACT OF 1913.

PAR. 95. Stained or painted glass windows, or parts thereof, and all mirrors, not exceeding in size one hundred and forty-four square inches, with or without frames or cases; * * * and all glass or manufactures of glass or paste or of which glass or paste is the component material of chief value, not specially provided for in this section, 30 per centum ad valorem.

STAINED OR PAINTED GLASS WINDOWS AND SMALL MIRRORS.

(See Survey B-9.)

Description and uses.—The color may be produced (1) by metal oxides in the melting, (2) by flashing (par. 224), (3) by applying under fire, a solution of silver, and (4) by painting the surface with

enamels afterwards fused. Stained-glass windows are usually made of small pieces of glass colored in any of the ways mentioned and held together by strips of lead. Sometimes pictorial effects are obtained by painting on single pieces of glass. (See par. 1447, p. 1195.)

Production.—Gross production in 1912 is estimated at about \$7,000,000, which would include articles other than stained-glass windows. Competition is principally from Germany and Austria. (For mirrors, see par. 223, p. 323.)

Imports of stained glass, or parts, and small mirrors amounted to \$418,425, the maximum, in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$24,173 | \$7,252 | 30 |
| 1919..... | 26,999 | 8,100 | 30 |
| 1920..... | 94,861 | 28,458 | 30 |
| 1921 (9 months)..... | 92,640 | | |

Exports.—Not recorded.

MANUFACTURES OF GLASS OR PASTE N. S. P. F.

Description and uses.—Paste is specially prepared glass, known also as "strass," from which imitation gems are manufactured. The requisite qualities of purity, transparency, and high refractivity are comprised in the highest degree in lead-flint glass of unusual density because of the large percentage of lead it contains.

Imports represent the combined figures for manufactures of glass and of paste n. s. p. f., amounting to \$427,391 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$117,794 | \$35,329 | 30 |
| 1919..... | 121,834 | 36,550 | 30 |
| 1920..... | 273,295 | 81,988 | 30 |
| 1921 (9 months)..... | 260,863 | | |

Exports of glass and glassware n. s. p. f. have been as follows (calendar years): 1918, \$5,401,395; 1919, \$8,328,944; 1920, \$12,874,614; and the first 9 months of 1921, \$6,295,511.

Exports have been principally to Canada, the United Kingdom, Cuba and Mexico.

PARAGRAPH 231.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 231. Smalts, frostings, and all ceramic and glass colors, fluxes, glazes, and enamels, all the foregoing, ground or pulverized, 23 per centum ad valorem; in any other form, 35 per centum ad valorem; opal enamel or cylinder glass tiles, tiling, and rods, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 50. * * * smalts and frostings, whether crude or dry or mixed, or ground with water or oil or with solutions other than oil, not otherwise specially provided for in this section, thirty per centum ad valorem; all glazes, fluxes, enamels, and colors used only in the manufacture of ceramic, enameled, and glass articles, thirty per centum ad valorem; * * *

PAR. 110. Fusible enamel, twenty-five per centum ad valorem; opal or cylinder glass tiles or tiling, sixty per centum ad valorem.

PAR. 576. Glass enamel, white, for watch and clock dials [Free].

PAR. 63. * * * smalts, and frostings, and all ceramic and glass fluxes, glazes, enamels, and colors, whether crude, dry, mixed, or ground with water or oil or with solutions other than oil, not specially provided for in this section, 15 per centum ad valorem; * * *

PAR. 96. Fusible and glass enamel, not specially provided for in this section, 20 per centum ad valorem; opal or cylinder glass tiles or tiling, 30 per centum ad valorem.

PAR. 493. Glass enamel, white, for watch and clock dials [Free].

SMALTS AND FROSTINGS.

(See Survey A-15.)

Description and uses.—Smalt is a deep-blue pigment made by fusing the oxide of cobalt with silica and potash to form a glass. This product is reduced to a powder and used in the arts, although at present it is largely replaced by cobalt blue and artificial ultramarine. Frostings are made from coarsely powdered, thin flakes of glass and are used for decorative work, signs, and the like.

Imports and exports.—Separate statistics not given.

CERAMIC AND GLASS COLORS, GLAZES, AND FLUXES.

(See Survey A-15.)

Description and uses.—The ceramic colors, a distinct article of commerce and essentially different from the paint pigments, are used in the manufacture of glass, for the coloring of glaze on pottery and other earthenware, and for coloring enamels. They are all of inorganic nature and must be able to withstand the temperature in firing the ware. They are chiefly metallic oxides, in general the same as for coloring enamels. Pottery or earthen-ware is colored by one of three methods: (1) By applying the coloring materials to the body of the ware, which is afterwards glazed, a process known as "underglaze"; (2) by placing the coloring materials on an already glazed article and refiring the ware, a process known as "overglaze"; and (3) by mixing the color with the glaze and applying the two simultaneously, known as the "colored glaze" method. The glazes

used in ceramic manufacture are either silicates of the alkali or alkaline earths, with or without lead. In other words, they are simply a glass. The proportion of lead affects chiefly the melting point of the glaze. The materials used chiefly for glazing are certain natural silicates, such as feldspar, china clay or kaolin mixed with flint or sand, chalk, borax, soda, and lead.

Production.—Data as to domestic production have not been obtained, but it is not large. This is due partly to the comparatively small output of hand-decorated china and to the use of imported ceramic colors and decalcomanias (see par. 1306) for decorating domestic pottery. England, France, and Germany have developed the manufacture of these colors to a high degree.

Imports.—Reduction of duty (1913) from 30 per cent to 15 per cent was followed by an increase in imports of fluxes, glazes, enamels, and colors, ceramic and glass. The average import during the three years, 1911 to 1913, was \$13,589, and the average annual revenue for the same period under the 30 per cent rate was \$4,077. In 1915-16 the average was valued at \$67,460, and the revenue was \$10,119 per year. In 1917-18, owing to war conditions, the imports and consequently the revenue were considerably lower. Later statistics follow.

Glazes, fluxes, enamels, and colors, ceramic and glass.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$21,864 | \$3,280 | 15 |
| 1919..... | 25,841 | 30,137 | 4,521 | 15 |
| 1920..... | 63,202 | 63,588 | 9,538 | 15 |
| 1921 (9 months)..... | 25,791 | 31,510 | | |

Exports.—None recorded.

ENAMEL.

(See Survey A-15.)

Description and uses.—Enamel is glass applied by fusion as a coating to any substance which will bear the necessary heat, especially to metals and to pottery. Commercial fusible enamel comes in the form of cakes, plates, lumps, or powder, and is of various colors according to the amounts of various metallic oxides used in its composition. Its use may be decorative or to reduce porosity or to protect the surface from oxidation or other chemical action. The art of enameling pottery, glass, gold, silver, and copper is very old, but industrial applications to iron and steel are comparatively recent. The process, however, has rapidly developed, especially in making kitchen and hospital utensils, bathtubs, and stationary washstands. Although enamels may be used with pottery, the term is usually understood to mean an application to metallic bodies, usually steel or cast iron. The fact that enamel must adhere to steel and resist the abuse common to cooking utensils, makes necessary other qualities besides those of ordinary glass. For example, the requirement that it should adhere firmly to a metal body necessitates as nearly

as possible a similar coefficient of expansion. Enamels are used chiefly as a protective coating, which will resist the action of alkalis, acids, or other chemicals, and withstand the strain of impact and rapid changes of temperature. They are also used for decorative purposes. Enamels are complex silicates or boro-silicates of sodium, potassium, calcium, and aluminum. In addition they contain various metallic oxides to produce opacity or color. The principal materials are quartz and flint, which supply the silica; fluorspar, which supplies calcium or lime; feldspar, which is a complex double silicate of aluminum with sodium, potassium, or calcium; borax or boric acid. The ingredients of the enamel vary with the result desired, and materials other than those enumerated are used in special cases. Tin oxide is one of the most important and expensive materials and usually constitutes from 5 to 10 per cent of white enamels. Cobalt is used for blue; manganese for violet and brown; nickel for gray; copper or chromium for green; uranium or titanium for yellow; and iron, selenium, or gold for red enamels.

Production.—In 1914 there were 77 establishments engaged in enameling with a production valued at \$2,166,000; in 1919 the corresponding figures were 74 and \$2,645,000.

Imports amounted to \$18,028 in 1914 and to \$8,052 in 1918. The largest amount in the period 1908–1918 was \$21,481 in 1909. Later statistics follow. (See also ceramic and glass colors, glazes and fluxes, p. 338, and white glass enamel, *infra*.)

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|-------|------------------|
| 1918..... | \$4,108 | \$321 | Per cent. 20 |
| 1919..... | 17,727 | 3,545 | 20 |
| 1920..... | 31,331 | 6,266 | 20 |
| 1921 (9 months)..... | 9,478 | | |

Exports.—None recorded.

WHITE GLASS ENAMEL.

(See Survey A-15.)

Description and uses.—White glass enamel, a fusible enamel, is suitable for watch and clock dials, and is often used for scale dials, thermometers, faces of steam gauges and speedometers, novelties, and for lettering signs on glass.

Production.—Before the war enamel for watch and clock dials was obtained chiefly from Switzerland and France; other white enamel has been made here for some years. Some dial enamel was produced during the war. Figures, however, are not available.

Imports of white enamel for watch and clock dials in 1914 were valued at \$18,284. In 1918 the value was \$10,465; in 1919 (calendar year), \$16,778; in 1920, \$5,849; and in nine months of 1921, \$2,006.

Exports.—None recorded.

GLASS TILES.

Description and uses.—Glass tiles are used for walls and for floors, especially where the transmission of light is desired. Opal tiles have a white opacity, imparted usually by cryolite, feldspar, or aluminium compounds.

Production.—There are several domestic manufacturers of glass tiles and opal glass, but no statistics are available.

Imports have not exceeded \$500 in any one year.

Exports.—None recorded.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Glass enamel, white, for watch and clock dials is exempt from duty under the act of 1918 (par. 493). That paragraph and the provision for fusible and glass enamel (par. 96) are combined in this paragraph with paragraph 68 of the act of 1913.

Suggested changes.—Page 37, line 10: Insert comma after "opal."

PARAGRAPH 232.

H. R. 7456.

SENATE AMENDMENTS

PAR. 232. Marble, breccia, and onyx, in block, rough or squared only, 65 cents per cubic foot; marble, breccia, and onyx, sawed or dressed, over two inches in thickness, \$1 per cubic foot; slabs and paving tiles of marble, breccia, or onyx, containing not less than four superficial inches, if not more than one inch in thickness, 8 cents per superficial foot; if more than one inch and not more than one and one-half inches in thickness, 10 cents per superficial foot; if more than one and one-half inches and not more than two inches in thickness, 13 cents per superficial foot; if rubbed in whole or in part, 8 cents per superficial foot in addition; mosaic cubes of marble, breccia, or onyx, not exceeding two cubic inches in size, if loose, one-fourth of 1 cent per pound and 17 per centum ad valorem; if attached to paper or other material, 5 cents per superficial foot and 26 per centum ad valorem.

ACT OF 1909.

PAR. 111. Marble and onyx, in block, rough or squared only, sixty-five cents per cubic foot; marble and onyx, sawed or dressed, over two inches in thickness, one dollar per cubic foot; slabs or paving tiles of marble or onyx,

ACT OF 1913.

PAR. 97. Marble, breccia, and onyx, in block, rough or squared only, 50 cents per cubic foot; marble, breccia, and onyx, sawed or dressed, over two inches in thickness, 75 cents per cubic foot; slabs or paving tiles of marble

containing not less than four superficial inches, if not more than one inch in thickness, eight cents per superficial foot; if more than one inch and not more than one and one-half inches in thickness, ten cents per superficial foot; if more than one and one-half inches and not more than two inches in thickness, twelve and one-half cents per superficial foot; if rubbed in whole or in part, two cents per superficial foot in addition; mosaic cubes of marble or onyx, not exceeding two cubic inches in size, if loose, one-fourth of one cent per pound and twenty per centum ad valorem; if attached to paper or other material, five cents per superficial foot and thirty-five per centum ad valorem.

or onyx, containing not less than four superficial inches, if not more than one inch in thickness, 6 cents per superficial foot; if more than one inch and not more than one and one-half inches in thickness, 8 cents per superficial foot; if more than one and one-half inches and not more than two inches in thickness, 10 cents per superficial foot; if rubbed in whole or in part, 2 cents per superficial foot in addition; mosaic cubes of marble or onyx, not exceeding two cubic inches in size, if loose, 20 per centum ad valorem; if attached to paper or other material, 35 per centum ad valorem.

MARBLE, BRECCIA, ONYX.

(See Survey B-11.)

Description and uses.—This paragraph covers marble, breccia, and onyx used for monumental and structural work. Marble is a crystalline limestone; onyx, used in building, is a marble having the appearance of real onyx. Breccia consists of fragments cemented together by natural processes. It usually is (but may not be) marble in chemical composition, but it is included in the group because of similarity of use. Marble slabs of superior quality are used for ornamental purposes, but inferior grades are also largely used for interior finishing, as sanitary or fireproof material. Breccia and onyx are used almost entirely for decorative purposes. Mosaics and paving tiles are flooring materials competitive with ceramic mosaics and other flooring tiles (par. 202).

Production of building and monumental marble in 1914 was valued at \$7,871,978 and in 1917 at \$6,100,280. Competition is chiefly on the stones used for interior work. Separate statistics are not given for mosaic marble, which is included in "all other." Breccia is not reported separately in domestic production; onyx marble in 1915 amounted to 4,574 cubic feet, valued at \$19,270, and came from Utah, Kentucky, and New Mexico.

Detailed statistics for 1918 and 1920 are given in the following table:

Marble sold in the United States in 1918 and 1920.

| Use. | 1918 | | | 1920 | | |
|--------------------------------------|----------------|------------------|----------------|------------------|------------------|----------------|
| | Quantity. | Value. | Average value. | Quantity. | Value. | Average value. |
| Building stone: | | | | | | |
| Rough— | | | | | | |
| Exterior.....cubic feet.. | 178,000 | \$274,704 | \$1.54 | 147,090 | \$205,162 | \$2.01 |
| Interior.....do..... | 875,651 | 679,975 | 1.81 | 694,990 | 1,851,480 | 2.66 |
| Dressed— | | | | | | |
| Exterior.....do..... | 151,490 | 394,349 | 2.60 | 101,420 | 569,395 | 5.61 |
| Interior.....do..... | 174,895 | 903,234 | 5.16 | 221,400 | 1,854,054 | 8.37 |
| Total exterior.....do..... | 329,580 | 689,053 | 2.03 | 248,510 | 864,557 | 3.48 |
| Total interior.....do..... | 560,517 | 1,583,209 | 2.83 | 916,390 | 3,705,534 | 4.04 |
| Total building stone..do..... | 890,097 | 2,272,262 | 2.56 | 1,164,900 | 4,570,091 | 3.92 |

¹ Building stone figures may be somewhat less than given and monumental stone somewhat more, as some of the Tennessee producers were unable to divide their product according to use.

Marble sold in the United States in 1918 and 1920—Continued.

| Use. | 1918 | | | 1920 | | |
|--|-----------|-------------|----------------|-----------|-------------|----------------|
| | Quantity. | Value. | Average value. | Quantity. | Value. | Average value. |
| Monumental stone: | | | | | | |
| Rough.....cubic feet.. | 340,823 | \$1,126,259 | \$3.22 | 640,660 | \$2,187,469 | \$3.41 |
| Dressed.....do..... | 364,069 | 1,821,029 | 5.00 | 529,440 | 3,758,041 | 7.10 |
| Total monumental stone, cubic feet..... | 713,912 | 2,947,288 | 4.13 | 1,170,100 | 5,945,510 | 5.06 |
| Total building and monumental.....cubic feet.. | 1,594,009 | 5,199,550 | 3.26 | 2,235,000 | 19,515,601 | 8.59 |
| Marble for other uses..short tons.. | 169,432 | 290,839 | 1.75 | 231,500 | 553,984 | 2.39 |
| Total marble sold: | | | | | | |
| Cubic feet ¹ | 3,576,670 | 5,496,399 | 1.54 | 5,035,000 | 11,099,585 | 2.20 |
| Short tons ² | 305,720 | ..... | 17.98 | 431,500 | ..... | 25.65 |

¹ Building stone figures may be somewhat less than given and monumental stone somewhat more, as some of the Tennessee producers were unable to divide their product according to use.

² Approximately.

The marble industry is represented by quarrymen who sell their product in all stages from the rough block to the article ready for use, and by the manufacturers who buy either domestic or foreign raw material. It is between these two classes that competition is most severe, as very little manufactured marble is imported.

The domestic marble deposits of commercial value are confined to the northeastern and southeastern United States and to limited areas on the Pacific slope. Deposits of onyx exist in the Mississippi Valley, but high-grade material is rare. The quarrying process is simple and requires no permanent buildings, and only a small amount of equipment, unless the material is dressed by the producer. In this case rough sheds are erected and pneumatic machinery installed. The tendency is toward large production units with manufacturing facilities located at the quarry.

European deposits of marble are of high grade, and contain many fancy varieties not available in the United States. The quarries of Italy and Greece have been operated for centuries, but the product is still considered the best for certain ornamental and sculptural work. There are extensive deposits of onyx marble in Mexico, but development has been slow.

Imports of marble, breccia, and onyx, rough, dressed, and in slabs, were valued at \$1,068,132 in 1914. During the war shipping restrictions and export embargoes reduced foreign trade in these articles to a minimum.

Imports of rough blocks were valued at \$997,734 in 1914 and un-rubbed slabs at \$47,841. Dressed marble and rubbed slabs are imported in comparatively small amounts.

The imports in 1914 equaled 13 per cent of the domestic production of building and monumental marble and 32 per cent of that used for interior work. From 1910 to 1914 there was a slight annual decrease in imports. Italy furnishes fully 80 per cent of the marble imported, the remainder coming from France, Greece, Belgium, Spain, and other countries. Onyx is now imported mainly from

Mexico. Imports of loose mosaic cubes were valued at \$42,945 in 1914 and those attached to some material at \$976. Later statistics follow:

Marble and breccia.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|------------------------|-----------|----------|------------------------|
| IN BLOCK, ROUGH, OR SQUARED ONLY. | | | | |
| | <i>Cubic feet.</i> | | | <i>Per cent.</i> |
| 1918..... | 112,757 | \$222,839 | \$56,378 | 25.30 |
| 1919..... | 209,945 | 593,240 | 104,972 | 17.69 |
| 1920..... | 468,315 | 1,255,192 | 234,422 | 18.63 |
| 1921 (9 months)..... | 306,725 | 635,158 | | |
| SAWED OR DRESSED, OVER 2 INCHES THICK. | | | | |
| 1918..... | 9 | 390 | 87 | 7.50 |
| 1920..... | 102 | 922 | 76 | 8.30 |
| 1921 (9 months)..... | | 106 | | |
| SLABS OR PAVING TILES CONTAINING NOT LESS THAN 4 SUPERFICIAL INCHES, NOT MORE THAN 1 INCH THICK—UNRUBBED. | | | | |
| | <i>Superficial ft.</i> | | | |
| 1918..... | 24,617 | \$4,967 | \$1,477 | 29.74 |
| 1919..... | 74,690 | 17,966 | 4,481 | 25.04 |
| 1920..... | 40,356 | 22,193 | 2,421 | 10.91 |
| 1921 (9 months)..... | 55,310 | 19,982 | | |
| SLABS OR PAVING TILES CONTAINING NOT LESS THAN 4 SUPERFICIAL INCHES, NOT MORE THAN 1 INCH THICK—RUBBED. | | | | |
| 1918..... | 3,102 | 3967 | 3218 | 25.06 |
| 1919..... | 19,583 | 5,047 | 1,567 | 31.04 |
| 1920..... | 2,239 | 2,331 | 179 | 7.68 |
| 1921 (9 months)..... | 19,184 | 10,509 | | |
| LABS OR PAVING TILES, ETC, MORE THAN 1 AND NOT MORE THAN 1 1/4 INCHES THICK UNRUBBED. | | | | |
| 1918..... | 5,577 | \$1,322 | \$446 | 33.75 |
| 1919..... | 8,561 | 2,424 | 685 | 28.25 |
| 1920..... | 6,213 | 2,435 | 497 | 20.41 |
| 1921 (9 months)..... | 6,550 | 3,350 | | |
| SLABS OR PAVING TILES, ETC., MORE THAN 1 1/4 AND NOT MORE THAN 2 INCHES THICK—UNRUBBED. | | | | |
| 1919..... | 1,278 | \$474 | \$128 | 26.96 |
| 1920..... | 145 | 118 | 14 | 12.20 |
| 1921 (9 months)..... | 1,839 | 1,163 | | |
| MOSAIC CUBES OF MARBLE OR ONYX, NOT EXCEEDING 2 CUBIC INCHES IN SIZE—LOOSE. | | | | |
| 1918..... | | \$6,454 | \$1,291 | 20.00 |
| 1919..... | | 3,858 | 778 | 20.00 |
| 1920..... | | 18,221 | 3,644 | 20.00 |
| 1921 (9 months)..... | | 22,939 | | |

Onyx.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

IN BLOCK, ROUGH, OR SQUARED ONLY.

| | <i>Cubic feet.</i> | | | <i>Per cent.</i> |
|----------------------|--------------------|---------|-------|------------------|
| 1918..... | 1,425 | \$3,181 | \$712 | 22.40 |
| 1919..... | 2,040 | 9,517 | 1,020 | 10.72 |
| 1920..... | 6,395 | 26,840 | 3,197 | 8.68 |
| 1921 (9 months)..... | 731 | 2,948 | | |

SLABS OR PAVING TILES CONTAINING NOT LESS THAN 4 SUPERFICIAL INCHES, MORE THAN 1 AND NOT MORE THAN 1½ INCHES THICK—UNRUBBED.

| | <i>Superficial feet.</i> | | | |
|----------------------|--------------------------|-------|-------|-------|
| 1918..... | 1,923 | \$741 | \$154 | 20.76 |
| 1920..... | 4,209 | 4,009 | 836 | 8.38 |
| 1921 (9 months)..... | 9,462 | 3,568 | | |

Exports of stone, including marble unmanufactured, have been as follows: 1914, \$676,723; 1918 (calendar year), \$552,261; 1919, \$770,392; 1920, \$774,442; 1921 (9 months), \$425,614.

PARAGRAPH 283.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 283. Marble, breccia, onyx, alabaster, and jet, wholly or partly manufactured into monuments, benches, vases, and other articles, and articles of which these substances or any of them is the component material of chief value, and all articles composed wholly or in chief value of agate, rock crystal, or other semiprecious stone, except such as are cut into shapes and forms fitting them expressly for use in the construction of jewelry, not specially provided for, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 112. Marble, breccia, onyx, alabaster, and jet, wholly or partly manufactured into monuments, benches, vases, and other articles, or of which these substances or either of them is the component material of chief value, and all articles composed wholly or in chief value of agate, rock crystal, or other semiprecious stones, except such as are cut into shapes and forms fitting them expressly for use in the construction of jewelry, not specially provided for in this section, fifty per centum ad valorem.

PAR. 98. Marble, breccia, onyx, alabaster, and jet, wholly or partly manufactured into monuments, benches, vases, and other articles, or of which these substances or either of them is the component material of chief value, and all articles composed wholly or in chief value of agate, rock crystal, or other semiprecious stones, except such as are cut into shapes and forms fitting them expressly for use in the construction of jewelry, not specially provided for in this section, 45 per centum ad valorem.

ARTICLES OF MARBLE, BRECCIA, ONYX, ETC.

(See Survey B-11.)

GENERAL.

Stone manufactures include, besides tombstones and monuments made of marble and kindred stones, a large and diverse list such as commercial and religious statuary, paper weights, inkwells, table tops, and jet spangles for ornamenting textiles and millinery goods. The manufacturing industry aside from the production of monuments is of very minor importance. Stone monuments are produced in all parts of the United States. The plants are usually located close to burial grounds, but some large quarry organizations ship to distant domestic markets. Desk and novelty articles are produced as a side line by manufacturers of monuments, as well as by makers of novelties, and also on special order. The manufacture of jet is an important industry in many parts of Europe, but not here. The stone-working industries of Greece and Italy have been famous for centuries because of their fine marble and excellent workmanship.

Tombstones, monuments, and grave markers can usually be cut and finished by stone-working machinery, which eliminates handwork to a large extent. Up to this point the domestic industry can compete favorably with European goods, but in carving, which is entirely handwork, European producers possess a considerable advantage because of their lower-priced labor. There are standard ornaments, such as stone urns, cherubs, angels, and other symbolic figures of foreign manufacture, which command a ready sale, but a large part of the ornamentation of plain monumental work is done on special consignment, which can not be anticipated, and so foreign competition in this branch of the trade is not serious.

In 1914 there were in the United States 4,901 establishments engaged in marble and stone work, with an output valued at \$107,055,000; in 1919 the corresponding figures were 4,208 and \$127,993,000. The production of monuments and tombstones was valued at \$40,976,682 in 1914.

ARTICLES OF MARBLE AND BRECCIA.

Description and uses.—Large articles, such as monuments, benches, and mantelpieces, are frequently made of marble and breccia. (For sculptures, see pars. 1447 and 1685, pp. 1195 and 1478, respectively.)

Production.—The only available statistics are for marble monuments and tombstones, which in 1914 were valued at \$40,977,000.

Imports, derived chiefly from Italy and France, were valued at \$224,742 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|----------|------------------|
| 1918..... | \$30,863 | \$13,888 | Per cent. 45 |
| 1919..... | 46,622 | 20,960 | 45 |
| 1920..... | 83,768 | 37,604 | 45 |
| 1921 (9 months)..... | 86,617 | | |

Exports of manufactures of stone, including marble, n. s. p. f., are destined chiefly for Canada, Cuba, and the United Kingdom. Statistics have been as follows (calendar years): 1918, \$1,208,164; 1919, \$1,508,997; 1920, \$2,158,764; 1921 (9 months) \$1,355,335.

ARTICLES OF ONYX.

Description and uses.—Similar articles are made from "onyx marble" as from marble and breccia, but the use of real onyx (banded chalcedony) is confined to smaller ornaments.

Production figures are not available. (See "Articles of agate," p. 348.)

Imports were valued at \$1,902 in 1914. France is the principal source of supply. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------|-------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$306 | \$137 | 45 |
| 1919..... | 2,053 | 924 | 45 |
| 1920..... | 2,960 | 1,332 | 45 |
| 1921 (9 months)..... | 8,707 | | |

Exports.—Not recorded separately.

ARTICLES OF ALABASTER.

Description and uses.—Vases, lamps, and other interior ornaments are made of alabaster, a translucent gypsum. It is too soft for exterior decoration.

Production.—There is no domestic alabaster. Values of articles made from imported material are not available.

Imports, mainly from Italy, averaged about \$15,000, but were \$51,065 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|---------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$5,304 | \$2,387 | 45 |
| 1919..... | 3,713 | 1,671 | 45 |
| 1920..... | 14,355 | 6,460 | 45 |
| 1921 (9 months)..... | 17,462 | | |

Exports.—Not recorded separately.

ARTICLES OF JET.

Description and uses.—See paragraph 1592.

Imports in 1914 were valued at \$15,790 (more than double any year since 1908) and in 1918 at \$2,160. Imports from France represent the largest values. Imports in 1920 (calendar year) were \$26,149, and in nine months of 1921 \$18,557. In the latter year small amounts were received from Germany and Czechoslovakia.

ARTICLES OF AGATE.

(See Survey B-11.)

Description and uses.—Besides ornaments, many industrial articles are made of agate (a variegated chalcedony), such as scale bearings, mechanical bearings and supports, mortars, and balls for water meters.

Production of agate and other varieties of chalcedony averages about \$0,000 annually. In 1915, however, the value increased to \$23,262, but was only \$7,580 in 1918. These figures represent the value of chalcedony, not of the manufactured articles. It is estimated that most of the domestic agate is used for jewelry.

Imports of articles (other than jewelry) made of agate were valued at \$20,165 in 1914. Germany normally supplies about 80 per cent, most of the remainder being derived from England and France. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|---------|------------------|
| 1918..... | \$5,275 | \$2,374 | Per cent. 45. |
| 1919..... | 6,826 | 3,072 | 45 |
| 1920..... | 52,099 | 23,445 | 45 |
| 1921 (9 months)..... | 26,243 | | |

Exports.—Not recorded separately.

ARTICLES OF ROCK CRYSTAL.

(See Survey B-11.)

Description and uses.—Rock crystal is a clear and colorless quartz. Wedges and prisms in some optical instruments, ornamental jars, boxes, and vases are frequently made from it. Because of its purity, it is used in the manufacture of special glasses where cost is not considered.

Production was valued at \$4,046 in 1914 and at \$2,022 in 1918. No statistics of the manufactured articles are available.

Imports of articles made of rock crystal averaged about \$4,000 until 1913, when they increased to \$19,982, falling to \$1,846 in 1914. France and Germany usually supplied the greater part, but in 1913 over \$11,000 worth came from England. More recently there have also been imports from China and Japan. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------|-------|------------------|
| 1918..... | \$62 | \$28 | Per cent. 45 |
| 1919..... | 1,904 | 857 | 45 |
| 1920..... | 3,989 | 1,795 | 45. |
| 1921 (9 months)..... | 1,509 | | |

Exports.—Not recorded separately.

OTHER SEMIPRECIOUS STONES.

Description and uses.—There is no scientific differentiation between precious and semiprecious stones. Specimens of the same mineral species vary so widely that one may be “precious” and another “semiprecious.” Corundum, of which the ruby and sapphire are varieties, represents over 50 per cent of the value of all gems produced in the United States. A large proportion of the corundum minerals finds industrial use as abrasive material and for mechanical bearings and pivot supports, especially in watches.

Production statistics can not be given, as there is no definite classification.

Imports of “other semiprecious stones” were valued at \$985 in 1909, \$18,528 in 1913, \$3,405 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|---------|------------------|
| 1918..... | \$5,935 | \$2,671 | 45 |
| 1919..... | 4,752 | 2,138 | 45 |
| 1920..... | 14,038 | 6,317 | 45 |
| 1921 (9 months)..... | 8,967 | | |

Exports.—Not recorded separately.

PARAGRAPH 234.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 234. Burrstones, manufactured or bound up into millstones, 13 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 113. Burrstones, manufactured or bound up into millstones, fifteen per centum ad valorem.

PAR. 438. Burrstones, manufactured or bound up into millstones [Free].

BURRSTONES, MILLSTONES, ETC.

(See Survey B-3.)

Description and uses.—Burrstones or millstones and the closely related quarry products, chasers and dragstones, are natural quarried stones which are used for grinding purposes. Millstones were formerly used for grinding grain, but have been replaced by modern grain-milling machinery. This has been somewhat offset by the growing use of chasers and dragstones for grinding mineral products, such as feldspar, quartz, and pigments. Chasers are similar in composition to millstones, but are larger in size and by being made to run on edge curl the material; millstones are run horizontally and the materials are ground between two stones.

Production of millstones (burrstones) and related quarry products has varied widely. New York and Virginia are the chief producers.

The value of the output in successive years has been as follows: 1912, \$71,414; 1917, \$43,489; 1918, \$92,514; 1919, \$66,972; 1920, \$63,325.

Imports of millstones since 1913 have varied from \$15,000 to \$20,000; in 1917 they were about 40 per cent of the domestic production. Recently, at least, the imports have come principally from France. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------|----------|----------|---------------------|
| Quantity.....tons..... | | 143 | 873 | 45 |
| Value..... | \$3,347 | \$17,360 | \$11,947 | \$9,678 |

Exports not recorded separately.

Important changes in classification.—Transferred from the free list, act of 1913 (par. 438).

PARAGRAPH 235.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 235. Freestone, granite, sandstone, limestone, lava, and all other stone suitable for use as monumental or building stone, except marble, breccia, and onyx, not specially provided for, hewn, dressed, or polished, or otherwise manufactured, 40 per centum ad valorem; unmanufactured, or not dressed, hewn, or polished, 15 cents per cubic foot.

ACT OF 1909.

ACT OF 1913.

PAR. 114. Freestone, granite, sandstone, limestone, and all other monumental or building stone, except marble, breccia, and onyx, not specially provided for in this section, hewn, dressed, or polished, or otherwise manufactured, fifty per centum ad valorem; unmanufactured, or not dressed, hewn, or polished, ten cents per cubic foot.

PAR. 551. Curling stones, * * * [Free].

PAR. 99. Freestone, granite, sandstone, limestone, lava, and all other stone suitable for use as monumental or building stone, except marble, breccia, and onyx, not specially provided for in this section, hewn, dressed, or polished, or otherwise manufactured, 25 per centum ad valorem; unmanufactured, or not dressed, hewn, or polished, 3 cents per cubic foot.

PAR. 470. Curling stones, * * * [Free].

SANDSTONE AND FREESTONE.

(See Survey B-11.)

Description and use.—Sandstone is a sedimentary rock composed of sand (usually accumulated under water) and a calcareous or silicious cement, deposited from subsurface waters. White, gray, and red are the principal color variations. The value varies with the color and the uniformity and size of the individual sand grains. Freestone is a variety of sandstone, or sand-lime stone, so called.

because it can be cut and shaped easily. Among the important stones sandstone ranks third as a building stone, first for flagging, and second for paving and curbing.

The following table shows the uses of sandstone sold in the United States in 1918 and 1920:

| Use. | 1918 | | 1920 | |
|---|------------------|------------------|------------------|------------------|
| | Quantity. | Value. | Quantity. | Value. |
| Building stone..... cubic feet.. | 973,990 | \$536,474 | 1,812,580 | \$1,619,724 |
| Approximate equivalent in short tons..... | 75,850 | | 149,890 | |
| Paving blocks..... number.. | 2,188,419 | 148,091 | 3,509,580 | 304,478 |
| Approximate equivalent in short tons..... | 21,900 | | 37,650 | |
| Curbing..... cubic feet.. | 531,952 | 298,971 | 718,160 | 518,677 |
| Approximate equivalent in short tons..... | 43,800 | | 62,060 | |
| Flagging..... cubic feet.. | 798,934 | 373,729 | 688,890 | 463,712 |
| Approximate equivalent in short tons..... | 65,900 | | 56,460 | |
| Crushed stone..... short tons.. | 882,831 | 1,050,106 | 1,394,270 | 2,043,621 |
| Riprap..... do.. | 356,784 | 305,308 | 455,500 | 602,492 |
| Rubble..... do.. | 105,023 | 107,958 | 86,770 | 153,298 |
| Ganister..... do.. | 1,297,874 | 1,688,334 | 1,065,890 | 1,582,255 |
| Other..... do.. | 8,355 | 20,327 | 5,010 | 22,029 |
| Total (approximate quantities, in short tons)..... | 2,858,100 | 4,529,398 | 3,843,000 | 7,310,290 |

Production statistics are given as follows:

| | Quantity. | Value. |
|-----------|--------------------|-------------|
| | <i>Short tons.</i> | |
| 1916..... | 4,681,590 | \$5,603,778 |
| 1917..... | 3,890,500 | 5,512,421 |
| 1918..... | 2,858,100 | 4,529,298 |
| 1919..... | 2,623,270 | 5,283,842 |
| 1920..... | 3,343,000 | 7,310,290 |

Imports of these stones suitable for building were valued at \$72,207 in 1914. Later statistics follow:

Freestone, sandstone, limestone, lava, and all other monumental or building stone, except granite, marble, breccia, and onyx, n. s. p. f.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

UNMANUFACTURED, OR NOT DRESSED, HEWN, OR POLISHED.

| | Cubic feet. | Value. | Duty. | Per cent. |
|----------------------|-------------|----------|-------|-----------|
| 1918..... | 13,370 | \$14,088 | \$401 | 2.85 |
| 1919..... | 13,807 | 14,228 | 414 | 2.91 |
| 1920..... | 110,940 | 98,327 | 3,328 | 3.33 |
| 1921 (9 months)..... | 46,718 | 48,083 | | |

HEWN, DRESSED, OR POLISHED, OR OTHERWISE MANUFACTURED.

| | Value. | Duty. | Per cent. |
|----------------------|---------|---------|-----------|
| 1918..... | \$5,990 | \$1,497 | 25.00 |
| 1919..... | 21,444 | 5,361 | 25.00 |
| 1920..... | 17,622 | 4,405 | 25.00 |
| 1921 (9 months)..... | 27,947 | | |

Exports.—Not separately recorded. (See par. 232, p. 345.)

GRANITE.

(See Survey B-11.)

Description and use.—Granite is an igneous rock, formed from liquid material after a long period of slow cooling. It consists of a mixture of crystals of quartz, feldspar, mica, and other minerals, and the color ranges from gray white to gray black. The combination of light and dark minerals gives the rock a mottled appearance that varies with the percentages of the different minerals and the size of the individual crystals. Granite is very durable, and takes a high polish that brings out the beauty of the crystal structure. It is the most important monumental and building stone. The quantity and value of granite sold for various uses in 1918 and 1920 are shown as follows:

| Use. | 1918 | | 1920 | |
|---|------------------|-------------------|------------------|-------------------|
| | Quantity. | Value. | Quantity. | Value. |
| Building stone (rough and dressed).....cubic feet.. | 2,771,013 | \$2,349,796 | 4,895,880 | \$4,492,482 |
| Approximate equivalent in short tons..... | 232,770 | ..... | 411,170 | ..... |
| Monumental stone.....cubic feet.. | 3,358,431 | 6,964,879 | 3,379,330 | 11,643,255 |
| Approximate equivalent in short tons..... | 282,000 | ..... | 283,910 | ..... |
| Paving.....number of blocks.. | 25,923,526 | 1,547,612 | 32,230,270 | 2,582,031 |
| Approximate equivalent in short tons..... | 272,200 | ..... | 351,200 | ..... |
| Curbing and flagging.....cubic feet.. | 382,000 | 324,381 | 997,950 | 755,540 |
| Approximate equivalent in short tons..... | 33,600 | ..... | 62,100 | ..... |
| Rubble.....short tons.. | 140,472 | 151,408 | 90,760 | 154,036 |
| Riprap.....do..... | 624,954 | 480,666 | 525,470 | 478,128 |
| Crushed stone.....do..... | 2,069,473 | 2,583,449 | 3,016,960 | 4,831,776 |
| Other stone.....do..... | 171,944 | 64,232 | 18,370 | 110,757 |
| Total (quantities approximate, in short tons)..... | 3,827,400 | 14,466,423 | 4,760,000 | 24,954,908 |

Production.—The granite deposits of present economic importance are located near the Appalachian continental plateau, the most valuable occurring at the northern and southern extremities of this area. Another area of growing importance includes the western Lake States. Granite production was reported from 31 States in 1919; Vermont, Massachusetts, North Carolina, Maine, Wisconsin, Minnesota, and New Hampshire produced the bulk of the supply.

The following table gives statistics of production:

| | Quantity. | Value. |
|-----------|--------------------|--------------|
| | <i>Short tons.</i> | |
| 1914..... | ..... | \$11,225,179 |
| 1916..... | 9,270,800 | 17,456,838 |
| 1917..... | 5,564,200 | 15,544,957 |
| 1918..... | 3,827,400 | 14,466,423 |
| 1919..... | 4,221,220 | 19,345,714 |

Imports in 1914 were valued at \$157,211, nearly all hewn granite for monumental work, chiefly from Scotland. Later statistics follow:

Granite.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|--------------------|----------|-------|------------------------|
| UNMANUFACTURED OR NOT DRESSED, HEWN, OR POLISHED. | | | | |
| | <i>Cubic feet.</i> | | | <i>Per cent.</i> |
| 1918..... | 28,240 | \$14,554 | \$847 | 5.82 |
| 1919..... | 23,240 | 17,798 | 697 | 3.92 |
| 1920..... | 43,805 | 42,162 | 1,314 | 3.12 |
| 1921 (9 months)..... | 20,916 | 23,441 | | |

HEWN, DRESSED, OR POLISHED OR OTHERWISE MANUFACTURED.

| | | | | |
|----------------------|--|---------|--------|-------|
| 1918..... | | \$2,096 | \$521 | 25.00 |
| 1919..... | | 9,983 | 2,496 | 25.00 |
| 1920..... | | 108,193 | 27,048 | 25.00 |
| 1921 (9 months)..... | | 89,298 | | |

Exports.—Not separately stated. (See par. 232, p. 345.)

LIMESTONE.

[See par. 204, p. 262.]

LAVA: TRAP ROCK (BASALT AND RELATED ROCKS).

Description and use.—All rock of volcanic origin is lava, of which there are many varieties. (See also par. 206, p. 268.)

Trap rock is an igneous rock formed by a rapid cooling of the molten lava. The rock is fine grained and shows little or no crystal structure. The color ranges from white to black. The name is applied to any fine-grained lava or dike rock.

The chief use of trap rock is in crushed form for road metal or ballast. Small amounts are used for rough building stone, although not if other materials are available, as this rock has no definite cleavage planes and breaks with a jagged fracture. It finds some use in paving.

Production.—Trap rock for building material is produced irregularly by several States, but Massachusetts and Connecticut are the only localities reporting continuous operation.

Statistics of production of basalt and related rocks (trap rock) are given in the following table:

| | Quantity. | Value. |
|-----------|--------------------|-------------|
| | <i>Short tons.</i> | |
| 1916..... | 10,233,640 | \$7,666,297 |
| 1917..... | 9,103,580 | 7,570,885 |
| 1918..... | 6,859,200 | 7,782,280 |
| 1919..... | 7,410,770 | 8,944,686 |
| 1920..... | 9,219,200 | 12,260,148 |

Imports.—(See Sandstone and Freestone, p. 351.)

Exports.—Not separately recorded. (See par. 232, p. 345.)

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The provision for curling stones, exempt from duty under the act of 1913 (par. 470), has been dropped.

PARAGRAPH 236.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 236. Grindstones, finished or unfinished, \$2 per ton.

ACT OF 1909.

ACT OF 1913.

PAR. 115. Grindstones, finished or unfinished, one dollar and seventy-five cents per ton.

PAR. 100. Grindstones, finished or unfinished, \$1.50 per ton.

GRINDSTONES.

(See Survey B-3.)

Description and uses.—The term "grindstone" usually refers to the natural quarried stone. Pulpstones are heavy grindstones used for grinding wood in making pulp and paper, and weigh from 2 to 4 tons.

Production.—The value of grindstones and pulpstones produced in 1917 was \$1,147,784 as compared with \$766,140 in 1916. Ohio has always produced 85 to 90 per cent of the total. Grindstones have a serious competitor in grinding wheels made from artificial abrasive. (See par. 1415, p. 1121.) Later statistics of domestic production are as follows:

| | 1918 | 1919 | 1920 |
|---------------------------|-------------|-------------|-------------|
| Quantity.....short tons.. | 63,339 | 46,865 | 53,484 |
| Value..... | \$1,776,282 | \$1,336,015 | \$1,707,004 |

Imports were \$139,386 in 1913. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|--------------|----------|---------|------------------------|
| | <i>Tons.</i> | | | <i>Per cent.</i> |
| 1918..... | 2,134 | \$55,283 | \$3,201 | 5.79 |
| 1919..... | 1,628 | 50,551 | 2,442 | 4.83 |
| 1920..... | 2,076 | 77,046 | 3,114 | 4.04 |
| 1921 (9 months)..... | 1,373 | 67,633 | ..... | ..... |

Exports largely to Canada and Cuba have been for calendar years as follows: 1918, \$210,889; 1919, \$297,068; 1920, \$424,322; 1921, \$222,349.

PARAGRAPH 237.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 237. Slates, slate chimney pieces, mantles, slabs for tables, roofing slates, and all other manufactures of slate, not specially provided for, 17 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 116. Slates, slate chimney pieces, mantels, slabs for tables, roofing slates, and all other manufactures of slate, not specially provided for in this section, twenty per centum ad valorem.

PAR. 101. Slates, slate chimney pieces, mantels, slabs for tables, roofing slates, and all other manufactures of slate, not specially provided for in this section, 10 per centum ad valorem.

SLATES.

(See Survey B-11.)

Description and uses.—Slate is a fine, compact rock with easy parallel cleavage, much used where smooth slabs are required. About three-fifths of the slate quarried in 1917 was used for roofing. Mill stock, slates 1 to 3 inches thick used for structural and sanitary purposes, is second in importance. Other uses are for electrical switchboards, blackboards, and billiard-table tops. Ground slate is made of slate-cutting waste. The granules are used as a coating for composition tar shingles, and the flour goes into linoleum, paint, and wall finishes.

Production.—Domestic slate deposits are of a high grade, and besides supplying the home market furnish a considerable tonnage for export. Over 99 per cent of production originates in the States north and east of Virginia. The quarries require little machinery, as it is more economical to split the rough blocks by hand. The dressing sheds contain trimming knives for finishing shingles and rotary planers for truing the surfaces of thick slabs. The industry was formerly conducted by many small operators, but the present tendency is toward extensive organization. Although slate quarrying is a domestic industry in most countries, Welsh slates have long been exported. They meet active American competition, however, in the foreign markets.

The value of the slate sold by quarrymen in 1920 was the largest yet recorded for this material, but this fact does not indicate any decided revival in the slate industry as a whole, for the quantity of roofing slate sold was only 8 per cent more than in 1879, the year of the lowest recorded sales (367,857 squares), and 72 per cent less than in 1902, the year of the largest recorded sales (1,435,168 squares). The average value per square, however, was \$3.35 in 1879, \$3.45 in 1902, and \$8.90 in 1920.

The total quantity of mill stock sold in 1920 was an increase of 33 per cent over the quantity sold in 1919, but 24 per cent less than that sold in 1913, the record year.

The slate sold in 1920 was produced at well-established quarries in Maine, Maryland, New York, Pennsylvania, Vermont, and Virginia.

Slate sold in the United States, 1916-1920, by uses.

| Year. | Roofing slate. | | | Mill stock. ¹ | | | Other uses (value). | Total value. |
|-----------|--------------------------------------|---------------|---------------------------|--------------------------|---------------|--------------------------------|---------------------|---------------|
| | Number of squares (100 square feet). | Value. | Average value per square. | Quantity (square feet). | Value. | Average value per square foot. | | |
| 1916..... | 835, 873 | \$3, 408, 934 | \$4. 08 | 5, 782, 842 | \$1, 177, 260 | \$0. 20 | \$752, 643 | \$5, 338, 837 |
| 1917..... | 703, 667 | 3, 411, 740 | 4. 85 | 5, 478, 151 | 1, 277, 249 | . 23 | 1, 060, 977 | 5, 749, 965 |
| 1918..... | 379, 817 | 2, 219, 131 | 5. 84 | 4, 841, 133 | 1, 498, 164 | . 31 | 1, 123, 825 | 4, 841, 129 |
| 1919..... | 454, 337 | 3, 085, 957 | 6. 79 | 7, 466, 000 | 1, 783, 793 | . 24 | 1, 161, 898 | 6, 030, 648 |
| 1920..... | 396, 230 | 3, 524, 658 | 8. 90 | 9, 910, 000 | 3, 147, 281 | . 32 | 2, 054, 508 | 8, 726, 442 |

¹ For 1919 and 1920 total output of mill stock is given. Prior to 1919 bulletin, blackboard, and school slate material was included under "Other uses."

Imports were greatest in 1912, \$11,042. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------|-------|------------------|
| 1918..... | \$531 | \$53 | Per cent. 10 |
| 1919..... | 691 | 69 | 10 |
| 1920..... | 4, 512 | 451 | 10 |
| 1921 (9 months)..... | 2, 864 | | |

Exports of slate, other than roofing, for the year 1917 were valued at \$204,590, over 80 per cent being for school slates and pencils. Exports of roofing slate, principally to Canada, Australia, and the United Kingdom, have been as follows: 1914, \$188,057; (calendar years 1918-1921) 1918, \$65,224; 1919, \$55,164; 1920, \$122,105; 1921 (9 months), \$64,818.

PARAGRAPH 238.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 238. Watch crystals, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 192. * * * parts of watches,
* * * forty per centum ad valorem;
* * *

PAR. 161. * * * parts of watches,
* * * 80 per centum ad valorem;
* * *

WATCH CRYSTALS.

(See Survey C-26.)

Description and use.—Watch crystals are too familiar to require description.

Production.—Before the European war watch crystals were not made in the United States, the American supply being received chiefly from France, Germany, Switzerland, and Austria. After the war began they were received from Japan and Switzerland, the former country being the chief source of supply.

In 1915 the Macbeth-Evans Glass Co., Pittsburgh, Pa., undertook the manufacture of watch crystals, but with poor success, and subsequently discontinued their manufacture. Shortly afterwards the Waterbury Clock Co., Waterbury, Conn., built a plant and began the manufacture of crystals, with fair success. The crystals made by this company are said to be accepted by the trade as equal to the European crystals and as better in quality than those imported from Japan. In 1918 the Waterbury Clock Co. manufactured 14,070,960 watch crystals.

There are said to be certain difficulties attending the production of watch crystals that explain why the industry has never progressed in this country.

“Glass is of such a nature that uniformity of product can not be counted on, making most uncertain the cost of the material itself.

“The grinding and shaping of the crystal in its manufacture is not on such positive lines that the required size can be obtained.

“The more extended the business the greater the opportunity of utilizing off sizes, otherwise valueless.”

Imports.—None separately recorded since 1918.

Exports.—None recorded.

Important changes in classification.—New specific provision.

SCHEDULE 3.—METALS AND MANUFACTURES OF.

PARAGRAPH 301.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 301. Iron in pigs, iron kentledge, spiegeleisen containing more than 1 per cent of carbon, wrought and cast scrap iron, and scrap steel, including scrap tin plate, \$1.25 per ton: *Provided*, That spiegeleisen for the purposes of this Act shall be an iron manganese alloy containing less than 45 per centum of manganese: *Provided further*, That nothing shall be deemed scrap iron or scrap steel except secondhand or waste or refuse iron or steel fit only to be remanufactured.

ACT OF 1909.

ACT OF 1913.

SCHEDULE C—METALS AND MANUFACTURES OF.

SCHEDULE C—METALS AND MANUFACTURES OF.

PAR. 118. Iron in pigs, iron kentledge, spiegeleisen, * * * two dollars and fifty cents per ton; wrought and cast scrap iron, and scrap steel, one dollar per ton; but nothing shall be deemed scrap iron or scrap steel except waste or refuse iron or steel fit only to be remanufactured by melting, and excluding pig iron in all forms.

PAR. 518. * * * iron in pigs, iron kentledge, spiegeleisen, wrought iron and scrap and scrap steel; but nothing shall be deemed scrap iron or scrap steel except second-hand or waste or refuse iron or steel fit only to be remanufactured; * * * [Free].

PIG IRON, SCRAP AND SPIEGELEISEN.

(See Surveys FL-21 and C-1.)

Description and use.—Pig iron is classified as Bessemer, basic, low phosphorus, foundry, malleable, forge, and the ferroalloys. The first three are usually manufactured into steel; the next three into castings or into wrought iron; and the last are used to purify and give certain desirable qualities to steel. Spiegeleisen is an alloy of iron and manganese, having a manganese content between 10 and 45 per cent, the commercial grade in this country being about 20 per cent; a 10 to 12 per cent alloy, however, is also marketed in Europe. Iron kentledge is pig iron shipped on a vessel as ballast. Wrought iron is the purest form of iron used and can be forged, rolled, or welded. It is made by puddling pig iron. Cast iron is pig iron run into molds when molten or reheated and allowed to cool. Waste or old wrought iron and old cast iron, as well as waste or old steel, constitute scrap. Scrap tin plate is old or waste tin plate, a form of steel scrap consisting mainly of clippings and valuable principally for the tin which may be recovered

from it. Scrap is largely used in open-hearth furnaces in the manufacture of steel.

Production.—Domestic pig-iron production in 1913 was 30,966,152 long tons out of an estimated world total of 72,400,000 tons. In 1918 it was 39,054,644 long tons, valued at \$1,180,759,565, and in 1920, 36,925,987 long tons. The leading States are Pennsylvania, Ohio, Illinois, Indiana, and New York. The output of spiegeleisen in 1913 amounted to 110,338 gross tons; in 1918, to 283,853 gross tons; and in 1920, to 111,449 gross tons.

In 1913 the pig-iron production of Germany was 18,987,039 tons; of the United Kingdom, 10,316,265 tons; and of France 5,227,378 tons. In 1917 the output of Germany was 12,932,338 gross tons and of the United Kingdom 9,640,936 gross tons. These countries are also large producers of spiegeleisen and ferromanganese, Germany's output in 1917 aggregating 316,577 gross tons.

Imports during the calendar years 1918–1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------------------|-------------|-------------|-------------|---------------------|
| Pig iron (all other): ¹ | | | | |
| Quantity (tons)..... | 361 | 58,171 | 107,547 | 20,258 |
| Value..... | \$15,828 | \$1,651,185 | \$4,029,210 | \$596,442 |
| Iron kentledge: | | | | |
| Quantity (tons)..... | 20 | | | |
| Value..... | \$326 | | | |
| Spiegeleisen: | | | | |
| Quantity (tons)..... | 1,069 | 27 | 5,234 | 269 |
| Value..... | \$228,012 | \$1,018 | \$277,900 | \$9,260 |
| Scrap iron and scrap steel: | | | | |
| Quantity (tons)..... | 63,218 | 177,293 | 134,209 | 27,984 |
| Value..... | \$1,221,765 | \$3,249,322 | \$2,831,048 | \$306,922 |
| Scrap tin plate: | | | | |
| Quantity (pounds)..... | 14,973,723 | 11,771,218 | 2,6436 | 2,962 |
| Value..... | \$119,591 | \$91,281 | \$94,541 | \$8,635 |

¹ "All other" means pig iron proper—i. e., pig iron other than spiegeleisen, ferromanganese, iron kentledge, and during some years, ferrosilicon.

² Tons.

Imports of pig iron come chiefly from England and Canada; and scrap iron and steel, largely from Canada.

Exports in the calendar years 1918–1921 of pig iron and of scrap iron and steel were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|--------------|--------------|-------------|---------------------|
| Pig iron: | | | | |
| Quantity (tons)..... | 261,891 | 316,718 | 212,742 | 20,801 |
| Value..... | \$10,327,178 | \$11,722,033 | \$9,390,750 | \$666,405 |
| Scrap iron and steel: | | | | |
| Quantity (tons)..... | 2,160 | 27,275 | 219,250 | 27,201 |
| Value..... | \$63,626 | \$717,325 | \$6,411,534 | \$430,479 |

No exports of iron kentledge, spiegeleisen, or scrap tin plate are recorded.

The pig iron goes mainly to Canada, Italy, the Netherlands, and Belgium, and the scrap iron and scrap steel, to Canada, the United Kingdom, China, Hongkong, and Japan.

Important changes in classification.—Iron in pigs, iron kentledge, spiegeleisen, wrought iron and scrap iron and scrap steel are exempt

from duty under paragraph 518 of the act of 1913. In the act of 1913 ferromanganese, as well as spiegeleisen was placed with pig iron, but in H. R. 7456 it has been transferred to the paragraph which deals with the ferroalloys. The dividing line between spiegeleisen and ferromanganese was fixed by the War Industries Board at 45 per cent manganese content. This dividing line had never been definitely determined in trade practice, as standard spiegeleisen has a manganese content from 18 to 22 per cent and standard ferromanganese, a manganese content from 70 to 80 or 82 per cent. Tiemann, an authority, makes the dividing line 30 per cent manganese.

Suggested changes.—Spiegeleisen is a ferroalloy as much as ferromanganese and ferrosilicon, which are included in the paragraph devoted to the ferroalloys. It is suggested, therefore, that spiegeleisen be transferred from this paragraph to the following one. (See Ferromanganese, par. 302, p. 367.)

The Treasury Department held that the provision for scrap tin in paragraph 631 of the act of 1913 includes scrap tin plate. The provision for scrap steel might be construed to include alloy steel, especially tungsten steel, a much more expensive material than ordinary scrap steel. In order to obviate this construction a proviso reading somewhat as follows might be inserted: "*Provided further, That alloy steels valued at 7 cents per pound or more shall not be classed as scrap iron or scrap steel.*"

Page 39, line 3, H. R. 7456: Change "per cent" to "per centum" to agree with usage elsewhere in H. R. 7456.

PARAGRAPH 302.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 302. Manganese ore or concentrates containing in excess of 30 per centum of metallic manganese, 1 cent per pound on the metallic manganese contained therein; molybdenum ore or concentrates, 75 cents per pound on the metallic molybdenum contained therein; tungsten ore or concentrates, 45 cents per pound on the metallic tungsten contained therein; ferromanganese containing more than 1 per centum of carbon, 2½ cents per pound on the metallic manganese contained therein: *Provided, That ferromanganese for the purposes of this Act shall be such iron manganese alloys as contain 45 per centum or more of manganese; manganese metal, manganese silicon, manganese boron, and ferromanganese and spiegeleisen containing not more than 1 per centum of carbon, 2½ cents per pound on the manganese contained therein and 28 per centum ad valorem; ferromolybdenum, metallic molybdenum, molybdenum powder, calcium molybdate, and all other compounds and alloys of molybdenum, \$1.25 per pound on the molybdenum contained therein and 17 per centum ad valorem;*

H. B. 7456.

SENATE AMENDMENTS.

ferrotungsten, metallic tungsten, tungsten powder, tungstic acid, and all other compounds of tungsten, 72 cents per pound on the tungsten contained therein and 15 per centum ad valorem; ferrochromium tungsten, chromium tungsten, chromium cobalt tungsten, tungsten nickel, and all other alloys of tungsten not specially provided for, 72 cents per pound on the tungsten contained therein and 17 per centum ad valorem; ferrosilicon, containing 8 per centum or more of silicon and less than 30 per centum, 2½ cents per pound on the silicon contained therein; containing 30 per centum or more of silicon and less than 60 per centum, 2½ cents per pound on the silicon contained therein; containing 60 per centum or more of silicon and less than 80 per centum, 3½ cents per pound on the silicon contained therein; containing 80 per centum or more of silicon and less than 90 per centum, 4 cents per pound on the silicon contained therein; containing 90 per centum or more of silicon, and silicon metal, 8 cents per pound on the silicon contained therein; ferrochrome or ferrochromium containing 3 per centum or more of carbon, 3½ cents per pound on the chromium contained therein; ferrochrome or ferrochromium containing less than 3 per centum of carbon, and chrome or chromium metal, 30 per centum ad valorem; ferrophosphorus, ferrotitanium, ferrovanadium, ferrouanium, ferrocerium, ferrozirconium, ferrosilicon, ferroboron, titanium, zirconium, tantalum, chromium nickel, vanadium nickel, zirconium nickel, chromium vanadium, chromium silicon, zirconium silicon, calcium silicide, and all alloys used in the manufacture of steel not specially provided for, 30 per centum ad valorem.

ACT OF 1909.

PAR. 184. Chrome or chromium metal, ferrochrome or ferrochromium, ferromolybdenum, ferrophosphorus, ferrotitanium, ferrotungsten, ferrovanadium, molybdenum, titanium, tantalum, tungsten, or wolfram metal, valued at two hundred dollars per ton or less, twenty-five per centum ad valorem; valued at more than two hundred dollars per ton, twenty per centum ad valorem; ferrosilicon containing not more than fifteen per centum of silicon, five dollars per ton; ferrosilicon containing more than fifteen per centum of silicon, twenty per centum ad valorem.

PAR. 183. * * * metals unwrought, whether capable of being wrought or not, not specially provided for in this section, twenty per centum ad valorem; * * *

ACT OF 1913.

PAR. 102. Chrome or chromium metal, ferrochrome or ferrochromium, ferromolybdenum, ferrophosphorus, ferrotitanium, ferrotungsten, ferrovanadium, molybdenum, titanium, tantalum, tungsten or wolfram metal, and ferrosilicon, and other alloys used in the manufacture of steel, not specially provided for in this section, 15 per centum ad valorem.

PAR. 154. * * * metals unwrought, whether capable of being wrought or not, not specially provided for in this section, 10 per centum ad valorem; * * *

ACT OF 1909.

PAR. 118. * * * ferro-manganese, two dollars and fifty cents per ton; * * *.

PAR. 619. Manganese, oxide and ore of [Free].

PAR. 626. Minerals, crude * * * [Free].

PAR. 190. Tungsten-bearing ores of all kinds, ten per centum ad valorem.

PAR. 3. * * * chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *.

ACT OF 1913.

PAR. 518. * * * ferromanganese * * * [Free].

PAR. 540. Manganese, oxide and ore of [Free].

PAR. 549. Minerals, crude * * * [Free].

PAR. 633. Tungsten-bearing ores of all kinds [Free].

PAR. 5. * * * chemical * * * compounds, * * * mixtures and salts, * * * not specially provided for in this section, 15 per centum ad valorem.

FERROALLOYS AND ORES OF FERROALLOYS.

(See Surveys C-1 and FL-28.)

MANGANESE ORES.

Description and uses.—Manganese is not found in the metallic state in nature; it occurs only in combination with other elements as an oxide, carbonate, or silicate, oxides being the most common. Manganese ore is the raw material for ferromanganese and spiegeleisen, products employed in the manufacture of steel. Minor amounts of the ore are used in chemical and other industries, but 96 per cent goes into the making of steel. Practically all steel contains manganese, and of all alloys ferromanganese is used in the largest quantity. Manganese alloys when added to steel in proper proportions impart the essential qualities of toughness and hardness.

Production.—Prior to the war we produced less than 1 per cent of our manganese requirements, the output rarely exceeding 4,000 tons of high-grade ore. In 1915 production of high-grade ore (metallic content 35 per cent or more) increased to nearly 10,000 tons; in 1916, to 31,000 tons; in 1917, to 129,000 tons; and in 1918, to approximately 305,869 tons. In 1919 it fell to less than 56,000 tons, but in 1920 increased to about 94,000 tons. During the war the production of manganese ore was a profitable industry in many localities, but only because prices were from three to four times prewar quotations. Foreign ores are of a better general grade and more easily mined, averaging from 45 to 55 per cent manganese, as compared with domestic "high grade" running from 35 to 45 per cent. Operating costs here are much higher than abroad, American mines being situated far from points of consumption, and often at considerable distances from railroads. Domestic resources have been carefully estimated and found to be insufficient to supply our requirements for more than a few years. Under normal trade conditions, with a free movement of ore from foreign countries, domestic manganese mining can not continue except on a limited scale.

Imports.—Before the war nearly all foreign manganese ore came from British India, Brazil, and Russia. In 1914 these countries supplied 99 per cent—British India, 40 per cent; Brazil, 25 per cent; and Russia, 34 per cent. After 1915 imports from Russia ceased, the British India supply was greatly reduced, and Brazil showed large increases. The mining of manganese ore in Cuba began in 1915; it

was promoted by American capital, and the entire production was sent here, 550 tons in 1915 and 67,780 tons in 1918, one-ninth of our imports. Total imports in 1914 were 288,837 long tons, valued at \$1,841,472. Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|--------------|--------------|--------------|---------------------|
| Quantity (tons)..... | 491,157 | 333,933 | 606,937 | 341,071 |
| Value..... | \$15,090,920 | \$11,261,021 | \$12,220,923 | \$3,025,533 |

The imports during 1920 came from Brazil, India, and Russia.

Exports.—None reported.

Important changes in classification.—Manganese ore is exempt from duty under paragraph 540 of the act of 1913. In H. R. 7456, it is for the first time placed in the same paragraph with the ferro-alloys and alloying metals.

Manganese oxide occurring as a natural mineral and exempt from duty under paragraph 540 of the act of 1913 is covered by the provision in this paragraph for manganese ore and concentrates. Manganese oxide made by chemical means, also exempt from duty under paragraph 540 of the act of 1913, is included in the suggestion under paragraph 44 that manganese salts and compounds be specially provided for.

MOLYBDENUM ORE.

Description and uses.—The most important molybdenum ore is molybdenite, a sulphide of molybdenum. It is a flaky mineral resembling graphite in appearance. Molybdenum is used in the steel industry in the manufacture of stainless steel and high-speed steel and in the chemical industry in the production of ammonium molybdate and other molybdenum compounds.

Wulfenite is another molybdenum ore containing 26.2 per cent molybdenum. It is rarer than molybdenite and is now relatively unimportant as a source of molybdenum.

Production.—In 1918 there were sold in the United States 861,637 pounds of molybdenum ore or concentrate, valued at \$1,253,700, and in 1919, 297,926 pounds, valued at \$341,814.

Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|----------|---------|---------------------|
| Quantity (pounds)..... | 140,222 | 106,743 | 15,639 | 24,218 |
| Value..... | \$123,924 | \$77,572 | \$9,707 | \$9,969 |

Exports.—None recorded. It is reported that some molybdenite concentrate is exported, but no figures are available.

Important changes in classification.—Molybdenum ore is exempt from duty as a crude mineral under paragraph 549 of the act of 1913. In H. R. 7456 it is for the first time placed in the same paragraph with the ferro-alloys and alloying metals.

TUNGSTEN-BEARING ORES.

Description and uses.—Tungsten metal is found only in the form of tungstates of iron, manganese, or calcium. Except in the United States it is usually accompanied by tin ore. There are four commercial tungsten minerals—scheelite, ferberite, huebnerite, and wolframite. Scheelite is the tungstate of lime. The other three are frequently grouped together as the wolframite series, and range in composition from ferberite (tungstate of iron) to huebnerite (tungstate of manganese). The pure minerals of the wolframite series contain over 76 per cent tungsten trioxide (WO_3); scheelite contains about 80 per cent (WO_3). The tungsten ore of commerce, however, contains a certain amount of nontungsten-bearing material in addition to one or more of the above minerals. The standard ore contains 60 per cent (WO_3), and this tenor is usually obtained by concentration of low-grade ore. Although the occurrence of tungsten is widespread, the individual deposits are never of large extent. The ore comes in lenticular shoots and masses, in veins, or irregularly distributed along contacts. The deposits of Boulder County, Colo., are narrow stringers; the lodes of the Southwest are usually wider and can be worked on a larger scale. Lode mining of tungsten does not differ essentially from the mining of other ores, except that tungsten rarely is found in sufficient amounts or in shoots regular enough to permit of systematic extraction. The ores are concentrated to 60 per cent or more tungsten-trioxide, but the recovery of so rich a product from ore, usually containing only 2 to 10 per cent, results in high losses and much waste of tungsten. To increase the extraction, many mills make two grades of concentrate—a high-grade sand concentrate, containing approximately 60 per cent, and suitable for making ferrotungsten in the electric furnace, and a slime concentrate of lower grade, containing about 20 per cent and suitable only for chemical process.

Of all the tungsten ore now produced, 90 to 95 per cent goes into the manufacture of tungsten powder and ferrotungsten for use in the manufacture of high-speed tool steels. The addition of tungsten to steel gives it the property of holding its temper at a much higher heat than that at which simple carbon steels and most other alloy steels become soft and worthless. Molybdenum has somewhat similar properties, and is used to some extent, especially in Europe, but it has never proved so satisfactory and is now generally used in conjunction with tungsten, which it replaces only in part.

Production.—The maximum domestic production of tungsten ore was, in 1917, 6,144 short tons of concentrates, containing 60 per cent (WO_3), and in 1916, 5,923 short tons, valued, respectively, at \$6,783,162 and \$12,075,417. The 1918 output was 5,061 short tons. In 1920 the estimated production had dropped to 216 short tons. The tungsten industry was characterized by a large number of small independent producers with only a few well-financed companies. A considerable number of the stronger operators had connections with manufacturers or consumers of tungsten metal and ore. The largest producer, operating in California, had a prewar output about 30 per cent of the total. Fully 75 per cent of the prewar output was by four large companies, one in California and three in Boulder County, Colo. The remainder came from a large and constantly shifting group of

small operators. Domestic production was slightly over 50 per cent of this country's requirements in 1917, about 30 per cent in 1918, and in 1919, less than 5 per cent. In 1916 and 1917 the combined production of Colorado and California was 4,582 and 5,488 short tons, 77 and 89 per cent of the total output in these years. Nevada came third with an output considerably less. Arizona was a small but regular producer. The small production in 1919 (330 short tons) was distributed among the States of California, Arizona, Colorado, and South Dakota.

The metallurgical treatment of tungsten ores is as efficient in this country as elsewhere and far in advance of most other countries, though the foreign ore is decidedly more easily mined. American labor is superior to that in any other large tungsten-producing region, and it is also much better paid. Where the output depends on a large amount of handwork, as in mines of the Boulder County type, there is no possibility of producing ore as cheaply as in countries of low wages. The main dependence of the United States therefore is on the probably extensive but low-grade deposits of the Southwest.

Imports of tungsten-bearing ores are large. Before the war Germany furnished about two-thirds, besides large amounts of tungsten metal and ferro-alloy; but most of these shipments were from ore of other countries, either made into metal or ferrotungsten in Germany, or better grades reshipped through brokerage to the United States. In 1913 (fiscal year) a total of 766 long tons of tungsten ore came in, 600 long tons from Germany. In 1917 (calendar year) total imports were 4,876 short tons of 60 per cent (WO_3), or 44 per cent of the total consumption. Statistics for later calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|--------------|-------------|-----------|---------------------|
| Quantity (tons)..... | 10,491 | 8,400 | 1,740 | 1,287 |
| Value..... | \$11,552,218 | \$6,261,190 | \$779,593 | \$239,413 |

Imported ore or concentrates came from Hongkong, China, Japan, and Bolivia.

Exports.—No tungsten-bearing ores are exported. In the prewar period some ore was exported to Germany.

Important changes in classification.—Tungsten-bearing ores of all kinds are exempt from duty under paragraph 633 of the act of 1913.

In H. R. 7456, tungsten ore is, for the first time, placed in the same paragraph with the ferro-alloys and alloying metals.

Suggested changes.—Page 39, line 16, of H. R. 7456: Tungsten ores and concentrates are customarily sold on the basis of their content of tungsten trioxide (WO_3) rather than on their content of metallic tungsten. The assessment of duties on the basis of the tungsten trioxide content would, therefore, be more in accord with commercial practice.

Tungsten trioxide contains 79.31 per cent of metallic tungsten. On the basis of tungsten trioxide the duty equivalent to 45 cents per pound on the metallic tungsten content would be forty-five times 0.7931, or 35.7 cents per pound.

FERROMANGANESE.

Description and uses.—Ferromanganese is an alloy of manganese and iron, the content of the former being 45 per cent or more. Standard ferromanganese contains from 70 to 80 per cent manganese.

The bulk of the ferromanganese produced has a carbon content varying from 5 to 7 per cent, and is used in the manufacture of soft steel both as a deoxidizing and as an alloying agent. Ordinary carbon steel contains from 0.4 to 0.6 per cent manganese. Manganese steel, however, contains a much larger percentage of manganese (11 to 15 per cent) and ferromanganese is largely used in adding the manganese to the steel.

Ferromanganese containing less than 1 per cent carbon is much more expensive than the high carbon product and is made in smaller quantities. One grade with about 85 per cent manganese content is used in the manufacture of certain types of resistance wire for electric purposes, and also in the manufacture of certain nonferrous alloys. Another grade is called ferromanganese, but properly is "spiegeleisen," because it contains only 20 per cent manganese. It is employed in the manufacture of nickel silver. Both of these low carbon grades are high priced, ranging from about 60 to 80 cents per pound.

Production in 1913 amounted to 119,495 long tons, and in 1918, to 333,027 tons. In 1920 the country's output of high carbon ferromanganese was 295,447 gross tons, and of low carbon ferromanganese, about half a ton.

Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|---------------------|
| Quantity (tons)..... | 26,906 | 33,022 | 59,254 | 6,605 |
| Value..... | \$4,300,604 | \$4,283,541 | \$7,775,278 | \$748,194 |

Imported ferromanganese comes mainly from England. During the years above tabulated, small amounts were contributed by Japan, Canada, British India, and Brazil.

Exports, which are small compared with imports, were, for the calendar years 1918-1921, as follows:

| | 1918 | 1919 | 1920. | 1921 (9 months). |
|----------------------|-----------|-----------|-----------|---------------------|
| Quantity (tons)..... | 3,577 | 2,999 | 3,454 | 604 |
| Value..... | \$806,087 | \$445,840 | \$642,570 | \$38,853 |

The exported product goes largely to Canada, South America, and Italy.

Important changes in classification.—Ferromanganese is free under paragraph 518 of the act of 1913. In H. R. 7456 it is placed with the ferroalloys, instead of with "iron in pigs" as heretofore.

The dividing line between spiegeleisen and ferromanganese has been fixed at 45 per cent manganese content. Iron-manganese alloys containing 45 per cent or more manganese, are called ferromanganese,

and those having a smaller percentage of manganese, spiegeleisen. There is also a division between low carbon (1 per cent and less), and high carbon (above 1 per cent) grades, the former having a higher rate of duty.

Suggested changes.—Statements have been made to the Tariff Commission that 45 per cent is too high a percentage of manganese to distinguish ferromanganese and spiegeleisen. As the production of iron-manganese alloys containing over 25 and less than 70 per cent of manganese is small, the precise dividing line is unimportant. Forty-five per cent in H. R. 7456 is that adopted by the War Industries Board. Tiemann, an authority, puts the dividing line at 30 per cent manganese.

MANGANESE METAL, MANGANESE-SILICON, AND MANGANESE-BORON.

Description.—Manganese metal ordinarily contains 90 to 97 per cent manganese with a small percentage of iron, carbon and other ingredients. It is used largely in the nonferrous industries. Manganese-boron is a high-priced alloy containing from 19 to 25 per cent boron. Its principal use is in deoxidizing bronzes and brasses. Manganese-silicon or silico-manganese has a manganese content ranging from 55 to 70 per cent and a silicon content averaging about 25 per cent. Its use is practically the same as that of ferromanganese but it sells at a higher price per ton. It is made in Europe but its production in this country is very spasmodic.

Production.—There are no statistics concerning this country's output of these metals and alloys. The production, however, is known to be very small.

Imports.—Not separately recorded. Imports since the war, derived mainly from France, have not been large.

Exports.—None recorded.

Important changes in classification.—Manganese metal, manganese-silicon and manganese-boron are specifically mentioned in H. R. 7456 for the first time. Under the act of 1913 the second is governed by the provision referring to "other alloys used in the manufacture of steel" (par. 102), and the first and third, by the provision for "metals unwrought" (par. 154).

MOLYBDENUM AND FERROMOLYBDENUM.

Description.—Molybdenum is a heavy, white, malleable, tenacious metal, softer than steel, and with an exceptionally high melting point. Ferromolybdenum is an alloy of iron and molybdenum and is used in making molybdenum steel. Very little pure metal is used. Practically all the molybdenum added to steel is first reduced to the form of ferro-alloy. Where pure molybdenum is used it is generally in the form of powder. Calcium molybdate is a compound of calcium and molybdenum generally containing approximately 40 per cent molybdenum; it may be used in the manufacture of steel.

Uses.—Ferromolybdenum is added in definite proportions to steel in open-hearth, crucible, and electric furnaces in the production of molybdenum steel. It raises the elasticity and tensile strength of steel and gives it toughness. The addition of 0.25 per cent increases the elongation of steel from 4 per cent to 45 per cent. Molybdenum, either alone or in conjunction with tungsten, has been recommended

for giving high-speed cutting qualities to steel, but many manufacturers have found it unsatisfactory for this purpose. Considerable molybdenum steel is used for rear-axle and crank-shaft material in automobiles. Molybdenum and calcium molybdate are similarly used to add molybdenum to steel.

Production.—The United States is probably the world's greatest producer of ferromolybdenum, but no adequate statistics are available. The output, however, amounts to several hundred tons a year.

Price.—Ferromolybdenum was quoted (November, 1921) at \$2.25 per pound of molybdenum content.

Imports.—The imports of molybdenum and ferromolybdenum, which are small compared with the domestic production, were valued at \$203 in 1916. Statistics for later years follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 72,925 | \$19,280 | \$2,892 | 15 |
| 1919..... | 102,700 | 40,759 | 6,111 | 15 |
| 1921 (9 months)..... | 250 | 202 | | |

Exports.—Some molybdenum is exported, the greater part in the form of molybdenite concentrate.

Important changes in classification.—In H. R. 7456 calcium molybdate is specially provided for.

TUNGSTEN AND FERROTUNGSTEN.

Description.—Pure tungsten is almost white and is largely used in powdered form. It is also employed as an alloy with iron (ferrotungsten), with a tungsten content of about 70 per cent or over. The value of the ferroalloy rises as the tungsten content increases and the carbon content diminishes. In August, 1919, the quotations on ferrotungsten, 70 to 80 per cent grade, ranged from \$1.35 to \$1.60 per pound of tungsten content. In November, 1921, the quoted price was 40 to 45 cents per pound of tungsten content.

Tungstic acid is a chemically prepared oxide or hydroxide. The name, however, is often erroneously applied to tungsten trioxide (WO_3) contained in ore.

Uses.—The principal use of ferrotungsten and tungsten metal is its addition to tool steel, especially for "high-speed" tools. When employed in small amounts (2 to 5 per cent), the steel becomes self-hardening; used in larger amounts (10 to 25 per cent), the steel remains hard even after becoming red-hot.

Production.—In 1918 the United States was the largest producer of this important tool-steel alloy. Complete statistics are not available, but six companies reported their production for 1917 as 1,270 gross tons. For 1918 the Geological Survey reported shipments of ferrotungsten of domestic manufacture amounting to 2,142 gross tons. In 1919, production declined to something over 1,000 tons. A further decline is reported for 1920. It is manufactured in France, England, and Germany. Prior to the war, the bulk of the world's output was made in Germany.

Price.—Ferrotungsten is a high-priced alloy, the standard grades selling (1917-1919) at over \$2 per pound, a large part of which represents the price of the tungsten ore concentrate. In 1917 the average price (f. o. b. Pittsburgh) of ferrotungsten containing 75 to 85 per cent tungsten was \$2.37 per pound, the tungsten ore concentrate alone costing \$1.60. In December, 1920, the price of ferrotungsten was between \$0.68 and \$0.79 per pound of contained tungsten and a year later had fallen to \$0.40 and less per pound of metal content. The cost of the raw material—tungsten-bearing ores—is an important factor in the American competitive position.

Imports.—The imports of tungsten metal and ferrotungsten have varied greatly during the period 1913-1921. The imports were 654 long tons in 1913, and 31 long tons in 1915. Imports increased greatly after the close of the war and were as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-----------|------------------|
| | <i>Pounds.</i> | <i>\$</i> | <i>\$</i> | <i>Per cent.</i> |
| 1918..... | 596,460 | 287,981 | 43,197 | 15 |
| 1919..... | 1,997,719 | 1,180,839 | 177,124 | 15 |
| 1920..... | 507,206 | 180,371 | | |
| 1921 (9 months)..... | | | | |

Exports increased greatly during the war. In 1916 they were 128,718 pounds, valued at \$184,876. During the calendar years 1918-1921 exports were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-----------|---------|---------------------|
| Quantity (pounds)..... | 1,232,260 | 38,130 | 4,989 | |
| Value..... | \$2,545,087 | \$113,276 | \$5,913 | |

Important changes in classification.—In H. R. 7456 tungstic acid is given special mention.

OTHER TUNGSTEN ALLOYS.

Description and uses.—Other alloys of tungsten mentioned in the proposed tariff law are ferrochromium tungsten, chromium tungsten, chromium cobalt tungsten, and tungsten nickel. These alloys when produced are made in limited quantities; while they may be employed in making high-speed steel, their principal use is in making other alloys, e. g., stellite. Chromium cobalt tungsten which contains no steel is used as a substitute for tool steel.

Production of these alloys is very small.

Imports and exports not recorded.

Important changes in classification.—The words "or wolfram metal" have been omitted after "tungsten" as unnecessary. The tungsten alloys above named are specifically mentioned for the first time in this act.

FERROSILICON.

Description.—Ferrosilicon is an alloy of iron and silicon used in the manufacture of steel. The silicon acts as a deoxidizing agent, reducing blowholes and purifying the steel. The silicon content varies from 10 to 90 per cent and determines the grade. Ferrosilicon containing 10 to 15 per cent silicon is largely manufactured in blast furnaces, but is also produced in the electric furnace; the higher grades are produced only in electric furnaces.

Where the percentage of silicon rises above 90 per cent, especially when over 95 per cent, the product is known as silicon metal. Silicon metal is employed in the manufacture of aluminum castings and to some extent in the manufacture of other nonferrous alloys.

Production.—The production in 1918 was 297,940 gross tons and was larger than heretofore, owing to war demands. An estimate in May, 1918, for ferrosilicon with 50 per cent silicon content was from 100,000 to 110,000 tons per annum. Production in 1920 amounted to 235,526 tons. Ferrosilicon is made in Canada, and much is exported to this country. It is also produced in France, Germany, Switzerland, Austria, Norway, and Sweden.

Price.—Ferrosilicon with 50 per cent silicon content was quoted in 1919 at an average price of \$105.75 per gross ton. In 1920 the price averaged \$85.50, and in November, 1921, it had fallen to about \$58.00.

Imports in 1917 were 8,715 long tons. For later years they were as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------------|-----------|----------|------------------|
| | <i>Tons.</i> | | | <i>Per cent.</i> |
| 1918..... | 5,540 | \$424,932 | \$63,740 | 15 |
| 1919..... | 10,445 | 629,362 | 94,404 | 15 |
| 1920..... | 13,909 | 719,446 | 107,917 | 15 |
| 1921 (9 months)..... | 3,883 | 203,198 | | |

The bulk of the imported ferrosilicon comes from Canada.

Exports, which are relatively small, are shown in the following table for the calendar years 1918–1921:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|-----------|----------|---------------------|
| Quantity (tons)..... | 4,107 | 1,544 | 632 | 221 |
| Value..... | \$443,456 | \$145,310 | \$41,057 | \$11,325 |

The exported ferrosilicon goes principally to Chile, Argentina, Canada, and the United Kingdom.

Important changes in classification.—Ferrosilicon has been graded according to silicon content with an increasing scale of duties. These grades are five in number.

Conflicting provisions.—Ferrosilicon containing 8 per cent or more of silicon is provided for twice in this paragraph, once upon a graduated scale of specific duties and the other time at 30 per centum ad valorem. Possibly the latter is intended to be for zirconium-ferrosilicon, for which no specific provision is made in H. R. 7456.

CHROME AND FERROCHROME.

Description.—Chrome or chromium occurs chiefly as an oxide in combination with iron or other elements. The pure metal is hard, steel-gray in color, and not readily oxidized. It alloys with iron in all proportions and is used principally in the form of ferrochrome which is sold on a basis of its chromium and carbon contents, the price increasing with the chromium and decreasing with the carbon content.

Uses.—Ferrochrome is used extensively in the manufacture of armor-plate steel, armor-piercing projectiles, bullet-proof steel, high-speed steel and alloys, high-grade castings, stamp-mill shoes and dies, safe steel, wire, tires, springs, razors, file and cutlery steel, and for other minor purposes. Hardness and toughness are the principal characteristics of steels containing chromium.

Production.—An incomplete outline by the Geological Survey of production of ferro-alloys in the United States gives sales of 3,524 gross tons of ferrochromé, ferromolybdenum, ferrotungsten, and ferrovanadium in 1916, and 6,066 gross tons of ferrochrome, ferromolybdenum, ferrotitanium, ferrozirconium, and ferrovanadium in 1919. These figures, however, include only a fraction of the production, as an incomplete survey made by the Tariff Commission showed an output in excess of the figures given.

Price.—Ferrochrome containing 6 to 8 per cent carbon was quoted in August, 1919, at 32 to 40 cents per pound of chromium content, and ferrochrome containing 2 to 4 per cent carbon, at 70 cents per pound of contained chromium. The prices later declined, and in November, 1921, the high carbon grades were quoted as low as 11 cents per pound of contained chromium.

Imports of ferrochrome were 208 long tons in 1914 and 10 tons in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1919..... | 926,616 | \$100,404 | \$15,061 | 15 |
| 1920..... | 3,922,514 | 428,619 | 64,293 | 15 |
| 1921 (9 months)..... | 999,077 | 104,738 | | |

Exports.—Some ferrochrome has been exported, but the figures are not available.

Important changes in classification.—Ferrochrome is classified with regard to carbon content in grades containing 3 per cent or more of that material and those containing less than 3 per cent. The latter grades become rapidly more expensive as the carbon content is reduced.

FERROPHOSPHORUS.

Description and uses.—Ferrophosphorus is a chemical combination of iron and phosphorus with smaller amounts of other ingredients. Its principal use is in making basic open-hearth pipe, screw stock, and sheet bars. Ferrophosphorus restores the phosphorus content in open-hearth steel to the point desired and increases the tensile strength and welding quality of pipe steel. In screw steel more uniform and cleaner cut threads are made possible by the

addition of phosphorus. About 75 or 80 per cent of the ferrophosphorus now used goes into sheet bars, tin plate, and sheets; manufacturers find that the stripping or tearing apart of the plates or sheets can be accomplished with the minimum loss when ferrophosphorus is used.

Production.—No reliable figures are published concerning the production of ferrophosphorus in this or other countries. Sales, as reported by the Geological Survey, in 1916 aggregated 12,966 gross tons, and in 1919 6,706 gross tons.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|----------------|---------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 22,400 | \$1,035 | \$158 | 15 |
| 1919..... | 170,806 | 5,846 | 877 | 15 |
| 1920..... | 14,000 | 780 | 117 | 15 |

Exports.—None recorded.

TITANIUM AND FERROTITANIUM.

Description.—Titanium is abundant in nature. Pure metallic titanium has found no domestic applications of commercial importance. Ferrotitanium, an alloy of iron and titanium, is the form generally used. The two most prominent varieties of this alloy, and the only ones of domestic manufacture, are ferrocobalttitanium, containing from 15 to 18 per cent titanium, and carbon-free ferrotitanium, containing about 25 per cent titanium and some 5 to 6 per cent aluminum.

Uses.—Titanium has been employed in the treatment of steel rails made by the Bessemer process, but since the increased use of open-hearth steel in heavy rails the demand for titanium for rail use has decreased. A much larger use, however, has been found in the making of sheet steel, as steel treated with titanium is well suited for galvanizing. The estimated tonnage of steel treated with titanium was 2,200,000 in 1917.

Production.—The United States is the chief producer of ferrotitanium and titanium. No statistics, however, are available.

Before the war ferrotitanium was made by 15 manufacturers in Germany, 3 in Great Britain, and 2 in France. Switzerland and Sweden also manufactured some of this ferroalloy, and pure titanium was made in Norway.

Imports and exports.—There are practically no exports of metallic titanium or ferrotitanium. The imports have been small and sporadic. The maximum importation was 48 tons, valued at \$21,656 in 1912. Importation is principally from England. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 10 | \$10 | \$1 | 15 |
| 1919..... | 12,000 | 3,317 | 498 | 15 |
| 1920..... | 1,967 | 713 | 107 | 15 |
| 1921 (9 months)..... | 2,035 | 801 | | |

FERROVANADIUM.

Description.—Ferrovanadium is an alloy of iron and vanadium. American manufacturers report a product containing from 30 to 40 per cent vanadium.

Uses.—The vanadium in this ferroalloy acts as a cleanser and deoxidizer of a steel bath. It is employed after ferromanganese and ferrosilicon have been added and carries deoxidization beyond the point obtained by these alloys. Ferrovanadium is also used to add vanadium to the steel; in proportions up to 0.3 per cent the vanadium toughens and adds to the tensile strength of the steel. Steels so treated are unusually resistant to shock and alternate stresses, and hence are very useful for axles, cranks, piston rods, and similar steels. The automobile is a much stronger machine because of vanadium.

Production.—Schedules returned to the United States Tariff Commission by manufacturers show a yearly output of over 2,700 short tons during the period 1916 to 1918, inclusive, production having increased between 700 and 800 per cent since 1910. More ferrovanadium is produced here than abroad, but some is manufactured in Germany and England. The world's output is practically under American control. Vanadium deposits in Peru, Colorado, and Utah are controlled by American companies. South Africa has lately produced some vanadium.

Price.—Ferrovanadium containing 30 to 40 per cent vanadium was quoted during 1919 at \$5.50 to \$7 per pound of vanadium contained, and during 1920 at \$5.50 to \$8.25 per pound. By November, 1921, the price ranged from \$4.25 to \$4.50 per pound of contained vanadium.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent</i> |
| 1919..... | 11,200 | \$24,923 | \$3,738 | 15 |
| 1920..... | 7,989 | 14,331 | 2,170 | 15 |

Exports amounted to over 1,300 short tons in 1917. For the calendar years 1918 to 1921 they are shown in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|----------|-----------|---------------------|
| Quantity (pounds)..... | 1,512,737 | 64,626 | 387,000 | 192,033 |
| Value..... | \$1,774,052 | \$95,600 | \$705,385 | \$338,376 |

TANTALUM.

Description.—Tantalum is a metallic element associated with columbium in the minerals tantalite, yttrotantalite, columbite, and other heavy rare minerals. It is obtained chiefly from tantalite. Tantalum is black in color, assuming an iron-gray luster under a burnisher.

Uses.—Wrought tantalum is exceedingly hard and tough and has been used in the manufacture of pen nibs. It resists all ordinary acids, even aqua regia, hence its great usefulness for chemical purposes. It was formerly employed for electric-light filaments.

Production.—There are no published statistics, but the output is known to be very limited. Because of their close similarity, the separation of tantalum from columbium is a long and complicated process.

Imports are small; in 1917 they were valued at \$2,000. No imports are recorded for the calendar years 1918 and 1919. In 1920, 60 pounds valued at \$54, were imported, and during nine months of 1921 there were received 1,229 pounds, valued at \$788, from England.

Exports.—There are no statistics. Exports are probably negligible.

OTHER ALLOYS USED IN THE MANUFACTURE OF STEEL.

Description and uses.—Such alloys include a vast number of metals and alloys used either in very limited amounts or experimentally. Some alloys enumerated in the act are the following:

Ferrouanium.—Uranium is a heavy and extremely active element. It is added to steel in the form of ferrouanium. The influence of uranium on steel is not completely known, but it is said to give a decided strengthening power and resistance to shock. The high price of uranium has deterred experimentation, uranium oxide having brought \$3.25 to \$3.60 per pound in 1918, and ferrouanium \$7 to \$7.50 per pound of contained metal. Even in the fall of 1921 the latter was quoted at \$6 per pound of metal content.

Ferroboron.—The qualities of ferroboron are not fully determined. Boron occurs in the form of borax. Borax is very difficult to reduce to the elemental state, and only small quantities of ferroboron have been manufactured. Experiments in France showed that remarkably strong steels are made by using 0.5 to 2 per cent of boron. Its action is much like that of vanadium.

Ferrozirconium.—This alloy carries 30 to 40 per cent zirconium metal and sells for \$4 to \$4.50 per pound of metal contained. Zirconium-bearing steel is reported to be adapted for bullet-proof sheets, armor plate, and armor-piercing projectiles. Investigations of its steel-hardening qualities, its fitness for light armor plate on tanks, aeroplanes, etc., are still under way in the trade.

Ferrocerium.—This alloy, 30 per cent iron and 70 per cent cerium, is employed as tinder in pocket cigar lighters, gas lighters, and as igniters for mine lamps. During the war it was also used in hand grenades and projectiles. Its domestic production probably runs from 1,000 to 2,000 pounds per month—prior to 1917 under Austrian patents, now under licenses granted American manufacturers by the Alien Property Custodian. The manufacture of ferrocerium is part of the pyrophoric-alloy industry, of which the incandescent gas mantle is a widely known product. The use of ferrocerium for making stronger iron castings has been recommended.

In addition to these alloys are chromium nickel, vanadium nickel, zirconium nickel, chromium vanadium, chromium silicon, zirconium silicon, and calcium silicide. None of these compounds are made in steady quantities since they are in an experimental stage of production.

Production is small and no reliable statistics exist.

Imports of ferroalloys and metals used in making alloy steels other than those for which figures have been tabulated above, are grouped in the tables of the Bureau of Foreign and Domestic Commerce under the caption "All other alloys used in the manufacture of steel, n. s. p. f." The largest single item is calcium silicide or silicon-calcium, which is imported from France by several concerns that are endeavoring to introduce this alloy into American steel practice as a substitute for ferromanganese and ferrosilicon. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 31,920 | \$5,025 | \$754 | 15 |
| 1919..... | 19,178 | 2,501 | 376 | 15 |
| 1920..... | 241,029 | 23,093 | 3,644 | 15 |
| 1921 (9 months)..... | 134,661 | 15,209 | | |

NOTE ON FERROALLOYS AND STEEL-ALLOYING METALS.

Metals and alloys produced in steady quantities.—Many of the ferroalloys or alloying metals mentioned in this paragraph are produced only spasmodically and for experiment. The following are manufactured in steady quantities:

Ferromanganese (high and low carbon grades); ferrosilicon; ferrochrome (high and low carbon grades); ferrotungsten; ferrovanadium; ferromolybdenum; ferrophosphorus; ferrotitanium; metallic manganese; calcium molybdate; manganeseboron; metallic tungsten; chromium tungsten; silicon metal; and ferrocerium.

In addition to these, ferrouranium is quoted regularly on the market and some authorities say that ferrozirconium is a coming alloy of importance.

PARAGRAPH 303.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 303. Muck bars and bar iron, square iron, rolled or hammered, comprising flats not less than one inch wide nor less than three-eighths of one inch thick, round iron not less than seven-sixteenths of one inch in diameter, one-fourth of 1 cent per pound; round iron, in coils or rods, less than seven-sixteenths of one inch in diameter, and bars and shapes of rolled or hammered iron, not specially provided for, five-tenths of 1 cent per pound; iron in slabs, blooms, loops, or other forms less finished than iron in bars, and more advanced than pig iron, except castings, two-tenths of 1 cent per pound: *Provided*, That all iron bars, blooms, billets, slabs or loops in the manufacture of which charcoal is used as fuel shall be subject to a duty of three-tenths of 1 cent per pound.

ACT OF 1909.

PAR. 119. Bar iron, muck bars, square iron, rolled or hammered, comprising flats not less than one inch wide nor less than three-eighths of one inch thick, round iron not less than seven-sixteenths of one inch in diameter, three-tenths of one cent per pound.

PAR. 120. Round iron, in coils or rods, less than seven-sixteenths of one inch in diameter, and bars or shapes of rolled or hammered iron, not specially provided for in this section, six-tenths of one cent per pound:

Provided, That all iron in slabs, blooms, loops, or other forms less finished than iron in bars, and more advanced than pig iron, except castings, shall be subject to a duty of four-tenths of one cent per pound:

Provided further, That all iron bars, blooms, billets, slabs or loops, in the manufacture of which charcoal is used as fuel, shall be subject to a duty of eight dollars per ton.

ACT OF 1913.

PAR. 103. Muck bars, bar iron, square iron, rolled or hammered, round iron, in coils or rods, bars or shapes of rolled or hammered iron not specially provided for in this section, 5 per centum ad valorem.

PAR. 518. * * * iron in slabs, blooms, loops or other forms less finished than iron bars, and more advanced than pig iron, except castings, not specially provided for in this section [Free].

BAR IRON.

(See Survey C-2.)

Description.—Bar iron is wrought iron in the form of bars. The rough iron bloom coming from the puddling furnace is first rolled into a flat bar, known as a muck bar or puddle bar. It is then cut into short lengths and the pieces piled together to be reheated. After reheating and rerolling the material is known as refined iron, refined bars, or, more commonly, merchant bars. There is sometimes a second and third reheating and rerolling to improve the grade. In the process of rolling iron is reduced to simple forms, such as squares, rounds, and flats. These forms resemble the cross sections of the material from which they are made—blooms, billets, or slabs—and their final section determines their nomenclature.

The terms "slabs," "blooms," "loops," and "billets," as applied to wrought iron, represent earlier stages of production than those of bars and indicate the shapes the iron assumes before being made into bars.

Where charcoal is used in the manufacture of bars, blooms, billets, etc., a purer product is usually obtained, but the cost is much greater.

Production of merchant iron bars in 1917 amounted to 983,926 gross tons and in 1920 to 663,032 gross tons. Wrought-iron bars in recent years have maintained an unequal competition with soft steel, which is occasionally used in the place of wrought iron. The labor cost of iron bars is greater than that involved in the production of steel bars.

Imports may be tabulated under three general heads: (1) Muck bars; (2) Bar iron, including flat and square iron and iron in rods or coils, and shapes or rolled or hammered iron, n. s. p. f.; (3) Slabs, blooms, loops, etc.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|---------|------------------|
| MUCK BARS. | | | | |
| | <i>Tons.</i> | | | <i>Per cent.</i> |
| 1919..... | 760 | \$122,078 | \$6,104 | 5 |
| 1920..... | 717 | 62,283 | 3,114 | 5 |
| 1921 (9 months)..... | 347 | 37,573 | | |
| BAR IRON, INCLUDING FLAT, SQUARE, ROUND IRON, ETC. | | | | |
| 1919..... | 1,049 | \$86,205 | \$4,310 | 5 |
| 1920..... | 3,906 | 562,231 | 28,111 | 5 |
| 1921 (9 months)..... | 938 | 87,720 | 4,386 | 5 |
| IRON SLABS, BLOOMS, LOOPS, ETC. | | | | |
| | <i>Pounds.</i> | | | |
| 1918..... | 510,684 | \$15,607 | | |
| 1919..... | 401,263 | 11,457 | | |
| 1920..... | 463,765 | 13,733 | | |

Most of the imported iron entering the country in the form of bars comes from England, Sweden, and Canada.

Exports of bar iron for the calendar years 1918 to 1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 141,942,462 | 135,624,896 | 104,445,766 | 26,195,249 |
| Value..... | \$6,576,362 | \$5,634,398 | \$4,651,224 | \$1,143,736 |

Exports go mainly to Japan, Canada, United Kingdom, Brazil, and Cuba.

Important changes in classification.—Iron in the form of blooms, slabs, loops, etc., is transferred from the free list of the act of 1913 (par. 518). A distinction is made between iron in the manufacture of which charcoal is used as a fuel and iron produced with the use of other fuel.

Suggested changes.—All iron bars, blooms, billets, slabs etc., in the manufacture of which charcoal is used are subject to a duty of three-tenths of 1 cent per pound. Round iron in coils or rods less than seven-sixteenths of 1 inch in diameter and bars and shapes of rolled or hammered iron not specially provided for are subject to a rate of five-tenths of 1 cent per pound. All charcoal iron coming under this paragraph is, therefore, subject to a lower rate of duty than certain kinds of wrought iron which are more cheaply manufactured.

In order to obviate the imposition of higher duties on the cheaper than on the more expensive irons, the proviso in the paragraph might be made to read as follows:

Provided, That all iron bars, blooms, billets, slabs, or loops in the manufacture of which charcoal is used as a fuel, shall be subject to a duty of not less than [rate] per pound.

PARAGRAPH 304.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 304. Steel ingots, cogged ingots, blooms and slabs, by whatever process made; die blocks or blanks; billets and bars; shafting; pressed, sheared, or stamped shapes, not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; alloys not specially provided for used as substitutes for steel in the manufacture of tools; all descriptions and shapes of dry sand, loam, or iron molded steel castings; sheets and plates and steel not specially provided for; all of the foregoing valued at not over 1 cent per pound, two-tenths of 1 cent per pound; valued above 1 cent and not above $1\frac{1}{2}$ cents per pound, three-tenths of 1 cent per pound; valued above $1\frac{1}{2}$ and not above $2\frac{1}{2}$ cents per pound, five-tenths of 1 cent per pound; valued above $2\frac{1}{2}$ and not above $3\frac{1}{2}$ cents per pound, eight-tenths of 1 cent per pound; valued above $3\frac{1}{2}$ and not above 5 cents per pound, 1 cent per pound; valued above 5 and not above 8 cents per pound, $1\frac{1}{2}$ cents per pound; valued above 8 and not above 12 cents per pound, 2 cents per pound; valued above 12 and not above 16 cents per pound, $2\frac{1}{2}$ cents per pound; valued above 16 and not above 20 cents per pound, 3 cents per pound; valued above 20 and not above 24 cents per pound, 4 cents per pound; valued above 24 and not above 32 cents per pound, 5 cents per pound; valued above 32 and not above 40 cents per pound, 6 cents per pound; valued above 40 cents per pound, 20 per centum ad valorem: *Provided*, That on steel circular saw plates there shall be levied, collected and paid an additional duty of one-fourth of 1 cent per pound.

ACT OF 1909.

PAR. 131. Steel ingots, cogged ingots, blooms, and slabs, by whatever process made; die blocks or blanks; billets and bars and tapered or beveled bars; mill shafting; pressed, sheared, or stamped shapes, not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; alloys used as substitutes for steel in the manufacture of tools; all descriptions and shapes of dry sand, loam or iron-molded steel castings; sheets and plates and steel not specially provided for in this section, all of the above valued at three-fourths of one cent per pound or less, seven-fortieths of one cent per pound; valued above three-fourths of one cent

ACT OF 1913.

PAR. 613. Steel ingots, cogged ingots, blooms and slabs, die blocks or blanks, and billets, if made by the Bessemer, Siemens-Martin, open-heartn or similar processes, not containing alloy, such as nickel, cobalt, vanadium, chromium, tungsten, or wolfram, molybdenum, titanium, iridium, uranium, tantalum, boron, and similar alloys, [Free].

PAR. 110. Steel bars, and tapered or beveled bars; mill shafting; pressed, sheared, or stamped shapes, not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; all descriptions and shapes of dry sand, loam, or iron molded steel castings, sheets, and

ACT OF 1909.

and not above one and three-tenths cents per pound, three-tenths of one cent per pound; valued above one and three-tenths cents and not above one and eight-tenths cents per pound, five-tenths of one cent per pound; valued above one and eight-tenths cents and not above two and two-tenths cents per pound, six-tenths of one cent per pound; valued above two and two-tenths cents and not above three cents per pound, eight-tenths of one cent per pound; valued above three cents per pound and not above four cents per pound, one and one-tenth cents per pound; valued above four cents and not above seven cents per pound, one and two-tenths cents per pound; valued above seven cents and not above ten cents per pound, one and nine-tenths cents per pound; valued above ten cents and not above thirteen cents per pound, two and three-tenths cents per pound; valued above thirteen cents and not above sixteen cents per pound, two and seven-tenths cents per pound; valued above sixteen cents and not above twenty-four cents per pound, four and six-tenths cents per pound; valued above twenty-four cents and not above thirty-two cents per pound, six cents per pound; valued above thirty-two cents and not above forty cents per pound, seven cents per pound; valued above forty cents per pound, twenty per centum ad valorem.

PAR. 137. * * * on steel circular saw plates there shall be paid one-fourth of one cent per pound in addition to the rates provided in this section for steel plates.

PAR. 171. * * * ingots, clogged ingots, blooms, or blanks for the same, without regard to the degree of manufacture, one cent per pound: * * * ["The same" refers to wheels for railway purposes or parts thereof made of steel and steel locomotive car or other railway tires or parts thereof.]

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plates; all the foregoing, if made by the Bessemer, Siemens-Martin, open-hearth, or similar processes, not containing alloys, such as nickel, cobalt, vanadium, chromium, tungsten or wolfram, molybdenum, titanium, iridium, uranium, tantalum, boron, and similar alloys, 8 per centum ad valorem; steel ingots, clogged ingots, blooms and slabs, die blocks or blanks; billets and bars and tapered or beveled bars; pressed, sheared, or stamped shapes not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; alloys used as substitutes for steel in the manufacture of tools; all descriptions and shapes of dry sand, loam, or iron molded castings, sheets, and plates; * * * and steel not specially provided for in this section, all the foregoing when made by the crucible, electric, or cementation process, either with or without alloys, and finished by rolling, hammering, or otherwise, and all steels by whatever process made, containing alloys such as nickel, cobalt, vanadium, chromium, tungsten, wolfram, molybdenum, titanium, iridium, uranium, tantalum, boron, and similar alloys, 15 per centum ad valorem.

PAR. 105. * * * crucible plate steel and saw plates, cut or sheared to shape or otherwise, or unshaped, * * * 12 per centum ad valorem.

PAR. 109. * * * metal sheets decorated in colors * * * 15 per centum ad valorem.

CRUDE STEEL, ETC.

(See Surveys C-4 and C-7.)

Description.—The steel ingot is the first solid form which pig iron takes when converted into steel. When made by the Bessemer or open-hearth process, it is usually a block about 6 feet long, 1½ feet wide, and 1½ feet thick. Blooms, billets, and slabs are usually modifications of the ingot after being subjected to rolling. Blooms and billets have a rectangular cross section and are square or nearly so. Slabs are rectangular, with a width at least twice their thickness. Blooms and billets are rolled into structural shapes, bars, and the like, and slabs, into plates and sheets. Ordinary steel bars are rolled

products made from billets and are classified as rounds, flats, squares, hexagons, ovals, half rounds, or half ovals, according to section. A die block or blank is a mass of metal attached to a hammer which falls or is driven violently against a piece to be worked, or is the anvil block on which the piece is placed. Shafting, pressed and stamped shapes, and hammer and gun-barrel molds represent forms of finished iron and steel which have received little or no treatment beyond rolling, pressing, hammering, or stamping. Hammer molds or swaged steel is steel shaped by a hammer and swage. Steel castings are steel forms shaped by molds into which the molten metal is poured and allowed to solidify. They may be annealed or machined, or both, but they do not receive any rolling or forging. Alloys which can be used as substitutes for steel in the manufacture of tools are not at present numerous. The most promising is stellite, which is composed of cobalt, chromium, and tungsten (or molybdenum), already provided for in paragraph 302. Sheets and plates are pieces of iron and steel ranging generally from 6 to 200 inches in width and cut to various lengths. Plates have a thickness of one hundred and forty-one thousandths of 1 inch. This thickness corresponds to No. 10 wire gauge. Circular-saw plates are plates made under certain specifications, circular in form and intended for use as saws.

Production.—The production of steel is usually given in terms of ingots and castings. In 1914 this production was 23,513,030 gross tons. The country's output of steel in 1920 amounted to 42,132,934 gross tons, of which 40,881,392 tons constituted ingots and 1,251,542 tons, castings. Over three-fourths of the steel output was open-hearth and about one-fifth Bessemer, the greater part of the remainder consisting of electric steel. Of the steel produced in 1920, 6,130,240 gross tons were rolled into merchant bars and 9,337,680 gross tons were rolled into plates and sheets. The leading foreign producers of steel are Germany, the United Kingdom, and France, whose output in 1918 was 14,874,000 tons, 9,591,000 tons, and 1,912,000 tons, respectively.

Imports.—Imports of articles enumerated in this paragraph are in some instances difficult to state, because they overlap articles mentioned in other paragraphs. This is particularly true with reference to steel plate. Roughly speaking, imports may be divided into eight distinct classes:

- (1) Steel ingots made by the Bessemer and open-hearth processes.
- (2) Cogged ingots, blooms and slabs, die blocks and blanks, billets and bars, made by the Bessemer and open-hearth processes.
- (3) Steel ingots, cogged ingots, blooms and slabs, made by the crucible, electric, or cementation process.
- (4) Shafting, hammer molds, gun-barrel molds, etc.
- (5) Sheets and plates not containing alloys, made by the Bessemer and open-hearth processes.
- (6) Saw plate.
- (7) Sheets and plates, either with or without alloys, finished by rolling, hammering, or otherwise, made by the crucible, electric, or cementation process.
- (8) Crucible plate steel.

Statistics of imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|-------------|-----------|------------------|
| STEEL INGOTS MADE BY THE BESSEMER AND OPEN-HEARTH PROCESSES. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1919..... | 410,439 | \$15,793 | | |
| 1920..... | 10,606,891 | 215,908 | | |
| 1921 (9 months)..... | 5,205,170 | 59,610 | | |
| COGGED INGOTS, BLOOMS AND SLABS, DIE BLOCKS AND BLANKS, BILLETS AND BARS MADE BY THE BESSEMER AND OPEN-HEARTH PROCESSES. | | | | |
| 1918..... | 75,287,681 | \$1,549,788 | | |
| 1919..... | 18,025,191 | 424,677 | | |
| 1920..... | 10,222,858 | 346,637 | | |
| 1921 (9 months)..... | 1,562,533 | 32,462 | | |
| STEEL INGOTS, COGGED INGOTS, BLOOMS AND SLABS MADE BY THE CRUCIBLE, ELECTRIC, OR CEMENTATION PROCESSES. | | | | |
| 1918..... | 6,028,393 | \$1,489,695 | \$223,454 | 15 |
| 1919..... | 3,318,726 | 1,566,025 | 234,904 | 15 |
| 1920..... | 3,208,563 | 837,889 | 125,683 | 15 |
| 1921 (9 months)..... | 860,232 | 176,157 | | |
| SHAFTING, HAMMER MOLDS, GUN-BARREL MOLDS, ETC. | | | | |
| 1918..... | 9,829,641 | \$468,451 | \$37,476 | 8 |
| 1919..... | 1,434,123 | 86,412 | 6,913 | 8 |
| 1920..... | 3,733,057 | 263,553 | 21,084 | 8 |
| 1921 (9 months)..... | 965,955 | 44,480 | | |
| SHEETS AND PLATES NOT CONTAINING ALLOYS. | | | | |
| 1918..... | 2,269,863 | \$271,342 | \$21,707 | 8 |
| 1919..... | 1,248,931 | 142,784 | 11,423 | 8 |
| 1920..... | 1,766,989 | 184,240 | 14,739 | 8 |
| 1921 (9 months)..... | 390,920 | 40,354 | | |
| SAW PLATE. | | | | |
| 1918..... | 96,416 | \$24,896 | \$2,988 | 12 |
| 1919..... | 71,149 | 12,506 | 1,501 | 12 |
| 1920..... | 236 | 429 | 51 | 12 |
| 1921 (9 months)..... | 25 | 13 | | |
| SHEETS AND PLATES, EITHER WITH OR WITHOUT ALLOYS, FINISHED BY ROLLING, HAMMERING, OR OTHERWISE. | | | | |
| 1918..... | 218,066 | \$56,639 | \$8,496 | 15 |
| 1919..... | 531,322 | 136,614 | 20,492 | 15 |
| 1920..... | 1,325,979 | 251,737 | 37,761 | 15 |
| 1921 (9 months)..... | 232,392 | 48,262 | | |
| CRUCIBLE PLATE STEEL. | | | | |
| 1918..... | 41,893 | \$9,690 | \$1,163 | 12 |
| 1919..... | 171,598 | 38,904 | 4,668 | 12 |
| 1920..... | 191,256 | 34,940 | 4,193 | 12 |
| 1921 (9 months)..... | 49,403 | 4,306 | | |

¹ Includes steel ingots.

In addition to the above there were imported into the United States a few tons of crucible-steel ingots in 1919 for the construction of vessels and in 1918 and 1920 similar amounts of shafting, shapes, etc., for the same purpose.

The greater part of the imported steel in these forms comes from the United Kingdom, Canada, and Sweden.

Exports.—The United States is a great exporter of steel but most of the exported material goes abroad in forms more highly finished than those enumerated in this paragraph. Exports of billets, ingots, and blooms in the calendar years 1918–1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|---------------|--------------|--------------|---------------------|
| Quantity (tons)..... | 1,786,189 | 258,424 | 216,873 | 8,091 |
| Value..... | \$150,568,151 | \$19,370,787 | \$12,645,950 | \$416,297 |

During 1920 and 1921 the greater part of this steel went to the United Kingdom, Canada, Italy, Belgium, and Japan. In 1918–19 much steel in these forms went also to France.

Important changes in classification.—Steel ingots, clogged ingots, blooms and slabs, die blocks or blanks, and billets, if made by the Bessemer, Siemens-Martin, open-hearth or similar processes, not containing alloys, are free under paragraph 613 of the act of 1913. In H. R. 7456 the distinction between steel made by the open-hearth and Bessemer processes and steel made by the crucible, electric-furnace, and cementation processes in the act of 1913 is no longer retained. A graduated scale of duties is employed for steels varying in quality. Specific mention of crucible plate steel is also omitted but is by implication retained in the provisions for the duties on high-grade plate steel. The specific provision for saw plate contained in the act of 1913 is limited in the proposed tariff act to steel "circular saw plates."

Suggested changes.—The provisions for sheets and plates, including circular saw plates, in this paragraph might be transferred to a separate paragraph including all sheets and plates of the character designated. Paragraph 304 deals with crude and half-finished steel material, and from the viewpoint of the steel manufacturer plates and sheets constitute finished material.

PARAGRAPH 305.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 305. In addition to the rates of duty provided for in this title on steel in all forms and shapes, by whatever process made, and by whatever name designated, whether cast, hot or cold rolled, forged, stamped, or drawn, containing more than six-tenths of 1 per centum of nickel, cobalt, vanadium, chromium, tungsten, mo-

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SENATE AMENDMENTS.

lybdenum, or any other metallic element used in alloying steel, there shall be levied, collected, and paid 15 per centum ad valorem: *Provided*, That manganese and silicon shall not be considered as alloying material unless present in the steel in excess of 1 per centum manganese or silicon: *Provided further*, That an additional cumulative duty of \$1.25 per pound on the molybdenum content in excess of 1½ per centum, and 72 cents per pound on the tungsten content in excess of 1½ per centum shall be levied, collected and paid on any articles containing molybdenum and tungsten.

ACT OF 1909.

ACT OF 1913.

PAR. 131. [Specific rates according to value up to 40 cents per pound, above which 20 per centum ad valorem. No distinction between alloy steels and carbon steels of similar value.]

PAR. 110. * * * and all steels by whatever process made, containing alloys such as nickel, cobalt, vanadium, chromium, tungsten, wolfram, molybdenum, titanium, iridium, uranium, tantalum, boron, and similar alloys, 15 per centum ad valorem.

ALLOY STEELS.

(See Survey C-7.)

Description and uses.—Certain elements or metals are capable of purifying steel, and when alloyed therewith, of giving it certain desirable qualities. These metals are generally rare but add materially to the value of the steel. Alloy steels vary in character and value. The principal ones are the following:

- (1) Nickel steel, with a nickel content from 2 to 4 per cent, used mainly in the manufacture of high-class structural steel, forgings, and plates.
- (2) Chrome nickel steel, with a chromium content of 1½ per cent, used in the manufacture of forgings like axles.
- (3) Tungsten steel, ordinarily containing either 14 or 18 per cent tungsten, used in the manufacture of high-speed steel tools, and with a smaller percentage of tungsten, in the manufacture of other tools.
- (4) Vanadium steel, containing less than 1 per cent vanadium, used for automobile parts, subject to repeated stresses.
- (5) Molybdenum steel, for the same uses as vanadium steel.
- (6) Chrome steel used in small quantities in the manufacture of ball bearings.
- (7) Manganese steel employed in the making of rolls and rails and other products subject to abrasion.

In addition to these steels there are copper steels which resist corrosion, silicon steel employed in the manufacture of springs, electric transformers, etc., and zirconium steel which may come into competition with vanadium steel.

The production of alloy steels in 1920 amounted to 1,660,292 gross tons. The output in 1910 amounted to 567,819 gross tons or

about one-third of that produced in 1920. Of the output in 1920, 1,591,939 gross tons consisted of ingots and 68,353 gross tons of castings. In 1920, 1,283,646 gross tons were made by the open-hearth process and over half of the remainder by the electric furnace method.

Imports.—Much of the imported alloy steels come into the country in the forms of bars, rods, plates and the like. Some alloy steel is imported under the general designation "steel in all forms and shapes by whatever process made, n. s. p. f.," statistics of the importation of which are given in the table below. (This imported material, however, includes much steel that does not come under the designation of alloy.)

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 151,424 | \$55,548 | \$8,332 | 15 |
| 1919..... | 204,457 | 122,904 | 18,445 | 15 |
| 1920..... | 883,740 | 371,147 | 55,672 | 15 |
| 1921 (9 months)..... | 209,950 | 60,049 | | |

Important changes in classification.—A new provision.

Suggested changes.—Insert a comma after "collected", in line 17, on page 43 of H. R. 7456.

In the second proviso, the word "articles" may apply to tools made from tungsten or molybdenum steels, and particularly high-speed steel twist drills, reamers, and milling cutters. These articles are not specially provided for and will therefore be dutiable as manufactures of metal, n. s. p. f. under paragraph 393. They are sold by the piece and the value per pound varies between wide limits (say from \$1 to \$10 or more), and the actual percentage of tungsten may also vary from as low as 10 per cent to 18 per cent or more. The collection of a specific duty on the tungsten content would involve the weighing of the articles and the ascertainment of the percentage of tungsten. In order to secure a representative sample it would be necessary to destroy the article or at least injure it by drilling in such a manner as to lower materially the value of any part actually examined. The average value of these articles is probably considerably in excess of \$3 per pound, hence the duty at 35 per cent would amount to more than \$1 per pound of metal. The duty collected on the tungsten content (a maximum of about 18 per cent) would amount to less than 13 cents per pound, or, say, an additional 4 per cent ad valorem.

There is some doubt concerning the scope of this paragraph. The expression "steel in all forms and shapes not specially provided for in this Act," is a catchall phrase in paragraph 135 of the act of 1897, which was omitted from the acts of 1909 and 1913. Paragraph 305 is evidently intended to embrace more than that provision in the act of 1897. If the intention is to limit the provision to the steels enumerated in paragraph 304, the words "the immediately preceding paragraph" might be substituted for "this title" in line 4, page 43.

The word "articles" would make the second proviso applicable to any product whatsoever; whether unfinished or finished, containing more than 1½ per cent of tungsten or molybdenum.

PARAGRAPH 806.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 306. All metal produced from iron or its ores, which is cast and malleable, of whatever description or form, without regard to the percentage of carbon contained therein, whether produced by cementation, or converted, cast, or made from iron or its ores, by the crucible, electric, Bessemer, Clapp-Griffith, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin, or open-hearth process, or by the equivalent of either, or by a combination of two or more of the processes, or their equivalents, or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable-iron castings, shall be classed and denominated as steel.

ACT OF 1909.

ACT OF 1913.

PAR. 139. All metal produced from iron or its ores, which is cast and malleable, of whatever description or form, without regard to the percentage of carbon contained therein, whether produced by cementation, or converted, cast, or made from iron or its ores, by the crucible, Bessemer, Clapp-Griffith, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin, or open-hearth process, or by the equivalent of either, or by a combination of two or more of the processes, or their equivalents, or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable-iron castings, shall be classed and denominated as steel.

PAR. 117. All metal produced from iron or its ores, which is cast and malleable, of whatever description or form, without regard to the percentage of carbon contained therein, whether produced by cementation, or converted, cast, or made from iron or its ores, by the crucible, Bessemer, Clapp-Griffith, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin, or open-hearth process, or by the equivalent of either, or by a combination of two or more of the processes, or their equivalents, or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable-iron castings, shall be classed and denominated as steel.

STEEL, PROCESSES OF MANUFACTURE.

(See Survey C-7.)

This paragraph is descriptive only, and its definition of steel is rather more inclusive than the usual trade acceptance. As defined in this paragraph, steel may have no carbon whatsoever, whereas in trade practice iron with a carbon content less than 2.2 per cent, generally less than 1.5 per cent, but more than a mere trace of that element constitutes steel. Steel is characterized by relative toughness, and, when tempered, by hardness and elasticity. It differs from cast iron in that it has a smaller percentage of carbon and from wrought iron by its freedom from slag. Ordinarily, steel has also a smaller percentage of silicon than pig iron, although in the case of certain alloyed steel the silicon content may be relatively high.

At the present time, there are five recognized processes in manufacturing steel: The Bessemer, the open-hearth, the crucible, the electric-furnace, and the cementation processes. The Bessemer process consists in blowing air through molten pig iron contained in a suitable vessel, whereby its impurities are oxidized and removed. The open-hearth process consists in the oxidation and removal of the impurities contained in a bath of metallic iron lying on a hearth of a regenerative furnace, the product being tapped in a fluid condition. The crucible process produces a steel particularly free from imperfections by melting in air-tight crucibles various grades of iron or steel with or without the addition of carbon, ore, or other metals. The electric-furnace process is distinguished by the use of electricity as the source of heat for the various reactions. The cementation process consists in impregnating bars of wrought iron or soft steel with carbon at a temperature below their melting point, and is used (chiefly in England) for the production of high-carbon bars for the manufacture of steel or shear steel.

The Bessemer and open-hearth processes may each assume one of two forms—the acid or the basic—according to the lining of the furnace. In the acid process, the silicon, manganese, and carbon contained in the pig iron are acted upon, but not the phosphorus and sulphur. In the basic process, phosphorus is largely, and the sulphur to a considerable extent, eliminated, as well as the silicon, manganese, and carbon. The basic-Bessemer process is seldom employed in the United States, owing to the relatively low phosphorus content of American pig iron. For the acid-Bessemer process, the phosphorus content of the pig iron should not be greater than 0.1 per cent, whereas a typical analysis of pig iron adapted to the basic-Bessemer process would show a phosphorus content of about 2.5 per cent. Most of the non-Bessemer domestic pig iron is thus manufactured into steel by the basic open-hearth process, which does not require so high a phosphorus content. On account of the greater uniformity and reliability of the steel produced by the open-hearth process much of the pig iron suitable for the Bessemer process is now converted by the acid open-hearth method. Two or more of these processes may be combined. Thus in the duplex process the metal is partly purified in Bessemer converters and finally purified in basic open-hearth steel furnaces.

The Clapp-Griffith process is one form of the Bessemer, wherein the Clapp-Griffith converter is employed. The pneumatic process is an obsolete term for the Bessemer and is also applied to a special form of the Bessemer process for the making of wrought iron (the Champion pneumatic process). The names "Thomas," "Thomas-Gilchrist," and "basic" are used in Europe synonymously with the basic-Bessemer process, although the term "basic," as has just been noted, is also used more broadly to include the basic open-hearth process. The Siemens-Martin process, as the term is ordinarily used, signifies open-hearth.

Importance of steel.—At the present time most of the pig-iron output of the world is converted into steel, the domestic proportion being between 80 and 90 per cent.

In the calendar year 1920 the United States produced 42,132,934 gross tons of steel. Of this output, 32,671,895 tons were made by the open-hearth process; 8,883,087 were made by the Bessemer; 72,265

tons by the crucible; 502,152 tons by the electric furnace; and 3,535 tons by miscellaneous processes or processes not named.

Suggested changes.—In enumerating the methods of steel manufacture it is suggested that the five processes now used by commercial nations be named without the addition of the others. The terms "Clapp-Griffith," "pneumatic," and "Thomas-Gilchrist" represent certain specialized types of the Bessemer process, and the term "Siemens-Martin" is synonymous with open-hearth. If these terms are included in the paragraph, there is no apparent reason for the omission of 30 or 40 other variations of the Bessemer, open-hearth, and other processes. The phrase "or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable-iron castings, shall be classed and denominated as steel" sufficiently provides for any other possible method of manufacturing steel.

PARAGRAPH 307.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 307. Boiler or other plate iron or steel, except crucible plate steel and saw plate steel, not thinner than one hundred and forty one-thousandths of one inch, cut or sheared to shape or otherwise, or unsheared, and skelp iron or steel sheared or rolled in grooves, valued at 1 cent per pound or less, seven-twentieths of 1 cent per pound; valued above 1 cent per pound and not above 3 cents per pound, five-tenths of 1 cent per pound; valued at over 3 cents per pound, 20 per centum ad valorem: *Provided*, That all sheets or plates of iron or steel thinner than one hundred and forty one-thousandths of one inch shall pay duty as iron or steel sheets.

ACT OF 1909.

ACT OF 1913.

PAR. 122. Boiler or other plate iron or steel, except crucible plate steel and saw plates hereinafter provided for in this section, not thinner than number ten wire gauge, cut or sheared to shape or otherwise, or unsheared, and skelp iron or steel sheared or rolled in grooves, valued at eight-tenths of one cent per pound or less, three-tenths of one cent per pound; valued above eight-tenths of one cent and not above one cent per pound, four-tenths of one cent per pound; valued above one cent and not above two cents per pound, five-tenths of one cent per pound; valued above two cents and not above three cents per pound, six-tenths of one cent per pound; valued at over three cents per pound, twenty per centum ad valorem: *Provided*, That all sheets or plates of iron or steel thinner than number ten wire gauge shall pay duty as iron or steel sheets.

PAR. 105. Boiler or other plate iron or steel, * * * not specially provided for in this section; sheets of iron or steel, common or black, of whatever dimensions, whether plain, corrugated or crimped, * * * and skelp iron or steel, whether sheared or rolled in grooves, or otherwise, 12 per centum ad valorem.

IRON AND STEEL PLATES AND SKELP.

(See Survey C-4.)

Description and uses.—Plates are pieces of iron or steel, principally steel, ranging in thickness from No. 10 wire gauge (approximately $\frac{3}{16}$ inch) to 2½ inches, and in width over 7 inches, and cut to various lengths. No. 10 wire gauge has been used as a line of division between plates and sheets, the latter being the thinner, but No. 12 wire gauge ($\frac{1}{4}$ inch) is probably the more common. These divisions, however, are not in all cases sharply drawn. The principal uses of plates are for boilers, tanks, steel cars, buildings, bridges, etc. Boiler plates may be subdivided into flange, fire-box, and extra-soft steel. Skelp iron or steel consists of long strips—used in the manufacture of tubes and pipes.

Plates and sheets, before special preparation for their several uses, represent a relatively low stage of steel manufacture. Additional rolling, cutting, smoothing, polishing, galvanizing, etc., carry further the process of production.

Production.—Statistics concerning plates and sheets included in this paragraph are not in all cases available. The production of plates and sheets, divided almost equally, exceeded 8,000,000 gross tons in 1917 and 1918. In 1920 production amounted to 9,337,680 gross tons, of which 4,755,133 gross tons consisted of plate. In addition to this figure is a small amount of nail plate. A considerable part of this plate tonnage consists of material covered by other paragraphs.

Imports of plates and sheets partly covered by this paragraph are insignificant compared with the domestic production. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 145,318 | \$10,832 | \$1,300 | 12 |
| 1919..... | 6,596 | 797 | 96 | 12 |
| 1920..... | 21,386 | 2,548 | 306 | 12 |
| 1921 (9 months)..... | 16,472 | 1,575 | | |

In addition to the above there were imported into the United States for the construction and equipment of vessels 482,790 pounds valued at \$26,318 in 1918, and in 1920, 58,620 pounds valued at \$8,290.

Exports in general far exceed imports. The export figures, however, do not divide plates and sheets according to use or degree of finish, except in the cases of galvanized and tinned sheets and plates. The exports of steel plates are shown for the calendar years 1918–1921 in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------------|---------------|---------------|--------------------|
| Quantity (pounds)..... | 1,236,405,734 | 1,590,423,674 | 2,062,947,743 | 679,537,763 |
| Value..... | \$64,678,628 | \$56,701,661 | \$72,995,717 | \$21,780,121 |

In addition to these exports are those of iron sheets and plates, amounting in 1920 to 72,032,603 pounds valued at \$1,411,143.

The exported material goes mainly to Japan, Canada and the United Kingdom.

In addition to these exports ship and tank plates, punched and shaped, were shipped in the calendar years 1918-1921 as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 65,519,432 | 30,661,005 | 95,937,353 | 19,503,688 |
| Value..... | \$4,321,268 | \$1,497,202 | \$4,380,360 | \$920,378 |

The principal countries of destination of the above exports were Japan, Cuba, and Mexico.

Important changes in classification.—This paragraph excludes crucible plate steel and saw-plate steel. The proviso, omitted in the act of 1913, has been incorporated with the designated thickness given in fractions of an inch instead of by wire gauge.

Suggested changes.—As plate iron and steel may be divided broadly into plates with specifications and plates without specifications, such a division might be made in this paragraph. Ordinary tank plate is plate without specifications. Boiler plate and saw plate are plates with specifications. These and other plates could be specifically mentioned with the duties applicable to each; and other plates provided for under a general ad valorem duty. The most important plates made according to specifications are boiler plate, saw plate, crucible or electric furnace steel plates, and alloy plates. The last consist of material of greatly varying chemical constitution and value.

PARAGRAPH 308.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 308. Sheets of iron or steel, common or black, of whatever dimensions, and skelp iron or steel, valued at 3 cents per pound or less, thinner than one hundred and forty one-thousandths and not thinner than thirty-eight one-thousandths of an inch, forty-five one-hundredths of 1 cent per pound; thinner than thirty-eight one-thousandths and not thinner than twenty-two one-thousandths of an inch, fifty-five one-hundredths of 1 cent per pound; thinner than twenty-two one-thousandths and not thinner than ten one-thousandths of an inch, seventy-five one-hundredths of 1 cent per pound; thinner than ten one-thousandths of an inch, eighty-five one-hundredths of a cent per pound; corrugated or crimped, seventy-five one-hundredths of 1 cent per pound; all the foregoing when valued at more than 3 cents per pound, 20 per centum ad valorem: *Provided*, That all sheets or plates of common or black iron or steel not thinner than one hundred and forty one-thousandths of an inch shall pay duty as plate iron or plate steel.

ACT OF 1909.

PAR. 127. Sheets of iron or steel, common or black, of whatever dimensions, and skelp iron or steel, valued at three cents per pound or less, thinner than number ten and not thinner than number twenty wire gauge, five-tenths of one cent per pound; thinner than number twenty wire gauge and not thinner than number twenty-five wire gauge, six-tenths of one cent per pound; thinner than number twenty-five wire gauge and not thinner than number thirty-two wire gauge, eight-tenths of one cent per pound; thinner than number thirty-two wire gauge, nine-tenths of one cent per pound; corrugated or crimped, eight-tenths of one cent per pound; all the foregoing valued at more than three cents per pound, thirty per centum ad valorem: *Provided*, That all sheets or plates of common or black iron or steel not thinner than number ten wire gauge shall pay duty as plate iron or plate steel.

ACT OF 1913.

PAR. 105. Boiler or other plate iron or steel, * * * not specially provided for in this section; sheets of iron or steel, common or black, of whatever dimensions, whether plain, corrugated or crimped, including crucible plate steel and saw plates, cut or sheared to shape or otherwise, or un-sheared, and skelp iron or steel, whether sheared or rolled in grooves, or otherwise, 12 per centum ad valorem.

IRON OR STEEL SHEETS, COMMON OR BLACK.

(See Survey C-4.)

Description and use.—Sheets are wide, thin pieces of steel (rarely iron) used for roofing, stovepipes, cans and other receptacles, etc. The ordinary thicknesses range from No. 10 wire gauge ($\frac{3}{8}$ inch) to No. 30 ($\frac{1}{16}$ inch). The term "black sheets" is used to differentiate uncoated sheets from sheets coated with zinc, tin, etc.

Skelp iron or steel constitutes the material used for the manufacture of tubes and pipes.

Production of iron and steel sheets in the United States in 1920 amounted to 4,582,547 gross tons. The country's output of skelp during the same year was 3,220,289 gross tons. In 1912 the production of sheets aggregated 2,839,880 gross tons, and of skelp, 2,446,816 gross tons.

Imports may be divided into groups as given in the following table:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

COMMON OR BLACK SHEETS AND SKELP IRON OR STEEL.

| | Pounds. | | | Per cent. |
|----------------------|---------|---------|-------|-----------|
| 1918..... | 6,610 | \$1,774 | \$213 | 12 |
| 1919..... | 20,066 | 1,287 | 154 | 12 |
| 1920..... | 217,621 | 12,937 | 1,555 | 12 |
| 1921 (9 months)..... | 530 | 53 | | |

CORRUGATED OR CRIMPED SHEETS OF IRON OR STEEL, COMMON OR BLACK, AND SKELP IRON OR STEEL.

| | | | | |
|-----------|-----|-------|------|----|
| 1919..... | 513 | \$104 | \$12 | 12 |
| 1920..... | 187 | 33 | 4 | 12 |

The imports of sheets of iron or steel come mainly from the United Kingdom, Sweden, and Canada.

Exports of iron sheets are published by the Bureau of Foreign and Domestic Commerce with those of iron plate. These figures and those for steel sheets may be tabulated for the calendar years 1918-1921 as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------|--------------|--------------|--------------|---------------------|
| Iron plates and sheets: | | | | |
| Quantity (pounds)..... | 91,293,392 | 89,358,285 | 72,032,603 | 23,644,896 |
| Value..... | \$6,315,095 | \$4,837,547 | \$4,036,239 | \$1,411,143 |
| Steel sheets: | | | | |
| Quantity (pounds)..... | 366,062,623 | 397,525,194 | 379,105,922 | 226,664,879 |
| Value..... | \$25,646,749 | \$21,214,529 | \$21,199,524 | \$11,489,281 |

The exports of steel sheets and iron sheets and plates go mainly to Japan, Canada, and South America.

Important changes in classification.—This paragraph covers a group of material which has been taken out of a paragraph in the act of 1913 embracing comparatively unrelated articles.

Suggested changes.—In the proviso contained in this paragraph, the dividing line between plates and sheets is fixed at one hundred and forty one-thousandths of an inch in thickness. This is approximately equal to No. 10 wire gauge. There is no hard and fast line of division recognized in the steel trade between plates and sheets but there is a tendency to make the line of division No. 12 wire gauge or one hundred and nine one-thousandths of an inch in thickness. If it is desirable to follow what seems to be a general tendency in trade practice, it is suggested that the dividing line between plates and sheets be changed from one hundred and forty one-thousandths of an inch in thickness to one hundred and nine one-thousandths of an inch in thickness. In other words, the material having a thickness of one hundred and nine one-thousandths of an inch or over would, according to this suggestion, be designated as plates and material having a thickness less than one hundred and nine one-thousandths of an inch would be designated as sheets. The dividing line in this paragraph of H. R. 7456, however, was made in accordance with a Treasury decision rendered after some inquiry (T. D. 34694 of 1914). In the act of 1909 it was No. 10 wire gauge. (See pars. 122 and 127.)

PARAGRAPH 309.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 309. All iron or steel sheets, plates, bars, and rods, and all hoop, band, or scroll iron or steel, excepting what are known commercially as tin plates, terne-plates, and taggers tin, when galvanized or coated with zinc, spelter, or other metals, or any alloy of those metals, shall pay two-tenths of 1 cent per pound more duty than if the same was not so galvanized or coated; sheets or plates composed of iron, steel, copper, nickel, or other metal with layers of other metal or metals imposed

H. R. 7456.

SENATE AMENDMENTS.

thereon by forging, hammering, rolling, or welding, 28 per centum ad valorem; sheets and plates of iron or steel, polished, planished, or glanced, by whatever name designated, 1½ cents per pound: *Provided*, That plates or sheets of iron or steel, by whatever name designated, other than polished, planished, or glanced, herein provided for, which have been pickled or cleaned by acid, or by any other material or process, or which are cold-rolled, smoothed only, not polished, shall pay two-tenths of 1 cent per pound more duty than the rates provided on corresponding thicknesses of common or black sheet iron or steel.

ACT OF 1909.

PAR. 128. All iron or steel sheets or plates, and all hoop, band, or scroll iron or steel, excepting what are known commercially as tin plates, terneplates, and tappers tin, and hereinafter provided for, when galvanized or coated with zinc, spelter, or other metals, or any alloy of those metals, shall pay two-tenths of one cent per pound more duty than if the same was not so galvanized or coated; sheets or plates composed of iron, steel, copper, nickel, or other metal with layers of other metal or metals imposed thereon by forging, hammering, rolling, or welding, forty per centum ad valorem.

PAR. 129. Sheets of iron or steel, polished, planished, or glanced, by whatever name designated, one and one-half cents per pound: *Provided*, That plates or sheets of iron or steel, by whatever name designated, other than the polished, planished, or glanced herein provided for, which have been pickled or cleaned by acid, or by any other material or process, or which are cold-rolled, smoothed only, not polished, shall pay two-tenths of one cent per pound more duty than the corresponding gauges of common or black sheet iron or steel.

ACT OF 1913.

PAR. 109. All iron or steel sheets, plates, or strips, and all hoop, band, or scroll iron or steel, when galvanized or coated with zinc, spelter, or other metals, or any alloy of those metals; sheets or plates composed of iron, steel, copper, nickel, or other metal with layers of other metal or metals imposed thereon by forging, hammering, rolling, or welding; sheets of iron or steel, polished, planished, or glanced, by whatever name designated, including such as have been pickled or cleaned by acid, or by any other material or process, or which are cold rolled, smoothed only, not polished, and such as are cold hammered, blued, brightened, tempered, or polished by any process to such perfected surface finish or polish better than the grade of cold rolled, smoothed only; * * * metal sheets * * * coated with nickel or other metals by dipping, printing, stenciling, or other process, 15 per centum ad valorem.

GALVANIZED SHEETS, PLATES., ETC.

(See Survey C-4.)

Description and uses.—The greater part of the iron and steel rolled into sheets, plates, etc., goes through further stages preparatory to ultimate use. Sheets to be galvanized are annealed and pickled

before being passed through the galvanizing pot. Tin plate passes through the processes of black pickling or first pickling, black annealing or first annealing, cold rolling, white annealing, and white pickling or second annealing and pickling before being coated with tin. Almost no sheets are marketed as they come from the hot rolls, but are annealed and sold as black plate or subjected to further treatment before being put on the market.

In the process of annealing the material is heated to soften the steel and make it more ductile, to remove any strain set up by too rapid cooling, and to refine the grain. Pickling is a treatment with dilute acids to obtain a clean surface by removing the scale (oxide). Cold rolling and cold hammering are forms of cold working by straining the cold metal slightly beyond its elastic limit. It may consist in (1) slightly reducing the cross-sectional area by rolling, hammering, or drawing; (2) distorting the material by bending or twisting; and (3) punching or shearing. After cold rolling, the metal is sometimes again annealed to restore the original softness and ductility reduced by cold rolling. Polishing and planishing consist of applying various abrasives (such as emery, rouge, etc.) of successive degrees of fineness.

Galvanized plates and sheets are those coated with zinc by passing through a bath of that metal molten. Layers of metal are also imposed upon sheets and plates by forging, hammering, welding, etc. Certain brass-plated and nickel-plated steel sheets which are used, especially in Europe, for cooking utensils and for various other purposes (e. g., candy molds), together with the more costly thermo-static metal, come under this provision.

Production.—The country's output of iron and steel galvanized sheets in 1920 amounted to 889,668 long tons, or 2,015,255,681 pounds. About 7 per cent of this total includes sheets galvanized after first being stamped or formed into various shapes. Concerning the output of plates and sheets which have been pickled or cleaned by acid or by any other material or process or which are cold rolled and smooth only, no statistics are available, except in the case of tin and terneplate covered by paragraph 310. The production of galvanized sheets in 1914 amounted to 1,939,270,738 pounds, of which 131,603,609 pounds consisted of galvanized formed products.

Imports.—In 1913 the importation of plates, sheets, etc., covered by this paragraph amounted to 28,345,141 pounds, valued at \$973,005, and in 1914 to 49,640,360 pounds, valued at \$1,508,843. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|----------|------------------|
| GALVANIZED SHEETS, PLATES, HOOPS, ETC. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 386,580 | \$193,085 | \$25,983 | 15 |
| 1919..... | 158,614 | 41,432 | 6,215 | 15 |
| 1920..... | 681,769 | 179,922 | 26,969 | 15 |
| 1921 (9 months)..... | 3,640,125 | 206,065 | ..... | 15 |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

PLATES OR SHEETS, COLD-ROLLED, AND SMOOTH ONLY.

| | Pounds. | | | Per cent. |
|----------------------|---------|-----------|----------|-----------|
| 1918..... | 423,701 | \$198,453 | \$20,768 | 15 |
| 1919..... | 317,574 | 94,958 | 12,504 | 15 |
| 1920..... | 188,312 | 43,139 | 6,471 | 15 |
| 1921 (9 months)..... | 75,867 | 21,431 | 3,215 | 15 |

SHEETS AND PLATES OF IRON OR STEEL, POLISHED, PLANISHED, OR GLANCED.

| | | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | 59,151 | \$12,410 | \$1,862 | 15 |
| 1919..... | 200,431 | 49,373 | 7,408 | 15 |
| 1920..... | 40,903 | 7,702 | 1,155 | 15 |
| 1921 (9 months)..... | 8,171 | 846 | | |

PLATES OF IRON OR STEEL PICKLED OR CLEANED BY ACID OR BY ANY OTHER PROCESS.

| | | | | |
|----------------------|-------|------|-----|----|
| 1920..... | 445 | \$54 | \$8 | 15 |
| 1921 (9 months)..... | 5,329 | 765 | | |

METAL SHEETS DECORATED IN COLORS OR COATED WITH NICKEL OR OTHER METALS BY DIPPING, PRINTING, STENCILING, OR OTHER PROCESS.¹

| | | | | |
|----------------------|---------|--------|------|----|
| 1918..... | 650 | \$424 | \$64 | 15 |
| 1920..... | 85 | 68 | 10 | 15 |
| 1921 (9 months)..... | 147,699 | 13,669 | | |

SHEETS OR PLATES COMPOSED OF IRON, STEEL, COPPER, NICKEL, WITH LAYERS OF OTHER METAL OR METALS IMPOSED THEREON BY FORGING, HAMMERING, OR WELDING.

| | | | | |
|----------------------|-------|------|------|----|
| 1920..... | 650 | \$65 | \$10 | 15 |
| 1921 (9 months)..... | 6,796 | 816 | | |

¹ Includes other than iron and steel sheets with nickel or other metals, or decorated in colors. Such sheets under H. R. 7456 would be classed under par. 391 or 393.

In addition to these imports and those of plates and sheets in paragraphs 304, 307, and 308, there were imported in 1919, 70,314 pounds of iron or steel plates or sheets made by the Bessemer and open-hearth processes for the construction of vessels.

Exports greatly exceed imports. During the calendar years 1918-1921, the exports of galvanized iron and steel sheets and plates have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|------------------|
| Quantity (pounds)..... | 153,082,456 | 227,669,237 | 242,745,308 | 102,074,891 |
| Value..... | \$12,609,628 | \$15,223,299 | \$16,727,590 | \$6,709,611 |

The principal countries receiving this export material were Canada, Cuba, Argentina, and Mexico. In addition there are other exports not separately tabulated by the Bureau of Foreign and Domestic Commerce.

Important changes in classification.—In this paragraph galvanized sheets are separated from tin and terne plate with which they are classified in the act of 1913. The provision in paragraph 109 of that act for "metal sheets decorated in colors" has been omitted and the provision for metal sheets "coated with nickel or other metals by dipping, printing, stenciling, or other processes" is confined to iron and steel sheets in paragraph 309 and zinc sheets in paragraph 391.

Suggested changes.—The attention of the Tariff Commission has been called to the recent development of the manufacture of thermostatic metal in the United States. Under the act of 1913 and under H. R. 7456 this metal is "sheets or plates composed of iron, steel, copper, nickel, or other metal, with layers of other metal or metals imposed thereon by forging, hammering, rolling, or welding." Thermostatic metal is composed of two plates, welded together, one of nickel steel (36 per cent nickel) and the other of brass. The principal use of thermostatic metal is the regulation of temperature in houses, gas ovens, electric ovens, hot water heaters, etc. It is also used for compensating for changes in temperature where changes in temperature would affect measurements, as in speedometers. The process of manufacture consists of welding the metals in thick plates and rolling them down to commercial thicknesses. The chief difficulty is in securing an absolutely perfect union of the dissimilar metals. This product is much more costly than other products within the foregoing provision, and might be specially provided for.

PARAGRAPH 310.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 310. Sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them, is a component part, by the dipping or any other process, and commercially known as tin plates, terneplates, and taggers tin, $1\frac{1}{16}$ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 130. Sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them, is a component part, by the dipping or any other process, and commercially known as tin plates, terneplates, and taggers tin, one and two-tenths cents per pound.

PAR. 109. * * * and sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them is a component part, by the dipping or any other process, and commercially known as tin plates, terneplates, and taggers tin, and tin plates coated with metal, and metal sheets * * * coated with nickel or other metals by dipping, printing, stenciling, or other process, 15 per centum ad valorem.

TIN OR TERNE PLATE.

(See Survey C-4.)

Description and uses.—Tin plate consists of black plate coated with tin; terneplate, of black plate coated with a mixture of tin and lead—generally in the proportion of one to two. Taggers tin, or

"taggers," is tin plate which is undersized, i. e., below the gauge of the box. The amount of tin in tin plate will average about 2 per cent of the total weight.

Production.—The production of tin and terne plates in 1917 aggregated 1,512,145 long tons, less than 5 per cent consisting of terneplate. The country's output in 1920 was 1,436,686 long tons.

The United States now leads the world in the production of tin and terne plate. England, the next greatest producer, formerly supplied the bulk of the world output.

Imports.—The importation of tin and terne plate in 1913 amounted to 28,345,141 pounds (12,654 long tons), valued at \$973,005. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|--------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 71,403 | \$5,904 | \$895 | 15 |
| 1919..... | 541,912 | 66,944 | 10,041 | 15 |
| 1920..... | 878,073 | 127,168 | 19,075 | 15 |
| 1921 (9 months)..... | 718,905 | 103,332 | | |

The great bulk of this imported material comes from the United Kingdom and Canada.

Exports of tin and terneplate and taggers tin in 1913 amounted to 164,362,281 pounds (73,376 gross tons), valued at \$5,767,043. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|------------------|
| Quantity (pounds)..... | 579,125,457 | 458,127,594 | 507,159,211 | 189,667,759 |
| Value..... | \$55,850,294 | \$36,997,634 | \$40,545,291 | \$14,695,703 |

A large part of this exported material went to Japan and Canada.

Important changes in classification.—Tin and terne plates are classified separately from galvanized sheets and other sheets on which metal is imposed.

Suggested changes.—As paragraph 311 is practically a proviso to paragraph 310, it is suggested that 311 be made a part of paragraph 310.

PARAGRAPH 311.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 311. No article not specially provided for which is wholly or partly manufactured from tin plate, terneplate, or the sheet, plate, hoop, band, or scroll iron or steel, or of which such tin plate, terneplate, sheet, plate, hoop, band, or scroll iron or steel shall be the material of chief value, shall pay a lower rate of duty than that imposed on the tin plate, terneplate, or sheet, plate, hoop, band, or scroll iron or steel from which it is made, or of which it shall be the component thereof of chief value.

ACT OF 1909.

PAR. 136. No article not specially provided for in this section, which is wholly or partly manufactured from tin plate, terneplate, or the sheet, plate, hoop, band, or scroll iron or steel herein provided for, or of which such tin plate, terneplate, sheet, plate, hoop, band, or scroll iron or steel shall be the material of chief value, shall pay a lower rate of duty than that imposed on the tin plate, terneplate, or sheet, plate, hoop, band, or scroll iron or steel from which it is made, or of which it shall be the component thereof of chief value.

ACT OF 1913.

PAR. 115. No article not specially provided for in this section, which is wholly or partly manufactured from tin plate, terneplate, or the sheet, plate, hoop, band, or scroll iron or steel herein provided for, or of which such tin plate, terneplate, sheet, plate, hoop, band, or scroll iron or steel shall be the material of chief value, shall pay a lower rate of duty than that imposed on the tin plate, terneplate, or sheet, plate, hoop, band, or scroll iron or steel from which it is made, or of which it shall be the component thereof of chief value.

PARAGRAPH 312.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 312. Beams, girders, joists, angles, channels, car-truck channels, tees, columns and posts, or parts or sections of columns and posts, deck and bulb beams, and building forms, together with all other structural shapes of iron or steel, not assembled, manufactured, or advanced beyond hammering, rolling, or casting, seven-twentieths of 1 cent per pound; any of the foregoing if machined, drilled, punched, assembled, fitted, fabricated for use, or otherwise advanced beyond hammering, rolling, or casting, 25 per centum ad valorem.

ACT OF 1909.

PAR. 121. Beams, girders, joists, angles, channels, car-truck channels, TT, columns and posts or parts or sections of columns and posts, deck and bulb beams, and building forms, together with all other structural shapes of iron or steel, not assembled, or manufactured, or advanced beyond hammering, rolling, or casting, valued at nine-tenths of one cent per pound or less, three-tenths of one cent per pound; valued above nine-tenths of one cent per pound, four-tenths of one cent per pound.

ACT OF 1913.

PAR. 104. Beams, girders, joists, angles, channels, car-truck channels, TT, columns and posts or parts or sections of columns and posts, deck and bulb beams, * * * and building forms, together with all other structural shapes of iron or steel, whether plain, punched, or fitted for use, or whether assembled or manufactured, 10 per centum ad valorem.

STRUCTURAL SHAPES.

(See Survey C-3.)

Description and uses.—Structural shapes are iron or steel rolled for structural purposes. They are classified into heavy and light—the latter being those with the leg or web less than 3 inches—and are given commercial names, e. g., I-beams, channels, joists, girders, angles, tees, and zees, names largely descriptive of their cross-section appearance. Nearly 90 per cent of the country's production consists of heavy structural shapes. They are used in buildings, bridges, ships, cars, etc. Light shapes are used in the manufacture of agri-

cultural implements, bedsteads, fences, safes, automobiles, and other articles requiring light sections.

Production.—The annual output of structural shapes in 1916 and 1917 amounted to over 3,000,000 gross tons. In 1918 and 1919 production declined, but in 1920 it rose again to 3,306,748 gross tons. Germany, England, and France are important producers, Germany producing over 1,000,000 tons of girders in 1914. The output of Canada increased rapidly during the war, and in 1920 amounted to over 200,000 gross tons.

The prices of light structural shapes are generally higher per unit of weight than those of heavy shapes, and under a system of specific duties the rate should ordinarily be higher to give the same ad valorem duty. Cost of transportation is a more important element in the prices of heavy than of light shapes. In remote markets the cost of shipping structural material may be an important factor in determining the relative competitive strength of American and foreign producers. Before the war ocean freight rates from western Europe to the Pacific coast of the United States were less than the rail rates from the steel-manufacturing States of the East to the same destination, a circumstance which favored European producers in Pacific coast markets. During the war ocean freight rates increased enormously, altering this situation to the advantage of the home industry.

Imports in 1913 amounted to 6,738 gross tons, valued at \$245,156. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 7,766,735 | \$394,902 | \$39,490 | 10 |
| 1919..... | 2,695,638 | 131,669 | 13,167 | 10 |
| 1920..... | 3,771,611 | 284,167 | 28,417 | 10 |
| 1921 (9 months)..... | 1,232,389 | 110,470 | | |

In 1918, 45,973,264 pounds, valued at \$2,427,739, were imported for the construction and equipment of vessels; in 1919 there were 32,220,604 pounds, valued at \$1,881,019, imported for this purpose. In 1920 and 1921 the amounts were negligible.

In addition to this imported material, a small amount of structural shapes entered the country free of duty under the Panama Canal act.

Exports of structural shapes vastly exceed imports. In 1913 these exports amounted to 366,654 long tons, valued at \$16,054,788. In the calendar years 1918–1921 exports have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|--------------|--------------|--------------|------------------|
| Quantity (tons)..... | 232,729 | 360,787 | 493,633 | 266,008 |
| Value..... | \$21,468,452 | \$28,956,816 | \$38,394,690 | \$24,499,610 |

The bulk of the exported material goes to Japan, Canada, and Cuba.

Important changes in classification.—Sashes and frames are omitted because they are not structural shapes. (*Ackerson v. United States*, 178 Fed., 1003, of 1910.)

"Structural shapes of iron or steel, not assembled, manufactured, or advanced beyond hammering, rolling, or casting," are separated from the material which is "assembled, fitted, fabricated for use, or otherwise advanced beyond hammering, rolling, or casting."

The expression "tees" in line 21, page 46, of H. R. 7456, was "T-T" in the act of 1913 (par. 104), and "TT" in the act of 1909 (par. 121).

Suggested changes.—Page 46, line 24, of H. R. 7456: Change "or" to "nor" before "advanced."

Page 47, line 1: Strike out "if" before "machined," to agree with practice elsewhere.

PARAGRAPH 313.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 313. Hoop, band, and scroll iron or steel, not specially provided for, valued at 3 cents per pound or less, eight inches or less in width, and thinner than three-eighths and not thinner than one hundred and forty one-thousandths of one inch, twenty-five one-hundredths of 1 cent per pound; thinner than one hundred and forty one-thousandths and not thinner than thirty-eight one-thousandths of one inch, thirty-five one-hundredths of 1 cent per pound; thinner than thirty-eight one-thousandths of one inch, fifty-five one-hundredths of 1 cent per pound: *Provided*, That barrel hoops of iron or steel, and hoop or band iron, or hoop or band steel, flared, splayed, or punched, with or without buckles or fastenings, shall pay no more duty than that imposed on the hoop or band iron or steel from which they are made, bands and strips of iron or steel, whether in long or short lengths, not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

PAR. 124. Hoop, band, or scroll iron or steel, not otherwise provided for in this section, valued at three cents per pound or less, eight inches or less in width, and less than three-eighths of one inch thick and not thinner than number ten wire gauge, three-tenths of one cent per pound; thinner than number ten wire gauge and not thinner than number twenty wire gauge, four-tenths of one cent per pound; thinner than number twenty wire gauge, six-tenths of one cent per pound: *Provided*, That barrel hoops of iron or steel, and hoop or band iron or hoop or band steel flared, splayed or punched, with or without buckles or fastenings, shall pay one-tenth of one cent per pound more duty than that imposed on the hoop or band iron or steel from which they are made; bands and strips of steel, exceeding twelve feet in length, not specially provided for in this section, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 105. * * * strips of iron or steel, not specially provided for in this section; * * * 12 per centum ad valorem.

PAR. 107. Hoop, band, or scroll iron or steel not otherwise provided for in this section, and barrel hoops of iron or steel, wholly or partly manufactured, 10 per centum ad valorem.

HOOPS AND BANDS.

(See Survey C-4.)

Description.—Hoops and bands are of great length compared with their width and thickness, the width being not more than 8 inches and the thickness less than three-eighths of an inch. The term "hoop" is applied to flats having a thickness varying from No. 13 B. W. G. ($\frac{3}{32}$ inch) to No. 23 B. W. G. ($\frac{2}{32}$ inch) and a width from three-eighths inch to 8 inches. Owing to their great length, they are coiled like wire rods. Subsequently they are annealed, cut to length, and shipped in bundles. If bent backward on itself like a flattened letter S, the material is called a scroll or scroll bundle. No clear line of distinction exists between hoops, bands, and strips.

Hoop or band iron or steel, cut to length, wholly or partly manufactured into hoops or ties used for baling cotton or any other commodity, comes under paragraph 314. Paragraph 313 applies to barrel hoops of iron or steel and such hoops or bands as are not otherwise provided for.

Production figures of hoops and bands described in paragraph 313 are not available. In 1917 the entire output of hoops amounted to 347,186 gross tons; of bands and cotton ties, to 490,893 gross tons. In 1920 the output of these products aggregated 333,440 and 388,862 gross tons, respectively.

Imports.—Imports of hoop, band, and scroll iron and steel are small. In 1913 they amounted to 2,004 gross tons, valued at \$300,161. These figures include some galvanized material. Since 1917 imports have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|----------------|---------|-------|------------------|
| HOOP, BAND, AND SCROLL IRON OR STEEL, N. S. P. F. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 26,607 | \$2,086 | \$209 | 10 |
| 1919..... | 55,207 | 5,399 | 540 | 10 |
| 1920..... | 5,410 | 718 | 72 | 10 |
| 1921 (9 months)..... | 153,719 | 6,995 | | |

| STRIPS OF IRON OR STEEL, N. S. P. F. | | | | |
|---|---------|----------|---------|----|
| 1918..... | 81,085 | \$22,478 | \$2,697 | 12 |
| 1919..... | 40,312 | 7,823 | 939 | 13 |
| 1920..... | 315,298 | 64,460 | 7,735 | 12 |
| 1921 (9 months)..... | 372,129 | 85,778 | | |

In addition to this imported material, there was a small amount of barrel hoops, fully or partly manufactured, coming into the country.

Exports of hoop, band and scroll iron and steel in 1913 amounted to 41,019,908 pounds (6,259 gross tons), valued at \$798,974. Exports in later calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|------------------|
| Quantity (pounds)..... | 113,508,597 | 113,871,668 | 119,725,535 | 35,376,925 |
| Value..... | \$7,711,195 | \$6,875,586 | \$6,445,155 | \$1,656,892 |

A large part of the exported material goes to Canada and British India.

Important changes in classification.—In the act of 1913 no line of demarcation with reference to width is drawn between hoop, band, and scroll iron or steel, on the one hand, and sheets and plates, on the other hand. In H. R. 7456 a graduated scale of specific duties is provided for in the case of hoop, band, and scroll iron or steel, 8 inches or less in width. In the proviso of the paragraph 20 per centum ad valorem is imposed on bands and strips of iron or steel, whether in long or short lengths, not specially provided for, without any limitation as to width.

Suggested changes.—Page 47, line 18, of H. R. 7456: Change comma to a semicolon after "made" to separate the provision for bands and strips from the proviso.

Dividing lines between hoops, bands, and strips and sheets and plates are advisable for purposes of administration; there is none carefully drawn in the steel trade.

It is also important to recognize the difference between hot-rolled strips and bands and cold-rolled strips and bands, the latter being a more expensive material.

PARAGRAPH 314.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 314. Hoop or band iron, and hoop or band steel, cut to lengths, or wholly or partly manufactured into hoops or ties, coated or not coated with paint or any other preparation, with or without buckles or fastenings, for baling cotton or any other commodity, one-fourth of 1 cent per pound.

ACT OF 1909.

PAR. 125. Hoop or band iron, or hoop or band steel, cut to lengths, or wholly or partly manufactured into hoops or ties, coated or not coated with paint or any other preparation, with or without buckles or fastenings, for baling cotton or any other commodity, three-tenths of one cent per pound.

ACT OF 1913.

PAR. 509. Hoop or band iron, or hoop or band steel, cut to lengths, or wholly or partly manufactured into hoops or ties, coated or not coated with paint or any other preparation, with or without buckles or fastenings, for baling cotton or any other commodity [Free].

HOOPS AND BANDS CUT TO LENGTHS—COTTON TIES, ETC.

(See Survey C-4.)

Description and uses.—This paragraph applies particularly to the standard cotton tie, a strip of steel $\frac{1}{2}$ -inch wide by $\frac{3}{16}$ -inch thick (20 gauge) and 11½ feet long, chiefly used in tying bales of cotton. Once used, they are rerolled and used again.

Production is part of the output of rolling mills making also hoops, wire nails, smooth wire, barbed wire, woven-wire fence, bars, spikes, and similar products. Four plants are located in Pennsylvania, one in Georgia, and one in Alabama. The annual production is estimated at 2,000,000 to 3,000,000 bundles of 45 pounds each, approximately two-thirds of the world's output. England and Germany are the principal foreign producers.

Imports of hoop or band iron, etc., in 1915 were 1,416,538 pounds, valued at \$22,552. Later statistics follow:

| Calendar year, | Quantity, | Value. |
|----------------------|--------------------|---------|
| 1920..... | Pounds. 131,370 | \$5,952 |
| 1921 (9 months)..... | 1,065,366 | \$2,883 |

Exports are irregular; they depend almost entirely upon the cotton crop and English competition. It is roughly estimated that in recent years they have ranged somewhat over 1,500,000 pounds annually.

Important changes in classification.—Hoop or band iron or steel used for baling cotton or any other commodity has been transferred from the free list of the act of 1913 (par. 509).

PARAGRAPH 315.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 315. Wire rods: Rivet, screw, fence, and other iron or steel wire rods, whether round, oval, or square, or in any other shape, nail rods and flat rods up to six inches in width ready to be drawn or rolled into wire or strips, all the foregoing in coils or otherwise, valued at not over 4 cents per pound, three-tenths of 1 cent per pound; valued over 4 cents per pound, six-tenths of 1 cent per pound: *Provided*, That all round iron or steel rods smaller than twenty one-hundredths of one inch in diameter shall be classed and dutiable as wire: *Provided further*, That all iron or steel wire rods which have been tempered or treated in any manner or partly manufactured shall pay an additional duty of one-fourth of 1 cent per pound: *Provided further*, That on all iron or steel bars and rods of whatever shape or section which are cold rolled, cold drawn, cold hammered, or polished in any way in addition to the ordinary process of hot rolling or hammering, there shall be paid one-eighth of 1 cent per pound in addition to the rates provided on bars or rods of whatever section or shape which are hot rolled; and on all strips, plates, or sheets of iron or steel of whatever shape, other than polished, planished, or glanced sheet iron or sheet steel, which are cold hammered, blued, brightened, tempered, or polished by any process to such perfected surface finish or polish better than the grade of cold rolled, smoothed only, there shall be paid two-tenths of 1 cent per pound in addition to the rates provided on plates, strips, or sheets of iron or steel of common or black finish of corresponding thickness or value.

ACT OF 1909.

ACT OF 1918.

PAR. 134. Wire rods: Rivet, screw, fence, and other iron or steel wire rods, whether round, oval, flat, or square, or in any other shape, and nail rods, all the foregoing in coils or otherwise, valued at four cents or less per pound, three-tenths of one cent per pound; valued over four cents per pound, six-tenths of one cent per pound: *Provided*, That all round iron or steel rods smaller than number six wire gauge shall be classed and dutiable as wire: *Provided further*, That all iron or steel wire rods which have been tempered or treated in any manner or partly manufactured shall pay an additional duty of one-half of one cent per pound.

PAR. 137. On all iron or steel bars or rods of whatever shape or section which are cold rolled, cold drawn, cold hammered, or polished in any way in addition to the ordinary process of hot rolling or hammering, there shall be paid one-eighth of one cent per pound in addition to the rates provided in this section on bars or rods of whatever section or shape which are hot rolled; and on all strips, plates, or sheets of iron or steel of whatever shape, other than the polished, planished, or glanced sheet iron or sheet steel hereinbefore provided for, which are cold hammered, blued, brightened, tempered, or polished by any process to such perfected surface finish or polish better than the grade of cold rolled, smoothed only, hereinbefore provided for, there shall be paid four-tenths of one cent per pound in addition to the rates provided in this section upon plates, strips, or sheets of iron or steel of common or black finish of corresponding gauge or value; * * *

[No corresponding provision for horseshoe nail rods.]

PAR. 113. Rivet, screw, fence, nail, and other iron or steel wire rods, whether round, oval, or square, or in any other shape, and flat rods up to six inches in width ready to be drawn or rolled into wire or strips, all the foregoing in coils or otherwise, including wire rods and iron or steel bars, cold rolled, cold drawn, cold hammered, or polished in any way in addition to the ordinary process of hot rolling or hammering, not specially provided for in this section, 10 per centum ad valorem: *Provided*, That all round iron or steel rods smaller than twenty one-hundredths of one inch in diameter shall be classed and dutiable as wire.

PAR. 109. * * * sheets or plates composed of iron, steel, * * * and such as are cold hammered, blued, brightened, tempered, or polished by any process to such perfected surface finish or polish better than the grade of cold rolled, smoothed only; * * * 15 per centum ad valorem.

PAR. 110. * * * rolled wire rods in coils or bars not smaller than twenty one-hundredths of 1 inch in diameter * * * when made by the crucible, electric, or cementation process, * * * and finished by rolling, hammering, or otherwise, * * * 15 per centum ad valorem.

PAR. 554. * * * horseshoe nail rods, * * * [Free].

WIRE RODS AND BLUED, BRIGHTENED, AND POLISHED PLATES AND SHEETS.

(See Surveys C-8 and C-4.)

Description.—Iron and steel wire rods are produced by rolling, and generally serve as a raw material, chiefly for the drawing of wire; they are also used for rivets, horseshoe nails, and other articles. Strips, sheets, and plates which have been blued, brightened, tempered, or polished, etc., have been subjected to annealing or reheating.

Production in 1918 of iron and steel wire rods was 2,562,390 long tons; in 1920, 3,136,907 long tons. Wire rods are but one among the numerous semifinished forms produced by the rolling mills located for the most part in the iron regions centering around Pittsburgh; the industry is one of large-scale ownership. Germany, Great Britain, and France are the principal European producers.

Imports of wire rods in the prewar period were much greater than during and since the war. In 1913 they amounted to 17,352 tons,

valued at \$887,326. Later imports of the articles grouped in this paragraph are shown as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|----------|------------------|
| WIRE RODS, RIVET, SCREW, FENCE, AND OTHER. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 16,802,840 | \$578,114 | \$57,811 | 10 |
| 1919..... | 296,688 | 22,766 | 2,277 | 10 |
| 1920..... | 9,111,168 | 527,514 | 52,751 | 10 |
| 1921 (9 months)..... | 870,697 | 50,441 | | |

| ROLLED WIRE RODS IN COILS OR BARS. | | | | |
|---|---------|----------|---------|----|
| 1918..... | 131,356 | \$12,678 | \$1,902 | 15 |
| 1919..... | 20,839 | 3,732 | 560 | 15 |
| 1920..... | 738,208 | 63,247 | 9,487 | 15 |
| 1921 (9 months)..... | 41,274 | 10,445 | | |

| BARS AND RODS, COLD ROLLED, COLD DRAWN, COLD HAMMERED, OR POLISHED. | | | | |
|--|-----------|----------|---------|----|
| 1918..... | 255,332 | \$31,606 | \$3,161 | 10 |
| 1919..... | 449,546 | 37,074 | 3,707 | 10 |
| 1920..... | 2,426,481 | 155,887 | 15,589 | 10 |
| 1921 (9 months)..... | 290,023 | 14,251 | | |

| HORSESHOE NAIL RODS. | | | | |
|-----------------------------|-------|-----|--|--|
| 1920..... | 40 | \$2 | | |
| 1921 (9 months)..... | 1,276 | 70 | | |

| IRON OR STEEL BARS, COLD ROLLED, COLD DRAWN, ETC. | | | | |
|--|--------------|---------|-------|----|
| | <i>Tons.</i> | | | |
| 1918..... | 90 | \$5,060 | \$506 | 10 |
| 1919..... | 131 | 13,585 | 1,258 | 10 |
| 1920..... | 275 | 39,225 | 3,923 | 10 |
| 1921 (9 months)..... | 34 | 6,912 | | |

| PLATES OR SHEETS, COLD HAMMERED, BLUED, BRIGHTENED, ETC. | | | | |
|---|----------------|---------|-------|----|
| | <i>Pounds.</i> | | | |
| 1918..... | 13,818 | \$3,898 | \$384 | 15 |
| 1919..... | 508 | 213 | 31 | 15 |
| 1920..... | 14,481 | 5,651 | 848 | 15 |
| 1921 (9 months)..... | 2,083 | 1,354 | | |

Imported wire rods come mainly from England, Sweden, and Canada.

Exports of wire rods in 1913 aggregated 74,823 tons. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|---------------|---------------|---------------|---------------------|
| Wire rods, steel: | | | | |
| Quantity (pounds)..... | 332,691,869 | 284,342,316 | 261,575,518 | 26,823,022 |
| Value..... | \$12,469,715 | \$8,374,716 | \$8,884,854 | \$824,230 |
| Bars and rods of steel, all other: | | | | |
| Quantity (pounds)..... | 1,297,517,621 | 1,241,433,750 | 1,409,075,188 | 362,882,607 |
| Value..... | \$94,575,140 | \$48,297,598 | \$53,941,518 | \$12,662,959 |

The exports go principally to Japan, Canada, and the United Kingdom.

Important changes in classification.—Horseshoe nail rods are exempt from duty under the act of 1913 (par. 554). Plates or sheets of iron or steel which are cold hammered, blued, brightened, tempered, or polished, of a grade better than that of cold rolled and smooth material have been placed in this paragraph with wire rods and bars.

Suggested changes.—As this paragraph is concerned primarily with rods and bars, it is suggested that the provision with reference to strips, sheets, and plates be transferred to a paragraph devoted to such articles. See paragraphs 307, 308, 309, and 313, "Suggested changes."

Page 48, line 9, of H. R. 7456: Change "classed" to "classified" to agree with practice elsewhere.

PARAGRAPH 316.

H. R. 7456.

SENATE AMENDMENTS:

PAR. 316. Round iron or steel wire, not smaller than ninety-five one-thousandths of one inch in diameter, three-fourths of 1 cent per pound; smaller than ninety-five one-thousandths and not smaller than sixty-five one-thousandths of one inch in diameter, 1½ cents per pound; smaller than sixty-five one-thousandths of one inch in diameter, 1½ cents per pound: *Provided*, That all of the foregoing valued above 6 cents per pound shall pay a duty of 20 per centum ad valorem; all wire composed of iron, steel, or other metal, not specially provided for, except gold, silver, or platinum; all flat wires and all steel in strips not thicker than one-quarter of one inch and not exceeding sixteen inches in width, whether in long or short lengths, in coils or otherwise, and whether rolled or drawn through dies or rolls, or otherwise produced, and all other wire not specially provided for, 20 per centum ad valorem: *Provided*, That all wire of iron, steel or other metal coated by dipping, galvanizing, sherardizing, electrolytic or any other process with zinc, tin, or other metal, shall pay a duty of two-tenths of 1 cent per pound in addition to the rate imposed on the wire of which it is made; telegraph, telephone, and other wires and cables composed of iron, steel, or other metal except gold, silver, or platinum, covered with or composed in part of cotton, jute, silk, enamel, lacquer, rubber, paper, compound, or other material, with or without metal covering, 30 per centum ad valorem; wire rope and wire strand, 30 per centum ad valorem; spinning and twisting ring travelers, 30 per centum ad valorem; wire heddles and healds, 25 cents per thousand and 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 135. Round iron or steel wire, not smaller than number thirteen wire gauge, one cent per pound; smaller than number thirteen and not smaller than number sixteen wire gauge, one and one-fourth cents per pound; smaller than number sixteen wire gauge, one and three-fourths cents per pound: *Provided*, That all the foregoing shall pay duty at not less than thirty-five per centum ad valorem; all wire composed of iron, steel, or other metal except gold or silver, covered with cotton, silk, or other material, * * * and all flat wires, and steel in strips, not thicker than number fifteen wire gauge and not exceeding five inches in width, whether in long or short lengths, in coils or otherwise, and whether rolled or drawn through dies or rolls, or otherwise produced, and all other wire not specially provided for in this section, shall pay a duty of not less than thirty-five per centum ad valorem; on iron or steel wire coated by dipping, galvanizing, or similar process with zinc, tin, or other metal, there shall be paid two-tenths of one cent per pound in addition to the rate imposed on the wire of which it is made: *Provided further*, That articles manufactured wholly or in chief value of any wire or wires provided for in this paragraph shall pay the maximum rate of duty imposed in this section upon any wire used in the manufacture of such articles and in addition thereto one cent per pound: *And provided further*, That no article made from or composed of wire shall pay a less rate of duty than forty per centum ad valorem; telegraph, telephone, and other wires and cables composed of metal and rubber, or of metal, rubber, and other materials, forty per centum ad valorem; * * * wire heddles or healds, twenty-five cents per thousand, and in addition thereto, forty per centum ad valorem.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of * * * metal, * * * forty-five per centum ad valorem.

PAR. 114. Round iron or steel wire; wire composed of iron, steel, or other metal, except gold or silver, covered with cotton, silk, or other material; * * * and all flat wires and steel in strips not thicker than number fifteen wire gauge and not exceeding five inches in width, whether in long or short lengths, in coils or otherwise, and whether rolled or drawn through dies or rolls, or otherwise produced; telegraph, telephone, and other wires and cables composed of metal and rubber, or of metal, rubber, and other materials; iron and steel wire coated by dipping, galvanizing, or similar process with zinc, tin, or other metal; all other wire not specially provided for in this section and articles manufactured wholly or in chief value of any wire or wires provided for in this section; all the foregoing 15 per centum ad valorem; wire heddles and healds, 25 per centum ad valorem; wire rope, 30 per centum ad valorem.

PAR. 167. Articles or wares not specially provided for in this section; * * * if composed wholly or in chief value of * * * metal * * * 20 per centum ad valorem.

WIRE AND WIRE PRODUCTS.

(See Survey C-8.)

Description and uses.—A large portion of the round iron and steel wire produced in this country is converted into some other form, such as wire nails, barbed wire, wire rope, etc.

Of the wire made from nonferrous metals, that of copper is the most important. Bronze and brass wires also find extended use. Aluminum wire has to some extent been employed as a substitute for copper wire for electrical purposes. Examples of other wires and their many uses are wire of alloys containing nickel used for electrical

resistance and for purposes in which resistance to corrosion is important; tungsten wire for incandescent filaments of electric bulbs; and wire made of an alloy of platinum and rhodium used in pyrometers.

Much of the wire of nonferrous metals is used in the manufacture of wire cloth. Wire with a cross section other than round is drawn for special purposes. Thus triangular and lozenge-shaped wire is used in wire rope to some extent and pinion wire is drawn wire that may be cut up into gears for clock mechanisms, etc.

Telegraph, telephone, and other wires and cables include insulated wire and cables—submarine, underground and other—in which rubber insulation is used.

Wire rope consists of several strands of wire and is used as guy rope in construction and engineering works and on shipboard. It is also employed in hoisting and hauling, and in the transmission of power. Construction work, mining, and logging are industries which consume large quantities, but nearly every industry of importance uses wire rope to some extent. American engineering has tended to throw the burden on the rope to a much greater extent than the more conservative European practice would allow.

Covered wire consists of ordinary metallic wire covered with cotton, silk, paper, or other materials and is used extensively in the manufacture of millinery, novelties, tags, artificial flowers, clothing, and electrical manufactures.

Spinning and twisting ring travelers are metal rings and bars of high resiliency used in cotton spinning. Wire heddles or healds are part of the harness of a loom, the mechanism by which some of the threads of the warp are raised and others lowered upon each passage of the shuttle. The heddles themselves are formed by wire or string attached at each end to the shafts of the hammers and having a loop in the center through which the warp threads are passed. It is estimated that about one-third of the loom harness in use in the United States is equipped with wire heddles.

Production.—A preliminary statement of the 1920 census of manufactures with respect to wire-drawing mills shows that the value of the output of 117 establishments for the year 1919 was \$409,058,300. Of this output \$401,376,400 represents wire and manufactures of wire. The value of the output of steel and iron wire and manufactures thereof was \$264,778,000, and that of copper wire and its manufactures \$114,234,200. The output of brass wire was valued at \$16,024,500.

The total production of steel and iron wire in 1919 was 2,508,890 short tons, an increase of but 3 per cent over that of 1914. The production of coated wire for sale as such in 1919, chiefly galvanized wire, was 392,925 tons as compared with 374,480 tons in 1914. The country's output of bare copper wire in 1919 was 193,370 tons. The total production of insulated wire and cable for the same year was valued at \$129,623,100, of which the major portion was reported by insulating establishments that purchased the wire. The output of brass wire was reported in 1919 as 50,521,000 pounds, valued at \$16,024,050, a quantity increase of 28 per cent. The output of wire of other metals amounted to 14,596,000 pounds, valued at \$6,339,700. Included in this total are wires of copper-clad steel, Monel metal, nickel silver, other nickel alloys, zinc, etc. The production of wire

rope, cable, and strand in 1919 amounted to 103,010 tons, valued at \$29,825,500. The production in 1914 aggregated 52,740 tons, valued at \$7,973,500.

Imports.—Imports of wire and wire manufactures included in this paragraph have been since 1917 as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|----------------|----------|---------|------------------|
| ROUND IRON OR STEEL WIRE. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 58,787 | \$35,198 | \$5,280 | 15 |
| 1919..... | 927,744 | 86,817 | 13,323 | 15 |
| 1920..... | 5,326,156 | 479,558 | 71,934 | 15 |
| 1921 (9 months)..... | 3,361,389 | 385,602 | | |
| WIRE, N. S. P. F. | | | | |
| 1918..... | | \$31,654 | \$4,748 | 15 |
| 1919..... | | 1,586 | 233 | 15 |
| 1920..... | | 15,857 | 2,379 | 15 |
| 1921 (9 months)..... | | 21,972 | | |
| MANUFACTURES OF BRASS WIRE. | | | | |
| 1918..... | | \$9,427 | \$1,414 | 15 |
| 1919..... | | 12,676 | 1,901 | 15 |
| 1920..... | | 6,308 | 946 | 15 |
| 1921 (9 months)..... | | 9,259 | | |
| BRONZE WIRE. | | | | |
| 1920..... | 404 | \$593 | \$89 | 15 |
| 1921 (9 months)..... | 2,228 | 1,422 | | |
| MANUFACTURES OF BRONZE WIRE. | | | | |
| 1918..... | | \$5,977 | \$897 | 15 |
| 1919..... | | 33,094 | 4,964 | 15 |
| 1920..... | | 40,406 | 6,061 | 15 |
| 1921 (9 months)..... | | 19,184 | | |
| COPPER WIRE. | | | | |
| 1918..... | | \$3,559 | \$534 | 15 |
| 1919..... | 77,774 | 27,088 | 4,063 | 15 |
| 1920..... | 206,844 | 50,640 | 7,596 | 15 |
| 1921 (9 months)..... | 6,366 | 4,681 | | |
| WIRE AND MANUFACTURES OF, N. S. P. F. | | | | |
| 1918..... | | \$23,219 | \$4,233 | 15 |
| 1919..... | | 22,381 | 3,357 | 15 |
| 1920..... | | 22,356 | 3,353 | 15 |
| 1921 (9 months)..... | | 36,513 | | |
| ALUMINUM WIRE. | | | | |
| 1918..... | | \$324 | \$94 | 15 |
| 1921 (9 months)..... | 8 | 4 | | |

SUMMARY OF TARIFF INFORMATION, 1921.

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| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

MANUFACTURES OF ALUMINUM WIRE.

| | Pounds. | \$337 | \$51 | Per cent. |
|----------------------|---------|-------|------|-----------|
| 1920..... | | 1,065 | | 15 |
| 1921 (9 months)..... | | | | |

BRASS WIRE.

| | | | | |
|----------------------|-------|---------|-------|----|
| 1918..... | | \$3,087 | \$463 | 15 |
| 1919..... | 102 | 32 | 5 | 15 |
| 1920..... | 4,010 | 2,283 | 342 | 15 |
| 1921 (9 months)..... | 4,432 | 1,848 | | |

MANUFACTURES OF COPPER WIRE.

| | | | | |
|----------------------|--|----------|---------|----|
| 1918..... | | \$16,447 | \$2,467 | 15 |
| 1919..... | | 14,956 | 2,248 | 15 |
| 1920..... | | 17,071 | 2,561 | 15 |
| 1921 (9 months)..... | | 34,634 | | |

WIRE OF IRON OR STEEL OR OTHER METAL COATED BY DIPPING, GALVANIZING, ETC.

| | | | | |
|----------------------|---------|---------|-------|----|
| 1918..... | | \$4,351 | \$653 | 15 |
| 1919..... | 29,601 | 3,817 | 573 | 15 |
| 1920..... | 483,523 | 60,932 | 9,140 | 15 |
| 1921 (9 months)..... | 14,542 | 4,808 | | |

TELEGRAPH, TELEPHONE, AND OTHER WIRES AND CABLES.

| | | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | | \$17,964 | \$2,695 | 15 |
| 1919..... | 174,981 | 44,955 | 6,743 | 15 |
| 1920..... | 327,169 | 59,074 | 8,861 | 15 |
| 1921 (9 months)..... | 830,085 | 138,504 | | |

WIRE OF IRON OR STEEL COVERED WITH COTTON, SILK, OR OTHER MATERIAL.

| | | | | |
|----------------------|--------|----------|---------|----|
| 1918..... | | \$22,815 | \$3,422 | 15 |
| 1919..... | 5,767 | 5,480 | 822 | 15 |
| 1920..... | 58,276 | 18,087 | 2,713 | 15 |
| 1921 (9 months)..... | 39,433 | 31,671 | | |

WIRE ROPE.

| | | | | |
|----------------------|-----------|---------|---------|----|
| 1918..... | 49,996 | \$6,740 | \$2,022 | 30 |
| 1919..... | 100,932 | 18,577 | 5,573 | 30 |
| 1920..... | 1,021,221 | 186,795 | 56,038 | 30 |
| 1921 (9 months)..... | 47,462 | 6,697 | | |

ALL OTHER WIRE, N. S. F. P.

| | | | | |
|----------------------|-----------|----------|---------|----|
| 1918..... | | \$55,418 | \$8,313 | 15 |
| 1919..... | 766,689 | 63,224 | 9,484 | 15 |
| 1920..... | 2,398,923 | 203,029 | 30,454 | 15 |
| 1921 (9 months)..... | 1,262,353 | 171,909 | | |

ALL OTHER MANUFACTURES OF WIRE, N. S. F. P.

| | | | | |
|----------------------|---------|-----------|----------|----|
| 1918..... | | \$116,016 | \$17,402 | 15 |
| 1919..... | 218,767 | 161,475 | 24,221 | 15 |
| 1920..... | 595,138 | 277,648 | 41,647 | 15 |
| 1921 (9 months)..... | 360,501 | 206,085 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---------------------------------|---------------------|----------|---------|------------------|
| WIRE HEDDLES AND HEALDS. | | | | |
| 1918..... | Thousands. 1,587 | \$14,661 | \$3,665 | 25 |
| 1919..... | 14,965 | 72,813 | 18,078 | 25 |
| 1920..... | Pounds. 78,701 | 113,184 | 28,206 | 25 |
| 1921 (9 months)..... | 68,486 | 102,660 | ..... | ..... |

In addition to this imported material, there were some imports of wire and wire manufactures for use in the construction and equipment of vessels.

A considerable part of the manufactures of wire come from the United Kingdom, Canada, Germany, and France.

Exports.—The exports for the calendar years 1918–1921 of wire and wire products have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|--------------|--------------|--------------|---------------------|
| Copper wire: | | | | |
| Quantity (pounds)..... | 15,689,354 | 55,551,602 | 41,812,713 | 10,146,666 |
| Value..... | \$4,750,942 | \$14,810,357 | \$10,191,273 | \$1,973,754 |
| Brass wire: | | | | |
| Quantity (pounds)..... | 1,748,883 | 1,115,908 | 1,150,067 | 368,874 |
| Value..... | \$707,287 | \$403,899 | \$398,328 | \$132,119 |
| Wire rope..... | \$4,226,019 | \$4,379,478 | \$2,148,294 | \$1,308,047 |
| Insulated wire and cables..... | \$5,604,929 | \$8,815,212 | \$8,208,539 | \$7,621,996 |
| Wire, n. s. p. f.: | | | | |
| Quantity (pounds)..... | 352,177,764 | 426,074,277 | 427,769,910 | 130,554,482 |
| Value..... | \$20,704,603 | \$24,641,881 | \$25,371,776 | \$7,730,872 |
| Other manufactures of wire, n. s. p. f..... | \$3,677,127 | \$5,090,491 | \$6,765,429 | \$2,541,442 |

Of the exported material, copper wire goes largely to the United Kingdom, the Netherlands, Norway, and some other European countries; brass wire, to the United Kingdom, Canada, France, and Brazil; wire rope, to Mexico, Canada, and Cuba; wire, n. s. p. f., to Argentina, Canada, Australia, and Brazil; and other manufactures of wire to Canada, Cuba, Argentina, and the United Kingdom.

Important changes in classification.—Corset clasps, corset steels, etc., which are included in the corresponding paragraph of the act of 1913 (par. 114), are omitted here, and given a separate paragraph (336). Spinning and twisting ring travelers mentioned in this paragraph are not in the wire paragraph of the act of 1913 (par. 114). The provision for "wire strand" is also new, as are also the enumerations of various materials, including "compound," in connection with cables, etc.

Suggested changes.—As there is no fixed line of division between hoops, bands, and strips of iron and steel, and as strips of iron and steel are mentioned in the proviso to paragraph 313, it is suggested that the difference between the strips included in this paragraph and those mentioned in paragraph 313 be more clearly indicated. (See "Suggested changes," par. 313.)

There is a provision in this paragraph for "all wire composed of iron, steel, or other metal, not specially provided for, except gold,

silver, or platinum," and another for "and all other wire not specially provided for." These provisions may be in conflict; in any event, as the rate of duty is the same, no necessity is seen for both.

Page 49, lines 19 and 20, of H. R. 7456: Insert a comma after the word "steel" in line 19 and after "electrolytic" in line 20.

PARAGRAPH 317.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 317. All galvanized wire not specially provided for, not larger than twenty one-hundredths and not smaller than eight one-hundredths of one inch in diameter, of the kind commonly used for fencing purposes, galvanized wire fencing composed of wires not larger than twenty one-hundredths and not smaller than eight one-hundredths of one inch in diameter; and all wire commonly used for baling hay or other commodities, one-half of 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 135. * * * all other wire not specially provided for in this section, shall pay a duty of not less than thirty-five per centum ad valorem; on iron or steel wire coated by dipping, galvanizing or similar process with zinc, tin, or other metal, there shall be paid two-tenths of one cent per pound in addition to the rate imposed on the wire of which it is made: *Provided further*, That articles manufactured wholly or in chief value of any wire or wires provided for in this paragraph shall pay the maximum rate of duty imposed in this section upon any wire used in the manufacture of such articles and in addition thereto one cent per pound: *And provided further*, That no article made from or composed of wire shall pay a less rate of duty than forty per centum ad valorem; * * *

PAR. 845. * * * galvanized wire not larger than twenty one-hundredths of one inch in diameter and not smaller than eight one-hundredths of one inch in diameter of the kind commonly used for fencing purposes, galvanized wire fencing composed of wires not larger than twenty one-hundredths of one inch in diameter nor smaller than eight one-hundredths of one inch in diameter, and wire commonly used for baling hay or other commodities [Free].

GALVANIZED WIRE FOR FENCING AND WIRE FOR BALING HAY.

(See Survey C-8.)

Description and uses.—Wire provided for in this paragraph is that used for fencing purposes and for baling hay and other commodities. The fencing wire is limited to galvanized, while the baling wire may or may not be galvanized. Barbed wire is provided for in paragraph 1680 and hence is not included in this paragraph.

Production.—The country's output of woven wire fencing and poultry netting, plain and coated, in 1919, amounted to 312,150 tons, valued at \$30,527,000. In 1914 the corresponding figures were 411,460 tons, and \$19,795,800.

Imports.—Imports of wire included in this paragraph have been, since 1917 by calendar years as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|---------------------------------|---------|----------|----------|--------------------|
| Galvanized wire: | | | | |
| Quantity (pounds)..... | 63,645 | 392,526 | 392,978 | 500 |
| Value..... | \$4,839 | \$17,999 | \$23,222 | \$31 |
| Galvanized-wire fencing: | | | | |
| Quantity (pounds)..... | 62,657 | 78,733 | 140,095 | 7,200 |
| Value..... | \$3,368 | \$3,306 | \$6,865 | \$510 |
| Baling wire: | | | | |
| Quantity (pounds)..... | 3,050 | 85,175 | 421,849 | 13,790 |
| Value..... | \$185 | \$5,099 | \$25,532 | \$1,022 |

Exports.—Exports of woven wire fencing since 1917 by calendar years have been as follows: 1918, \$1,036,730; 1919, \$933,143; 1920, \$903,272; 1921 (9 months), \$451,823. The principal destinations of this exported material were Cuba, Canada, Mexico, Argentina, and New Zealand.

Important changes in classification.—Wire coming within this paragraph has been transferred from the free list (par. 645) of the act of 1913.

PARAGRAPH 318.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 318. Woven-wire cloth: Gauze, fabric, or screen, made of wire composed of steel, brass, copper, bronze, or any other metal or alloy, not specially provided for, with meshes not finer than thirty wires to the lineal inch in warp or filling, 20 per centum ad valorem; with meshes finer than thirty and not finer than ninety wires to the lineal inch in warp or filling, 30 per centum ad valorem; with meshes finer than ninety wires to the lineal inch in warp or filling, 40 per centum ad valorem.

ACT OF 1909.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of * * * metal, * * * forty-five per centum ad valorem.

ACT OF 1913.

PAR. 114. * * * and articles manufactured wholly or in chief value of any wire or wires provided for in this section; all the foregoing 15 per centum ad valorem; * * *

PAR. 167. Articles or wares not specially provided for in this section: * * * if composed wholly or in chief value of * * * metal, * * * 20 per centum ad valorem.

WOVEN-WIRE CLOTH.

(See Survey C-8.)

Description and uses.—Woven-wire cloth consists of gauze fabrics, screens, etc., composed of wire with fine meshes and is used largely for straining and for protection against insects and the like. "Four-

drinker wires," or wire cloth used in paper making, are one of the most important items.

Production.—In the figures of the Federal Census the country's output of woven-wire cloth is included with that of other woven-wire products. Excluding woven-wire fencing and poultry nettings, the output of woven-wire products in the United States in 1919 amounted to 26,610 short tons, valued at \$4,274,200. In 1914 the country's output was 22,720 tons, valued at \$2,822,700.

Imports and exports.—The imports and exports of woven-wire cloth are not separately tabulated by the Bureau of Foreign and Domestic Commerce.

Important changes in classification.—Woven-wire cloth was not separately specified in the act of 1913, but was classified among "articles manufactured wholly or in chief value of any wire or wires provided for" in this section under paragraph 114, or as "articles or wares not specially provided for * * * if composed wholly or in chief value of * * * metal" under paragraph 167.

PARAGRAPH 319.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 319. Iron or steel anchors and parts thereof; forgings of iron or steel, or of combined iron and steel, not machined, tooled, or otherwise advanced in condition by any process or operation subsequent to the forging process, not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 123. Iron or steel anchors or parts thereof, one cent per pound; forgings of iron or steel, or of combined iron and steel, but not machined, tooled, or otherwise advanced in condition by any process or operation subsequent to the forging process, not specially provided for in this section, thirty per centum ad valorem; * * *

PAR. 106. Iron or steel anchors or parts thereof; forgings of iron or steel, or of combined iron and steel, but not machined, tooled, or otherwise advanced in condition by any process or operation subsequent to the forging process, not specially provided for in this section, 12 per centum ad valorem; * * *

ANCHORS.

(See Survey C-5.)

Description.—The making of anchors, once a formidable piece of smith work, is a simple operation with the use of the steam hammer. The shank of a large anchor is built up by welding together bars of iron. Although many anchors are forged, cast-steel anchors are used to a considerable extent.

Production.—There are no reliable statistics as to output, but even during the war-time expansion in shipbuilding domestic needs were amply supplied by American plants. Certain manufacturers reported to the Tariff Commission that the output in 1920 was only about one-quarter the quantity and only one-seventh the value of the 1918 total. England is the largest producer.

Imports for consumption are small, amounting in 1917 to about 48,133 pounds (about 21.5 gross tons), valued at \$2,611. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 37,344 | \$1,616 | \$194 | 12 |
| 1919..... | 84,483 | 7,216 | 966 | 12 |
| 1920..... | 51,084 | 3,127 | 375 | 12 |
| 1921 (9 months)..... | 5,323 | 2,036 | | |

In addition to these imports there was a larger importation of anchors for vessel supplies, construction and equipment of vessels, and a small amount for the repair of vessels. In 1918, 105,971 pounds, valued at \$4,420, were imported as supplies of vessels; 501,420 pounds, valued at \$35,936, for the construction and equipment of vessels; and 120 pounds, valued at \$20, for the repair of vessels. These were imported duty free. In 1919 such importations fell off greatly, but 456,449 pounds, valued at \$51,432, were imported for the construction and equipment of vessels.

Exports.—None recorded. Certain firms, however, do some export business—especially in smaller anchors—with the Far East, Latin America, and even in Europe.

FORGINGS.

(See Survey C-5.)

Description and uses.—Forgings are metals which have undergone the process of hammering or pressing into special shapes while hot. Originally forging was solely a hammering process, but with large masses to be treated, pressing has come into use, especially for making heavy forgings of steel.

Many small articles of common use, such as balls, screws, rivet blanks, nuts, nails, etc., are forged by machinery. Many articles of intricate patterns are drop-forged, i. e., a heated piece of metal is put on a lower die placed on the anvil of a drop hammer which, falling from a height, carries the upper die and stamps the plastic metal into shape. Such drop forgings are largely used in motor vehicles for levers, treadles, connecting rods, and the like.

The "finishing process" consists in annealing or tempering the forged material and then machining it.

Production.—Forgings represent a vast variety of articles. According to the American Metal Market the country's output of forged work done in rolling mills and steel works amounted to 1,295,566 gross tons in 1918 and to 534,346 gross tons in 1919. This product involves such items as anchors, armor plate, axles, eyebars, gun carriages, etc.

Imports of ordinary forged iron and steel, i. e., not finished or advanced beyond the forging process, are not large. In 1917 they amounted to only \$37,302. Later statistics follow:

| Calendar year: | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|-----------|----------|------------------|
| | Pounds. | | | Per cent. |
| 1918..... | | \$394,566 | \$47,348 | 12 |
| 1919..... | 351,045 | 51,312 | 6,157 | 12 |
| 1920..... | 184,096 | 35,103 | 4,212 | 12 |
| 1921 (9 months)..... | 141,364 | 23,618 | | |

In addition to these imports other forgings for the construction and equipment of vessels, for the United States Government and for diplomatic officers came into the country free of duty. In 1919, 485,777 pounds, valued at \$79,152, were imported for the construction and equipment of vessels; 6,583,124 pounds, valued at \$754,706, for the Government of the United States; and in 1918, 43,383,685 pounds, valued at \$2,576,831, for diplomatic officers.

Exports.—Exports since 1917, by calendar years, have been as follows: 1918, \$27,679,680; 1919, \$1,881,814; 1920, \$1,833,925; 1921 (9 months), \$358,299. Some of the important countries receiving this exported material are Canada, France, the United Kingdom, Japan, Italy, Spain, and Mexico.

PARAGRAPH 320.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 320. Electric storage batteries and parts thereof, storage battery plates and storage battery plate material, wholly or partly manufactured, all the foregoing not specially provided for, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[Classable according to component material of chief value.]

[Classable according to component material of chief value.]

ELECTRIC STORAGE BATTERIES AND PARTS.

(See Survey C-13.)

Description and uses.—An electric battery is an apparatus, consisting of one or more cells, used for the generation of voltaic electricity. A storage battery—also called secondary battery and accumulator—is for the so-called storage of electricity. In storage batteries the electrodes are commonly lead plates surrounded by dilute sulphuric acid. During the discharge lead sulphate is formed on the plates, the action being similar to that of the primary battery. The action of the storage battery is, however, reversible, since, by passing a current through the battery in the opposite direction, the plates are restored to their original state, and are again capable of delivering a current.

One cell usually contains several plates. The automobile industry is a large user of storage batteries. The manufacture of plates and connections for storage batteries has become a very important outlet for lead.

In the storage cell invented by Edison the plates are perforated cases of nickel, containing nickel oxide and finely divided iron, surrounded by an alkaline solution.

Production.—In 1919 the production of storage batteries was valued at \$56,648,347, and of parts for storage batteries, at \$3,387,805. The corresponding figures for 1914 were \$10,615,150 and \$2,465,814.

Imports.—None recorded.

Exports.—Exports of batteries for recent calendar years were as follows: 1918, \$3,178,437; 1919, \$5,998,337; 1920, \$6,633,542; and 1921 (9 months), \$3,267,726. This exported material goes principally to the United Kingdom, Argentine, Australia, and Cuba.

Important changes in classification.—New specific provision; the rate of duty under the act of 1913 depends upon the component material of chief value.

Suggested changes.—Page 51, line 5, of H. R. 7456: Insert comma after "plates."

PARAGRAPH 321.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 321. Antifriction balls and rollers, metal balls and rollers commonly used in ball or roller bearings, metal ball or roller bearings, and parts thereof, whether finished or unfinished, for whatever use intended, 10 cents per pound and 35 per centum ad valorem.

ACT OF 1909.

PAR. 123. * * * antifriction balls, ball bearings, and roller bearings, of iron or steel or other metal, finished or unfinished, forty-five per centum ad valorem.

ACT OF 1913.

PAR. 106. * * * antifriction balls, ball bearings, and roller bearings, of iron or steel or other metal, finished or unfinished, and parts thereof, 35 per centum ad valorem.

ANTIFRICTION BALLS AND BEARINGS.

(See Survey C-5.)

Description and uses.—Antifriction bearings consist of metal balls or rollers fitted between two metal cases in such a way that a shaft may be inserted into the inner case, and the outer case into the bearing frame, the contact between the two cases being through balls or rollers. This arrangement substitutes a rolling contact for the sliding contact of the ordinary bearing and thus reduces friction.

The automobile industry is the largest consumer of ball and roller bearings; the bicycle affords examples of the use of ball bearings. Some antifriction bearings are used in screw jacks, many machine tools, elevators, etc.

Production.—The domestic industry has gone extensively into both types of bearing—roller and ball. The European industry has given attention chiefly to the ball bearing.

Imports.—Imports of antifriction bearings in 1917 amounted in value to over \$1,500,000, of which over \$1,488,000 consisted of ball bearings as distinguished from balls, parts, and roller bearings. Later statistics follow:

| Calendar year. | Value. | Duty, | Ad valorem rate. |
|--|-----------|-----------|------------------|
| ANTIFRICTION BALLS. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$27,619 | \$9,667 | 35 |
| 1919..... | 28,817 | 8,338 | 35 |
| 1920..... | 474,179 | 164,963 | 35 |
| 1921 (9 months)..... | 10,344 | | |
| BALL BEARINGS. | | | |
| 1918..... | \$519,486 | \$181,620 | 35 |
| 1919..... | 40,232 | 17,298 | 35 |
| 1920..... | 784,030 | 274,410 | 35 |
| 1921 (9 months)..... | 101,671 | | |
| ROLLER BEARINGS. | | | |
| 1918..... | \$18,636 | \$6,523 | 35 |
| 1920..... | 248 | 87 | 35 |
| 1921 (9 months)..... | 9,679 | | |
| ANTIFRICTION BEARINGS, ETC., PARTS THEREOF. | | | |
| 1918..... | \$33,439 | \$11,704 | 35 |
| 1919..... | 8,950 | 3,132 | 35 |
| 1920..... | 177,539 | 62,156 | 35 |
| 1921 (9 months)..... | 9,638 | | |

Some of the most important contributing nations were Sweden, Canada, and lately Germany.

Exports.—None recorded.

Important changes in classification.—Antifriction balls and bearings are treated in a single paragraph instead of being combined as in the act of 1913 with anchors and forgings of iron or steel.

PARAGRAPH 322.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 322. Railway fishplates or splice bars, made of iron or steel, one-fourth of 1 cent per pound; all other railway bars made of iron or steel, and railway bars made in part of steel, T rails, and punched iron or steel flat rails, seven-fortieths of 1 cent per pound.

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ACT OF 1909.

ACT OF 1913.

PAR. 126. Railway bars, made of iron or steel, and railway bars made in part of steel, T rails and punched iron or steel flat rails, seven-fortieths of one cent per pound; railway fish-plates or splice-bars, made of iron or steel, three-tenths of one cent per pound.

PAR. 103. Railway fishplates or splice bars made of iron or steel, 10 per centum ad valorem.

PAR. 587. Railway bars, made of iron or steel, and railway bars made in part of steel, T rails, and punched iron or steel flat rails [Free].

RAIL SPLICE BARS AND BRACES.

(See Survey C-6.)

Description and uses.—Splice bars, fishplates, tie plates, etc., are used for connecting endwise and holding in place rails on a roadbed. They embrace the general group of rail joints and fastenings, but not spikes, bolts, nuts, and similar material.

Production in 1917 amounted to 528,403 gross tons, and in 1920 to 575,830 gross tons.

Imports in 1917 of railway fishplates and splice bars amounted to 350 gross tons, valued at \$13,116. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 127,080 | \$5,678 | \$568 | 10 |
| 1919..... | 1,038,031 | 29,831 | 2,983 | 10 |
| 1920..... | 1,731,787 | 51,385 | 5,138 | 10 |
| 1921 (9 months)..... | 14,980 | 1,142 | ..... | ..... |

Exports are much larger. In 1917 the exports of railway track material, excluding rails and spikes, amounted to \$9,108,617. Statistics for the calendar years 1918-1921 have been as follows: 1918, \$5,582,860; 1919, \$9,280,725; 1920, \$7,570,236; 1921 (9 months), \$5,751,897. The principal countries of destination were Cuba, Japan, France, Brazil, and European Russia.

Suggested changes.—In view of the importance of tie plates, these should be mentioned, as well as railway fishplates or splice bars, and "all other railway bars made of iron or steel," designated by the term "rail braces." The latter term is more specific than the phrase "all other railway bars made of iron or steel," and is sufficiently inclusive to describe with precision what is intended to be covered in this part of the paragraph.

RAILS.

(See Survey C-6.)

Description and uses.—Rails for steam and electric railways are heavy or light, the former 50 pounds or more per linear yard, and the latter less than 50 pounds. Rails with a weight of 85 to 125 pounds are standard for the leading railroads; light rails go mostly into mining, lumbering, and other industrial operations. Practically all rails are now made of steel. The raw material of heavy rails is the steel ingot; and of light rails, largely old heavy rails. Old heavy

rails constitute the raw material for splice bars. Most rails, light and heavy, are T rails. About 3 to 5 per cent of the production of the rail mills of the United States consists of girder and high T rails for electric and street railways.

Production of rails in 1913 amounted to 3,502,780 gross tons, and in 1920 to 2,604,116 gross tons, nearly 90 per cent heavy rails. Formerly Germany manufactured over 1,000,000 tons of rails per year, and Great Britain between 800,000 and 1,000,000 tons, France, Belgium, Russia, and Canada following.

Imports.—Imports of bars and rails for railways, small compared with exports, are shown for the period 1918-1921 as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-----------|-----------|-------------|---------------------|
| Iron rails and bars for railways: | | | | |
| Quantity (tons)..... | 3 | 200 | 886 | 167 |
| Value..... | \$96 | \$14,014 | \$28,183 | \$5,522 |
| Rails and bars for railways, steel or part steel: | | | | |
| Quantity (tons)..... | 8,336 | 17,008 | 44,798 | 17,455 |
| Value..... | \$319,380 | \$651,830 | \$1,894,226 | \$697,926 |

Imported rails come mainly from Canada, a few from Mexico.

Exports.—Exported rails consist of steel. For the calendar years since 1917 exports have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|--------------|--------------|--------------|---------------------|
| Quantity (tons)..... | 453,537 | 652,443 | 594,628 | 282,162 |
| Value..... | \$26,402,864 | \$38,985,855 | \$36,193,689 | \$16,868,694 |

These exports went mainly to Japan, the Dutch East Indies, Brazil, and China. During the war period a large tonnage of steel rails was shipped to France and Russia. In the fiscal year 1916 over half the steel rails exported from the United States were shipped to European and Asiatic Russia.

Important changes in classification.—Rails, including railway bars made of iron or steel, have been transferred from the free list of the act of 1913 (par. 587).

PARAGRAPH 323.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 323. Axles and parts thereof, axle bars, axle blanks, and forgings for axles, of iron or steel, without reference to the stage or state of manufacture, not specially provided for, valued at not more than 6 cents per pound, six-tenths of 1 cent per pound: *Provided*, That when iron or steel axles are imported fitted in wheels, or parts of wheels, of iron or steel, they shall be dutiable at the same rate as the wheels in which they are fitted.

ACT OF 1909.

PAR. 142. Axles, or parts thereof, axle bars, axle blanks, or forgings for axles, whether of iron or steel, without reference to the stage or state of manufacture, not otherwise provided for in this section, valued at not more than six cents per pound, three-fourths of one cent per pound: *Provided*, That when iron or steel axles are imported fitted in wheels, or parts of wheels, of iron or steel, they shall be dutiable at the same rate as the wheels in which they are fitted.

ACT OF 1913.

PAR. 121. Axles, or parts thereof, axle bars, axle blanks, or forgings for axles, whether of iron or steel, without reference to the stage or state of manufacture, not otherwise provided for in this section, 10 per centum ad valorem: *Provided*, That when iron or steel axles are imported fitted in wheels, or parts of wheels, of iron or steel, they shall be dutiable at the same rate as the wheels in which they are fitted.

AXLES AND AXLE-BLANKS.

(See Survey C-10.)

Description and use.—Iron and steel axles for every purpose are included. Axles inserted in wheels come under paragraph 324 or other paragraphs covering wheels.

Production of 89,436 long tons, valued at \$3,407,271, reported in 1914, relates to that of rolling mills. Of this amount 1,160 tons were of axles other than car and locomotive. In 1919 the output of axles, rolled or forged, amounted to 97,800 gross tons, valued at \$9,753,000. Railway axles are rolling-mill products. A small per cent of automobile axles was thus made in 1914. These axles, bicycle axles, and wagon and carriage axles of iron and steel are made chiefly in factories manufacturing the vehicles.

Imports of iron and steel axles in 1914 were 136 long tons, valued at \$17,083. They decreased steadily after 1911 until 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|--------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 785 | \$50 | \$5 | 10 |
| 1919..... | 56,298 | 2,113 | 211 | 10 |
| 1920..... | 316,936 | 107,119 | 10,712 | 10 |
| 1921 (9 months)..... | 767 | 109 | | |

Exports.—None recorded.

PARAGRAPH 324.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 324. Wheels for railway purposes, and parts thereof, of iron or steel, and steel-tired wheels for railway purposes, wholly or partly finished, and iron or steel locomotive, car, or other railway tires and parts thereof, wholly or partly manufactured, 1 cent per pound: *Provided*, That when wheels for railway purposes, or parts thereof, of iron or steel, are imported with iron or steel axles fitted in them, the wheels and axles together shall be dutiable at the same rate as is provided for the wheels when imported separately.

ACT OF 1909.

ACT OF 1913.

PAR. 171. Wheels for railway purposes, or parts thereof, made of iron or steel, and steel-tired wheels for railway purposes, whether wholly or partly finished, and iron or steel locomotive, car, or other railway tires or parts thereof, wholly or partly manufactured, one and one-fourth cents per pound; ingots, cogged ingots, blooms, or blanks for the same, without regard to the degree of manufacture, one cent per pound: *Provided*, That when wheels for railway purposes, or parts thereof, of iron or steel, are imported with iron or steel axles fitted in them, the wheels and axles together shall be dutiable at the same rate as is provided for the wheels when imported separately.

PAR. 142. Wheels for railway purposes, or parts thereof, made of iron or steel, and steel-tired wheels for railway purposes, whether wholly or partly finished, and iron or steel locomotive, car, or other railway tires or parts thereof, wholly or partly manufactured, 20 per centum ad valorem: *Provided*, That when wheels for railway purposes, or parts thereof, of iron or steel, are imported with iron or steel axles fitted in them, the wheels and axles together shall be dutiable at the same rate as is provided for the wheels when imported separately.

WHEELS FOR RAILWAY PURPOSES.

(See Survey C-15.)

Description.—The car wheels in general domestic use are either of chilled cast iron, cast steel, or rolled steel. A car wheel made with a cast or forged center piece, about which a steel tire is shrunk, is used to some extent. Locomotive drive wheels are of this type.

Production.—It has been estimated that 3,000,000 chilled cast-iron wheels, valued at \$40,000,000, were produced in 1917. According to the 1920 Census there were produced in 1919, 117,700 gross tons of car and locomotive wheels, rolled or forged, valued at \$17,044,700.

Pennsylvania has a larger number of manufacturers than any other State; Michigan, New York, and Ohio follow. European concerns have not developed the chilled cast-iron or rolled-steel wheels which are the predominant types here. The bulk of foreign production has been the steel-tired wheel. Such wheels are likewise made here, and (according to report) before the war could be produced as cheaply as in Europe.

Imports of wheels for railway purposes in 1918 (fiscal year) were valued at \$194,316, over five times the value of the imports in 1914. These figures include wheels, tires, and axles inserted in wheels. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,358,263 | \$99,444 | \$13,889 | 20 |
| 1919..... | 936,006 | 32,440 | 6,488 | 20 |
| 1920..... | 258,360 | 8,392 | 1,678 | 20 |
| 1921 (9 months)..... | 7,520 | 821 | | |

Exports.—Exports of car wheels have been as follows¹: 1916, \$741,542; 1917, \$2,384,973; 1918, \$6,889,084; 1919, \$11,843,738; 1920, \$9,061,305; and 1921 (9 months), \$2,577,671. These exports went chiefly to France, Cuba, Canada, Japan, and Italy.

¹ 1916 and 1917, fiscal years; 1918-1921, calendar years.

PARAGRAPH 325.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 325. Anvils of iron or steel, or of iron and steel combined, by whatever process made, or in whatever stage of manufacture, 1½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 140. Anvils of iron or steel, or of iron and steel combined, by whatever process made, or in whatever stage of manufacture, one and five-eighths cents per pound.

PAR. 118. Anvils of iron or steel, or of iron and steel combined, by whatever process made, or in whatever stage of manufacture, 15 per centum ad valorem.

ANVILS.

(See Survey C-9.)

Description.—Anvils may be either cast or wrought (forged). They are of several types, the ordinary blacksmith's anvil, the small anvils used by jewelers, and heavy blocks for power hammers.

Production of wrought anvils in 1911 was estimated at 2,600,000 pounds. An increase in domestic production has followed the declining imports since the beginning of the war and the demand created by military operations. Columbus, Ohio is the center of manufacture in this country. England, Germany, and Sweden are the principal foreign producers.

Imports of anvils were 727,502 pounds in 1914. A considerable portion of the imports consists of Swedish cast anvils. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 10,863 | \$1,161 | \$174 | 15 |
| 1919..... | 88,961 | 14,458 | 2,169 | 15 |
| 1920..... | 275,805 | 33,820 | 5,073 | 15 |
| 1921 (9 months)..... | 34,650 | 3,471 | | |

Exports.—None recorded.

Suggested changes.—Duty at the rate of 1½ cents per pound on jewelers' anvils would be practically negligible.

PARAGRAPH 326.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 326. Blacksmiths' hammers, tongs, and sledges, track tools, wedges, and crowbars, of iron or steel, 1½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 143. Blacksmith's hammers and sledges, track tools, wedges, and crowbars, whether of iron or steel, one and three-eighths cents per pound.

PAR. 122. Blacksmiths' hammers, tongs, and sledges, track tools, wedges, and crowbars, whether of iron or steel, 10 per centum ad valorem.

BLACKSMITHS' TOOLS.

(See Survey C-9.)

Production.—No data are available as to the domestic output of blacksmiths' hammers, tongs, and sledges, track tools, wedges, and crowbars, but these manufactures are known to have been large.

Imports are small, aggregating in 1914, 23,340 pounds, valued at \$1,661. Later statistics are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 9,068 | \$751 | \$75 | 10 |
| 1919..... | 2,911 | 593 | 59 | 10 |
| 1920..... | | 5,318 | 532 | 10 |
| 1921 (9 months)..... | | 1,502 | | |

Exports.—Exports of hammers and hatchets are large compared with imports. During the calendar years 1918–1921 they were as follows: 1918, \$484,679; 1919, \$973,547; 1920, \$1,303,185; 1921 (9 months), \$597,793. The principal countries of destination were Cuba, Brazil, Argentina, and Australia.

PARAGRAPH 327.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 327. Cast-iron pipe of every description, cast-iron andirons, plates, stove plates, sadirons, tailors' irons, hatters' irons, but not including electric irons, and castings and vessels wholly of cast iron, including all castings of iron or cast-iron plates which have been chiseled, drilled, machined, or otherwise advanced in condition by processes or operations subsequent to the casting process but not made up into articles, or parts thereof, or finished machine parts; castings of malleable iron not specially provided for; cast hollow ware, coated, glazed, or tinned, but not including enameled ware or hollow ware containing electrical elements, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 146. Cast-iron pipe of every description, one-fourth of one cent per pound.

PAR. 147. Cast-iron andirons, plates, stove plates, sadirons, tailor's irons, hatter's irons, and castings and vessels wholly of cast iron, eight-tenths of one cent per pound. All castings of iron or cast-iron plates which have been chiseled, drilled, machined, or otherwise advanced in condition by processes or operations subse-

PAR. 125. Cast-iron pipe of every description, cast-iron andirons, plates, stove plates, sadirons, tailor's irons, hatter's irons, and castings and vessels wholly of cast iron, including all castings of iron or cast-iron plates which have been chiseled, drilled, machined, or otherwise advanced in condition by processes or operations subsequent to the casting process but not made up into articles or finished machine parts; castings of malleable iron not spe-

ACT OF 1900.

ACT OF 1913.

quent to the casting process but not made up into articles, shall pay two-tenths of one cent per pound more than the rate imposed upon the castings of iron and cast-iron plates hereinbefore provided for.

PAR. 148. Castings of malleable iron not specially provided for in this section, seven-tenths of one cent per pound.

PAR. 149. Cast hollow ware, coated, glazed, or tinned, one and one-half cents per pound.

cially provided for in this section; cast hollow ware, coated, glazed, or tinned, 10 per centum ad valorem.

IRON CASTINGS.

(See Survey C-11.)

Description and uses.—These articles include (1) a variety of familiar commodities made of cast iron, (2) castings of malleable iron, and (3) cast hollow ware, coated, glazed, or tinned. Malleable cast iron is a crude form of wrought iron obtained by decarbonization. The castings are made in the ordinary way from low silicon iron with little phosphorus and sulphur; they are embedded in oxide of iron or peroxide of manganese and heated to a red heat until most of the carbon is removed from the surface.

Production.—Available statistics cover only cast-iron pipe, including fittings, with an output in 1913 of 1,266,245 net tons; in 1916 of 1,214,333 tons; in 1918 of 619,673 tons; and in 1920 of 886,515 tons.

Imports.—During the fiscal year 1918 the imports of iron castings amounted to 3,324,002 pounds, or 1,662 short tons, valued at \$181,258. More than one-half of this imported material consisted of cast-iron plates, stove plates and irons, sadirons, tailors' irons, hatters' irons and castings, and vessels wholly of cast iron. Only a little over 10 per cent consisted of cast-iron pipe and about 25 per cent of malleable iron castings, n. s. p. f. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

CAST-IRON PIPE.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|---------|---------|-------|-----------|
| 1918..... | 269,364 | \$5,074 | \$507 | 10 |
| 1919..... | 164,946 | 6,226 | 623 | 10 |
| 1920..... | 670,224 | 41,074 | 4,107 | 10 |
| 1921 (9 months)..... | 27,284 | 2,052 | ..... | ..... |

CAST-IRON ANDIRONS, PLATES, STOVE PLATES, ETC.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | 1,631,225 | \$103,809 | \$10,331 | 10 |
| 1919..... | 1,559,012 | 147,607 | 14,761 | 10 |
| 1920..... | 2,383,842 | 226,863 | 22,686 | 10 |
| 1921 (9 months)..... | 739,783 | 61,719 | ..... | ..... |

IRON OR CAST IRON PLATES, CHISELED, DRILLED, ETC.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|---------|----------|---------|-----------|
| 1918..... | 331,692 | \$24,884 | \$2,488 | 10 |
| 1919..... | 47,247 | 4,307 | 431 | 10 |
| 1920..... | 129,181 | 13,147 | 1,315 | 10 |
| 1921 (9 months)..... | 12,724 | 861 | ..... | ..... |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|----------------|--------|-------|------------------|
| CAST-IRON HOLLOW WARE, COATED, GLAZED, OR TINNED. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 8,317 | \$461 | \$46 | 10 |
| 1919..... | 3,876 | 426 | 42 | 10 |
| 1920..... | 214,652 | 15,066 | 1,507 | 10 |
| 1921 (9 months)..... | 12,690 | 1,702 | | |

CASTINGS OF MALLEABLE IRON, N. S. P. F.

| | | | | |
|----------------------|-----------|----------|---------|----|
| 1918..... | 681,428 | \$71,235 | \$7,123 | 10 |
| 1919..... | 1,319,233 | 107,163 | 10,716 | 10 |
| 1920..... | 6,696,098 | 668,331 | 66,833 | 10 |
| 1921 (9 months)..... | 1,867,154 | 186,416 | | |

Exports.—Exports, a large proportion of which is in the form of cast-iron pipe and fittings, are much greater than imports. Statistics for the calendar years 1918–1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------------------|-------------|-------------|-------------|---------------------|
| Cast-iron pipe fittings: | | | | |
| Quantity (pounds)..... | 128,342,066 | 86,370,704 | 153,254,227 | 96,080,063 |
| Value..... | \$6,665,697 | \$5,177,752 | \$9,753,446 | \$6,617,832 |
| Iron and steel castings, n. s. s..... | \$4,535,553 | \$4,505,044 | \$6,810,511 | \$3,414,253 |

The principal countries of destination are Cuba, Mexico, and Canada.

Important changes in classification.—The exclusion of electric irons and the limitation relative to electrical elements are new.

Suggested changes.—Page 52, line 25, and page 53, line 1, of H. R. 7456: If the word "or" connecting "enameled ware" and "hollow ware" is not intended to make the words "enameled ware" and "hollow ware" apply to the same thing, it should be changed to "and."

PARAGRAPH 328.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 328. Lap-welded, butt-welded, seamed, or jointed iron or steel tubes, pipes, flues, and stays, not thinner than sixty-five one-thousandths of an inch, if not less than three-eighths of an inch in diameter, three-fourths of 1 cent per pound; if less than three-eighths and not less than one-fourth of an inch in diameter, 1½ cents per pound; if less than one-fourth of an inch in diameter, 1½ cents per pound: *Provided*, That no tubes, pipes, flues, or stays made of charcoal iron shall pay a less rate of duty than 1½ cents per pound; cylindrical and tubular tanks or vessels, for holding gas, liquids,

H. R. 7456.

SENATE AMENDMENTS.

or other material, whether full or empty; welded cylindrical furnaces, tubes and flues made from plate metal, whether corrugated, ribbed, or otherwise reinforced against collapsing pressure, and all other finished or unfinished iron or steel tubes not specially provided for, 20 per centum ad valorem; flexible metal tubing or hose, whether covered with wire or other material, including any appliances or attachments affixed thereto, not specially provided for, and rigid iron or steel tubes or pipes prepared and lined or coated in any manner suitable for use as conduits for electrical conductors, 25 per centum ad valorem.

ACT OF 1909.

PAR. 151. Lap-welded, butt-welded, seamed, or jointed iron or steel tubes, pipes, flues, or stays, not thinner than number sixteen wire gauge, if not less than three-eighths of an inch in diameter, one cent per pound; if less than three-eighths of an inch and not less than one-fourth of an inch in diameter, one and one-half cents per pound; if less than one-fourth of an inch in diameter, two cents per pound: *Provided*, That no tubes, pipes, flues, or stays, made of charcoal iron, shall pay a less rate of duty than one and one-half cents per pound; cylindrical or tubular tanks or vessels, for holding gas, liquids, or other material, whether full or empty, thirty per centum ad valorem; flexible metal tubing or hose, not specially provided for in this section, whether covered with wire or other material, or otherwise, including any appliances or attachments affixed thereto, thirty per centum ad valorem; welded cylindrical furnaces, tubes or flues made from plate metal, and corrugated, ribbed, or otherwise reinforced against collapsing pressure, two cents per pound; all other iron or steel tubes, finished, not specially provided for in this section, thirty per centum ad valorem.

ACT OF 1913.

PAR. 127. Lap-welded, butt-welded, seamed, or jointed iron or steel tubes, pipes, flues, or stays; cylindrical or tubular tanks or vessels, for holding gas, liquids, or other material, whether full or empty; flexible metal tubing or hose, not specially provided for in this section, whether covered with wire or other material, or otherwise, including any appliances or attachments affixed thereto; welded cylindrical furnaces, tubes or flues made from plate metal, and corrugated, ribbed, or otherwise reinforced against collapsing pressure, and all other iron or steel tubes, finished, not specially provided for in this section, 20 per centum ad valorem.

TUBES, PIPES, AND TANKS.

(See Survey C-12.)

Description.—This paragraph covers pipes, tubes, cylinders, tanks, etc., made of iron and steel, excepting cast-iron pipes. While cast-iron pipes are cast in molds and the center is cored out, welded pipes are made from narrow plates of steel or wrought iron called skelp, which is rolled into shape and the edges welded together. When the edges simply come together, the welding is called butt-welding, and when they overlap, lap-welding. Riveted pipe, ordinarily made only in large sizes, is frequently formed in spirals of sheet iron or steel or by simply curling the sheet so as to make a

horizontal joint, the overlapping edges, in either case, being riveted together.

Production.—The domestic output of wrought iron and steel pipe and boiler tubes in 1916 amounted to 2,651,058 gross tons and in 1920 to 3,002,725 gross tons. In 1914 there were 36 establishments engaged in the manufacture of wrought-iron pipe alone, with an aggregate capital of \$39,407,625, employing 8,745 wage earners whose output was valued at \$37,655,229. In 1919 there were 51 establishments with an output valued at \$84,011,000. Other great iron and steel producing countries, like Great Britain and Germany, also have a large output.

Imports.—Imports are insignificant compared with production and exports. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|----------|---------|------------------|
| TUBES, PIPES, FLUES AND STAYS, LAP WELDED, BUTT WELDED, ETC. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 778,798 | \$45,458 | \$9,092 | 20 |
| 1919..... | 2,076,179 | 87,619 | 17,504 | 20 |
| 1920..... | 527,122 | 39,886 | 7,977 | 20 |
| 1921 (9 months)..... | 63,508 | 9,272 | | |

TANKS OR VESSELS, CYLINDRICAL OR TUBULAR, ETC.

| | <i>Number.</i> | | | |
|----------------------|----------------|-----------|----------|----|
| 1918..... | | \$149,587 | \$29,649 | |
| 1919..... | 26,235 | 263,878 | 52,775 | |
| 1920..... | | 838,186 | 167,631 | 20 |
| 1921 (9 months)..... | | 162,054 | | |

FURNACES, WELDED, CYLINDRICAL, ETC.

| | <i>Pounds.</i> | | | |
|----------------------|----------------|----------|---------|----|
| 1918..... | 103,474 | \$15,237 | \$3,047 | 20 |
| 1919..... | 92,806 | 17,108 | 3,421 | 20 |
| 1920..... | 69,580 | 8,777 | 1,755 | 20 |
| 1921 (9 months)..... | 6,792 | 2,035 | | |

ALL OTHER FINISHED IRON OR STEEL TUBES, N. S. P. F.

| 1918..... | | \$17,471 | \$3,494 | 20 |
|----------------------|---------|----------|---------|----|
| 1919..... | 119 | 78 | 15 | 20 |
| 1920..... | 104,012 | 13,978 | 2,795 | 20 |
| 1921 (9 months)..... | 296,050 | 46,031 | | |

FLEXIBLE METAL TUBING, HOSE, ETC.

| 1918..... | | \$1,221 | \$244 | 20 |
|----------------------|--|---------|-------|----|
| 1919..... | | 231 | 46 | 20 |
| 1920..... | | 25,458 | 5,092 | 20 |
| 1921 (9 months)..... | | 21,392 | | |

In addition to these, there were some importations of furnaces, welded, cylindrical, etc., and flexible metal tubing or hose, for the equipment of vessels. In 1919, 627,071 pounds, valued at \$151,041 of the former were imported; in 1920 the imports amounted to 59,580 pounds, valued at \$8,777.

Exports.—Exports in the form of boiler tubes have been since 1917 (calendar year) as follows: 1918, \$6,405,728; 1919, \$7,916,665; 1920, \$6,077,930; 1921 (9 months), \$3,149,345. Exports of pipes and fittings have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------------|--------------|--------------|--------------|---------------------|
| Pipes and fittings, wrought: | | | | |
| Quantity (pounds)..... | 201,560,061 | 528,819,507 | 637,889,077 | 689,031,930 |
| Value..... | \$14,993,957 | \$35,239,760 | \$43,774,306 | \$44,869,023 |

The principal countries of destination were Canada, Japan, Cuba, Mexico, and France.

Important changes in classification.—A minimum rate is fixed for tubes, pipes, flues, or stays made of charcoal iron, as in the act of 1909. Special mention is also made of "rigid iron or steel tubes or pipes prepared and lined or coated in any manner suitable for use as conduits for electrical conductors."

Suggested changes.—The Tariff Commission has received suggestions that a special provision should be made for large pipes of 25 inches or more in diameter which are made by curling sheets and plates and welding the joint. These articles are distinctly different, both as regards method of manufacture and even uses, from the usual forms of pipes and tubes. As regards manufacture they are doubtless more similar to tanks, which are dutiable in this paragraph at 20 per cent ad valorem. Such articles could be provided for by inserting "less than 25 inches in diameter and" after "if" in line 5, page 53, and by inserting the words "pipes and" after "tubes" in line 17, page 53.

In lines 4 and 10, page 53, tubes, pipes, flues, and stays, are named, whereas in line 14, tubes and flues, in line 17, tubes, and in line 21, tubes or pipes only are mentioned. "Or" between "tubes" and "pipes" in line 21 indicates the use of two terms for one class of merchandise, but this inference is negated by the absence of "or" between "tubes" and "pipes" in line 4.

If tubes and pipes are to be treated as distinct articles for tariff purposes, and the foregoing recommendation for a special provision for pipes of 25 inches or more in diameter, should be adopted, the words "and pipes" should be inserted in line 17 at page 53.

On page 53, lines 5, 7, and 8, of H. R. 7456, strike out "if" to agree with similar provisions elsewhere.

PARAGRAPH 329.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 329. Chain and chains of all kinds, made of iron or steel, not less than three-fourths of one inch in diameter, 1 cent per pound; less than three-fourths and not less than three-eighths of one inch in diameter, 1½ cents per pound; less than three-eighths and not less than five-sixteenths

H. R. 7456.

SENATE AMENDMENTS.

of one inch in diameter, 2½ cents per pound; less than five-sixteenths of one inch in diameter, 4 cents per pound; chain and chains of all kinds, of iron or steel, not specially provided for, 25 per centum ad valorem; sprocket and machine chains, of iron or steel, and parts thereof, 30 per centum ad valorem; anchor or stud link chain, two inches or more in diameter, 1½ cents per pound; less than two inches in diameter, 2 cents per pound: *Provided*, That all articles manufactured wholly or in chief value of chain shall not pay a lower rate of duty than that imposed upon the chain of which it is made, or of which chain is the component material of chief value.

ACT OF 1909.

PAR. 150. Chain or chains of all kinds, made of iron or steel, not less than three-fourths of one inch in diameter, seven-eighths of one cent per pound; less than three-fourths of one inch and not less than three-eighths of one inch in diameter, one and one-eighth cents per pound; less than three-eighths of one inch in diameter and not less than five-sixteenths of one inch in diameter, one and six-eighths cents per pound; less than five-sixteenths of one inch in diameter, three cents per pound; but no chain or chains of any description shall pay a lower rate of duty than forty-five per centum ad valorem.

ACT OF 1913.

PAR. 126. Chain or chains of all kinds, made of iron or steel, not specially provided for in this section, 20 per centum ad valorem; sprocket and machine chains, 25 per centum ad valorem.

CHAINS.

(See Survey C-12.)

Description and uses.—Structurally, chains made of iron or steel may be divided into (1) those with each link a single piece of metal and (2) those with each link made of several pieces of metal. The first are used generally for fastening objects together or supporting or lifting weights. Such chains, if small, are chiefly made by machinery, but larger sizes are usually handmade. Chains for cranes, ships' cables, dredges, etc., have each link welded by hand, often both formed and welded from the rolled bar iron. Those of the second class are known as sprocket or driving chains and are used for transmitting power. In certain of these each link is made of several pieces of metal connected by rivets, bolts, or steel screws, and so formed as to engage with the teeth of a sprocket wheel. The bicycle chain is a familiar example.

Stud-link chains are those with a bar or rod across the width of the link.

Production.—The United States is a large producer of chains made of iron or steel, but statistics are not available. A representative of an important producer estimated the investment in the chain industry in 1918 at \$5,000,000 and the country's normal output at \$10,000,000.

Imports.—Imports of chains are small compared with exports. During the years 1918 and 1919 there was a large importation for the construction and equipment of vessels. In the tabulation below imports are given both by kinds and uses:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|--------------------|----------|---------|------------------|
| CHAIN AND CHAINS, OTHER THAN SPROCKET AND MACHINE, OF IRON OR STEEL, N. S. F. | | | | |
| 1918..... | Pounds. 517,927 | \$40,936 | \$8,187 | Per cent. 20 |
| 1919..... | 141,885 | 16,704 | 3,341 | 20 |
| 1920..... | 449,403 | 44,555 | 8,911 | 20 |
| 1921 (9 months)..... | 165,847 | 20,257 | | |

| | | | | |
|--|-----------|-----------|--|--|
| CHAIN AND CHAINS, OTHER THAN SPROCKET AND MACHINE, FOR THE CONSTRUCTION AND EQUIPMENT OF VESSELS. | | | | |
| 1918..... | 5,565,583 | \$553,612 | | |
| 1919..... | 9,507,189 | 785,869 | | |
| 1920..... | 827,496 | 69,803 | | |
| 1921 (9 months)..... | 8,934 | 595 | | |

| | | | | |
|---|---------|---------|--|--|
| CHAIN AND CHAINS, OTHER THAN SPROCKET AND MACHINE FOR SUPPLIES OF VESSELS. | | | | |
| 1918..... | 81,848 | \$5,155 | | |
| 1919..... | 341,221 | 26,160 | | |

CHAIN AND CHAINS, ETC., FOR THE UNITED STATES, N. E. S.

| | | | | |
|-----------|-----------|-----------|--|--|
| 1919..... | 2,103,508 | \$172,624 | | |
|-----------|-----------|-----------|--|--|

SPROCKET AND MACHINE CHAINS OF IRON AND STEEL AND PARTS THEREOF.

| | | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | 129,237 | \$16,763 | \$4,191 | 25 |
| 1919..... | 42,447 | 11,827 | 2,957 | 25 |
| 1920..... | 61,774 | 24,802 | 6,200 | 25 |
| 1921 (9 months)..... | 22,287 | 19,035 | | |

| | | | | |
|---|--------|---------|--|--|
| SPROCKET AND MACHINE CHAINS FOR THE CONSTRUCTION AND EQUIPMENT OF VESSELS. | | | | |
| 1918..... | 50,687 | \$3,634 | | |
| 1919..... | 26,849 | 2,880 | | |

Exports.—Exports of chains have been since 1917 by calendar years as follows: 1918, \$1,940,000; 1919, \$3,318,565; 1920, \$3,335,637; 1921 (9 months), \$1,950,797. The principal countries of destination were Canada, Japan, and Cuba.

Important changes in classification.—There is special mention of anchor or stud-link chain and a minimum duty for articles manufactured wholly or in chief value of chain.

Suggested changes.—Sprocket and machine chains and parts thereof, and anchor and stud-link chain, being provided for *eo nomine*, would naturally precede chain and chains of all kinds in the order of arrangement of the articles in this paragraph.

A provision for weldless chains might be advisable unless it is intended that they should come within the specific provisions for chain and chains of all kinds of certain diameters at specific rates of duty.

If specific provision should be made for weldless chains, it should follow the provision for anchor or stud-link chain.

PARAGRAPH 320.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 330. Nuts, nut blanks, and washers, of wrought iron or steel, six-tenths of 1 cent per pound; bolts, with or without threads or nuts, and bolt blanks, of iron or steel, 1 cent per pound; spiral nut locks, and lock washers, of iron or steel, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 144. Bolts, with or without threads or nuts, or bolt blanks, * * * whether of iron or steel, one and one-eighth cents per pound.

PAR. 123. Nuts or nut blanks, and washers, 5 per centum ad valorem; bolts of iron or steel, with or without threads or nuts, or bolt blanks, * * * 10 per centum ad valorem; spiral nut locks and lock washers, whether of iron or steel, 30 per centum ad valorem.

PAR. 162. * * * nuts, and washers, * * * of wrought iron or steel, three-fourths of one cent per pound.

BOLTS, NUTS, AND WASHERS OF IRON OR STEEL.

(See Survey C-11.)

Description and uses.—These articles—nuts, bolts, washers, spiral nut locks, etc.—and their uses are for the most part well known. The word “blank” used in connection with nuts and bolts signifies a piece of metal that has been prepared for manufacture into these various forms. The term “washer” denotes a ring of metal or perforated plate used to distribute pressure to prevent motion or play. Spiral nut locks are special devices for locking a nut, as on a bolt, so that it may not be loosened by jarring.

Production.—In 1914 the output of bolts, nuts, rivets, and washers was valued at \$23,403,000, in addition to that of builders’ hardware which was valued at \$24,280,000.

Imports.—Imports are small compared with exports, and since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|----------------|----------|-------|------------------|
| NUTS, NUT BLANKS, AND WASHERS OF WROUGHT IRON OR STEEL. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 26,338 | \$11,512 | \$576 | 5 |
| 1919..... | 65,309 | 15,207 | 760 | 5 |
| 1920..... | 78,924 | 13,601 | 630 | 5 |
| 1921 (9 months)..... | 147,734 | 9,075 | ..... | ..... |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|----------------|---------|-------|------------------|
| BOLTS, WITH OR WITHOUT THREADS OR NUTS, OR BOLT BLANKS, AND FINISHED HINGES OR HINGE BLANKS, ETC. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 110,306 | \$8,263 | \$825 | 10 |
| 1919..... | 147,369 | 17,483 | 1,748 | 10 |
| 1920..... | 618,444 | 57,761 | 5,776 | 10 |
| 1921 (9 months)..... | 370,206 | 32,194 | | |

| SPIRAL NUT LOCKS AND LOCK WASHERS. | | | | |
|---|-------|------|-----|----|
| 1918..... | 200 | \$18 | \$5 | 30 |
| 1919..... | 700 | 28 | 8 | 30 |
| 1920..... | 1,566 | 761 | 228 | 30 |
| 1921 (9 months)..... | 816 | 219 | | |

Exports.—Exports of bolts, nuts, rivets, and washers have been since 1917 by calendar years as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 63,465,111 | 89,023,056 | 87,235,028 | 47,974,367 |
| Value..... | \$5,687,998 | \$7,769,893 | \$7,274,411 | \$4,468,912 |

The principal countries of destination were Canada, the United Kingdom, Cuba, Argentina, Mexico, and British India.

Important changes in classification.—Hinges and hinge blanks, which are included in the corresponding paragraph of the act of 1913 (par. 123), are omitted. The phrase "of wrought iron or steel" is added and applied to "nuts, nut blanks, and washers."

Suggested changes.—Hinges and hinge blanks might be classified with the articles mentioned in this paragraph.

PARAGRAPH 381.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 381. Cut nails and cut spikes, of iron or steel, exceeding two inches in length, four-tenths of 1 cent per pound; cut tacks and brads, hobnails and cut nails, of iron or steel, not exceeding two inches in length, 20 per centum ad valorem; horseshoe nails, and other iron or steel nails, not specially provided for, 2 cents per pound; nails, spikes, tacks, brads, and staples, made of iron or steel wire, not less than one inch in length nor smaller than sixty-five one-thousandths of one inch in diameter, four-tenths of 1 cent per pound; less than one inch in length and smaller than sixty-five one-thousandths of one inch in diameter, three-fourths of 1 cent per pound; spikes, tacks, brads, and staples, not specially provided for, six-tenths of 1 cent per pound.

ACT OF 1909.

ACT OF 1918.

PAR. 159. Cut nails and cut spikes of iron or steel, four-tenths of one cent per pound.

PAR. 160. Horseshoe nails, hob nails, and all other wrought-iron or steel nails not specially provided for in this section, one and one-half cents per pound.

PAR. 161. Wire nails made of wrought iron or steel, not less than one inch in length and not lighter than number sixteen wire gauge, four-tenths of one cent per pound; less than one inch in length and lighter than number sixteen wire gauge, three-fourths of one cent per pound.

PAR. 162. Spikes, * * * of wrought iron or steel, three-fourths of one cent per pound.

PAR. 163. Cut tacks, brads, or sprigs, not exceeding sixteen ounces to the thousand, five-eighths of one cent per thousand; exceeding sixteen ounces to the thousand, three-fourths of one cent per pound.

PAR. 554. Cut nails and cut spikes of iron or steel, horseshoe nails, * * * hobnails, and all other wrought-iron or steel nails not specially provided for in this section; wire staples, wire nails made of wrought iron or steel, spikes, * * * of iron or steel, and cut tacks, brads, or sprigs [Free.]

NAILS, TACKS, AND SPIKES.

(See Survey C-8.)

CUT NAILS AND SPIKES.

Production of cut nails during the past three decades has been decreasing with the extending use of wire nails. In 1918 it amounted to 418,811 kegs of 100 pounds each, and in 1920 to 844,583 kegs.

Imports are small, and since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 683,167 | 1,142,970 | 1,331,678 | 90,253 |
| Value..... | \$39,350 | \$50,216 | \$74,699 | \$5,745 |

Exports in the fiscal year 1918 were 116,406 kegs (100 pounds each); for 1915-1918 they were 16 per cent of production; for the four preceding years, 20 per cent. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 8,506,751 | 6,542,341 | 8,642,668 | 1,456,068 |
| Value..... | \$440,281 | \$393,294 | \$573,990 | \$91,496 |

The principal countries of destination were Chile, Cuba, China, and Mexico.

HORSESHOE NAILS.

Description.—The tariff classification embraces horseshoe nails, the product of a distinct industry (the horseshoe nail manufacturers generally make no other nail product), hobnails, and shoe nails to a great extent made in tack mills.

Production of horseshoe nails in 1904 was valued at \$2,345,762. In 1918 there were six factories located in New York, Connecticut, Pennsylvania, and Illinois. The raw material used is nail rods or wire of soft steel or iron. One company has imported nail rods from Sweden, an important producer of horseshoe nails.

Imports in the fiscal year 1918 amounted to 310,295 pounds, valued at \$39,279; in 1913, approximately one-eighth of this amount. Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|----------|-----------|---------------------|
| Quantity (pounds)..... | 656,465 | 275,792 | 1,224,343 | 251,878 |
| Value..... | \$59,006 | \$35,763 | \$81,975 | \$10,768 |

Exports were not reported.

WIRE STAPLES.

Production.—The census heretofore did not specify wire staples separately. In 1914 the production of wire tacks, brads, and staples, made in establishments drawing wire, was valued at \$1,324,948. A portion of the product of wire staples is manufactured in the tack mills. In the 1920 census wire staples figures were separated from those of wire tacks and brads and the 1919 output was shown as 68,221,300 pounds, valued at \$2,745,000.

Imports in the fiscal year 1918 were 97,559 pounds, valued at \$14,590. For the calendar years 1918–1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------|-------|---------|------------------|
| Quantity (pounds)..... | 250 | 6,820 | 129,960 | 105 |
| Value..... | \$35 | \$735 | \$7,954 | \$29 |

Exports were not reported.

WIRE NAILS.

Production in 1920 was 16,449,506 kegs (100 pounds) of wire nails, as against 13,559,727 in 1913 and 13,132,814 in 1917. Wire nails are merely one product of the wire industry. In 1914 only 6.6 per cent of the total value produced was made by establishments which did not draw wire; 69 per cent was made in the wire departments of rolling mills, and other concerns. In 1914 Pennsylvania led in the annual capacity of its wire-nail machines; Ohio, Illinois, Colorado, Alabama, and Indiana followed.

Imports for 1914-1917 averaged 4,314 kegs (100 pounds); since 1917 by calendar years they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-------------|---------------------|
| Quantity (pounds)..... | 6,797,442 | 6,810,813 | 27,856,608 | 606,678 |
| Value..... | \$372,629 | \$346,636 | \$1,688,774 | \$39,299 |

Exports in the fiscal year 1918 were 2,440,098 kegs (100 pounds), the bulk going to Asia and Europe. Later figures for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|--------------|--------------|---------------------|
| Quantity (pounds)..... | 178,346,045 | 201,104,501 | 208,719,508 | 43,020,325 |
| Value..... | \$9,921,123 | \$10,744,696 | \$11,880,398 | \$2,445,515 |

The principal countries of destination were Japan, United Kingdom, and China.

SPIKES.

Description and use.—Spikes are, in general (1) large nails, or, more specifically (2) nails produced by forging from a bar. Cut spikes are included with cut nails in the tariff specification; wire spikes are not so included, but, together with forged spikes, fall under the designation "spikes." The bulk of the forged spikes made are railway-track spikes.

Production in 1914 by rolling mills was 1,389,145 kegs (200 pounds) of forged spikes. They are sometimes handmade—in hand forges as required. In 1914 Pennsylvania was the chief producer. In the census report for 1919 (preliminary report) the figures for wire nails and spikes are given together, and were 12,429,200 kegs (100 pounds). The greater part of this output, however, consisted of wire nails.

Imports for 1915-1917 averaged 142 kegs (200 pounds). Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|---------|---------|---------------------|
| Quantity (pounds)..... | 523,222 | 86,699 | 120,968 | 6,585 |
| Value..... | \$16,778 | \$3,020 | \$4,742 | \$344 |

Exports in the fiscal year 1918 of railway-track spikes amounted to 174,160 kegs (200 pounds). Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 22,330,104 | 55,487,231 | 37,185,246 | 15,600,718 |
| Value..... | \$1,229,069 | \$3,896,078 | \$1,607,672 | \$819,387 |

The bulk of the exports went to Cuba, Japan, and Brazil.

CUT TACKS, BRADS, AND SPRIGS.

Description and use.—Tacks and brads are of two kinds, cut and wire. Cut tacks and brads fall under this designation; those of wire (if of iron or steel) are included under "all other wrought-iron and steel nails." "Sprig" is an obsolete word in the trade, formerly applied to sharp-pointed shoe-heel nails.

Production of cut tacks and small nails in 1918 was estimated at from 50,000,000 to 60,000,000 pounds, valued at approximately \$6,600,000. The establishments making cut tacks also manufacture small nails cut from sheets, and to some extent wire tacks. Massachusetts leads in production of cut tacks.

Imports in the fiscal year 1918 amounted to 97,049 pounds, valued at \$14,512. In the calendar years 1918-1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|----------|----------|----------|--------------------|
| Quantity (pounds)..... | 151,252 | 151,138 | 160,410 | 72,755 |
| Value..... | \$19,493 | \$19,352 | \$21,028 | \$8,161 |

Exports in 1913 were estimated as 10 per cent of the production. Most of these exports were shoe nails, going to South America principally Argentina. Later statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|-------------|-------------|--------------------|
| Quantity (pounds)..... | 26,414,285 | 26,364,528 | 27,857,043 | 8,403,077 |
| Value..... | \$3,336,570 | \$4,638,093 | \$3,068,120 | \$672,047 |

These exports went mainly to Argentina, France, Brazil, and Australia.

Important changes in classification.—Most of the articles enumerated in this paragraph have been transferred from the free list of the act of 1913 (par. 554); spikes, tacks, brads and staples, n. s. p. f. are exceptions. It will be noted that most classes of upholstery nails and other nails and tacks made of or plated with brass or other metal not iron or steel are still provided for only as manufactures of metal, n. s. p. f. Such nails and tacks covered with leather or other material would be classable according to the component of chief value.

There is uncertainty concerning thumb tacks.

PARAGRAPH 332.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 332. Rivets, studs, and steel joints, lathed, machined, or brightened, and rivets or studs for nonskidding automobile tires, 25 per centum ad valorem; rivets of iron or steel, not specially provided for, 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 167. Rivets, studs, and steel points, lathed, machined, or brightened, and rivets or studs for nonskidding automobile tires, forty-five per centum ad valorem; rivets of iron or steel, not specially provided for in this section, one and one-fourth cents per pound.

PAR. 138. Rivets, studs, and steel points, lathed, machined, or brightened, and rivets or studs for nonskidding automobile tires, and rivets of iron or steel, not specially provided for in this section, 20 per centum ad valorem.

RIVETS, STUDS, AND STEEL POINTS.

(See Survey C-11.)

Description.—A rivet is a headed pin or bolt of metal used to unite two or more pieces by passing it through them and heading the plain end. Ordinary bolts of iron or steel are provided for in paragraph 123. A stud is a small pin or rod for holding members together or fitting parts to one another. The term steel points is nontechnical and self-explanatory.

Production.—In Government statistical publications statistics of rivets, studs, etc., are not separated from the general class of bolts, nuts, washers, and rivets. (See par. 330, p. 431 for census figures for 1914.)

Imports.—Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty | Ad valorem rate. |
|---|----------------|---------|-------|------------------|
| RIVETS, STUDS, STEEL POINTS, ETC. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,519 | \$344 | \$69 | 20 |
| 1919..... | 60,355 | 3,709 | 742 | 20 |
| 1920..... | 3,330 | 681 | 136 | 20 |
| 1921 (9 months)..... | 3,900 | 325 | | |
| RIVETS OF IRON OR STEEL, N. S. P. F. | | | | |
| 1918..... | 48,381 | \$4,887 | \$977 | 20 |
| 1919..... | 65,901 | 5,928 | 1,186 | 20 |
| 1920..... | 25,600 | 2,718 | 544 | 20 |
| 1921 (9 months)..... | 6,566 | 644 | | |

Exports.—None separately recorded.

PARAGRAPH 333.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 333. Horse, mule, or ox shoes, of wrought iron or steel, six-tenths of 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 162. * * * horse, mule, or ox shoes, of wrought iron or steel, three-fourths of one cent per pound.

PAR. 554. * * * horse, mule, or ox shoes, of iron or steel, * * * [Free].

HORSE, MULE, AND OX SHOES.

Description.—The factory horse or mule shoe usually requires further working by the horseshoer to fit it to the hoof. Formerly he made the entire shoe from a bar; some shoes are still so produced.

Production of horse and mule shoes by rolling mills, etc., was valued at about \$9,000,000 in 1914. Hand production from bar iron (not recorded) was very small. In 1917 horse and mule shoes were produced by nine establishments, located in Pennsylvania, Ohio, New York, Illinois, and other States, as their principal or only product, two large companies (one iron and one steel) are included in this number. Horse and mule shoes are formed by a series of rolling, bending, and pressing operations, and, to a lesser extent and at a higher cost, by drop forging. The latter method is used chiefly in France, Belgium, and Great Britain. Germany and Canada manufacture by a process similar to ours.

Imports of horse, mule, and ox shoes were valued at \$16,517 in 1917. They came from Canada. Statistics of imports since 1917 by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------|---------|---------|---------------------|
| Quantity (pounds)..... | 52,994 | 25,674 | 43,776 | 7,945 |
| Value..... | \$4,185 | \$2,796 | \$3,496 | \$629 |

Exports.—Exports of horseshoes for the calendar years 1918–1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 6,399,934 | 7,561,585 | 4,108,908 | 1,048,461 |
| Value..... | \$424,208 | \$539,452 | \$260,583 | \$83,791 |

The principal countries of destination were, in 1919, Asiatic Russia, Belgium, British South Africa, Canada; in 1920, Canada, Cuba, British South Africa, and Mexico.

Important changes in classification.—Transferred from the free list in the act of 1913 (par. 554) and separated from cut nails, etc.

/ PARAGRAPH 334.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 334. Steel wool, 10 cents per pound; steel shavings, 5 cents per pound; and in addition thereto, on all of the foregoing, 30 per centum ad valorem: *Provided*, That in computing the duty the weight and value of the package shall be included and the net weight of the contents shall be plainly marked upon each package.

ACT OF 1909.

PAR. 132. Steel wool or steel shavings, forty per centum ad valorem.

ACT OF 1913.

PAR. 111. Steel wool or steel shavings, 20 per centum ad valorem.

STEEL WOOL AND SHAVINGS.

(See Survey B-3.)

Description and use.—Steel wool consists of long steel fibers resembling curled hair. The fibers are of triangular cross section, and are graded according to fineness from coarse shavings to wool. Steel wool is used as an abrasive, and is a substitute for sandpaper and emery cloth or pumice stone, being regarded as superior to them for certain purposes. It is used in shipbuilding, in other building, in factories, and in the household.

Production.—No accurate figures of production are available. In 1917 the yearly consumption was estimated at between 1,000,000 and 1,500,000 pounds, which (imports being cut off) virtually represented domestic production. Germany and Switzerland are also producers.

Imports.—During the war very little steel wool was imported. In 1913 imports were 41,436 pounds, valued at \$5,177, and in 1914, 27,113 pounds, valued at \$3,698.

During recent years there have been no importations of steel wool, with the exception of a small amount, valued at \$116, which was imported during the first nine months of 1921.

Exports.—None recorded.

Important changes in classification.—The proviso is new.

PARAGRAPH 335.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 335. Grit, shot, and sand of iron or steel, in any form, 1-cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 133. Grit, shot, and sand made of iron or steel, that can be used only as abrasives, one cent per pound.

PAR. 112. Grit, shot, and sand made of iron or steel, that can be used as abrasives, 30 per centum ad valorem.

GRIT, SHOT, AND SAND OF IRON AND STEEL.

(See Survey B-3.)

Description and uses.—Grit, shot, and iron sand are chilled iron shot made by heating scrap or pig iron to a fluid state and spraying it with steam as it runs into a large vat of water. The grit is used in grinding rough surfaces of granite, marble, and other stones.

Production figures are not available. Before the war domestic consumption was estimated at 3,200 tons. England is an important producer of these abrasives.

Imports of grit, shot, and sand in 1914 amounted to 228,454 pounds. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 499,015 | \$13,389 | \$4,017 | 30 |
| 1919..... | 1,020,804 | 17,718 | 5,315 | 30 |
| 1920..... | 833,804 | 10,320 | 4,896 | 30 |
| 1921 (9 months)..... | 192,800 | 4,774 | ..... | 30 |

Exports.—None recorded.

Important changes in classification.—The limitation "that can be used as abrasives" has been omitted, and the words "in any form" have been added.

PARAGRAPH 336.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 336. Corset clasps, corset steels, and dress steels, whether plain or covered with cotton, silk, or other material, 25 per centum ad valorem.

ACT OF 1909.

PAR. 135. * * * corset clasps, corset steels, dress steels, * * * shall pay a duty of not less than thirty-five per cent ad valorem; * * *

ACT OF 1913.

PAR. 114. * * * corset clasps, corset steels, dress steels, * * * all the foregoing 15 per centum ad valorem; * * *

CORSET CLASPS, STEELS, ETC.

(See Survey C-8.)

Description and uses.—A corset-clasp consists of two short pieces of flat steel, one having a flat metal eyelet and the other having firmly affixed a small metal post so arranged that the eyelet can be hooked over it. Corset steels and dress steels are short strips of flat steel wire covered with cotton gauze or other material. The former is employed as a stiffening for corsets; the latter as a stiffening for dresses. Flat wire and strip steel are used for making springs and hands of watches and clocks, corset and dress steels, in the manufacture of pens, and for many other purposes.

Production.—Approximately 15 establishments manufacture these products. The large industrial centers of New York, Pennsylvania, Connecticut, and Massachusetts are the important producers.

Imports for the fiscal year 1918 were valued at \$17,238; they were over four and one-half times that amount in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|------------------|
| 1918..... | \$206,389 | \$30,958 | Per cent. 15 |
| 1919..... | 159,190 | 23,878 | 15 |
| 1920..... | 309,745 | 121,462 | 15 |
| 1921 (9 months)..... | 450,089 | | |

Exports.—None recorded.

Important changes in classification.—The articles in this paragraph are classified with round iron or steel wire, etc., in the act of 1913. The words "whether plain or covered with cotton, silk, or other material" have been added.

PARAGRAPH 887.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 337. Card clothing not actually and permanently fitted to and attached to carding machines or to parts thereof at the time of importation, when manufactured with tempered or untempered round iron or steel wire, or with plated wire, or other than round iron or steel wire, or with felt face, wool face, or rubber-face cloth containing wool, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 145. Card clothing not actually and permanently fitted to and attached to carding machines or to parts thereof at the time of importation, when manufactured with round iron or untempered round steel wire, twenty cents per square foot; when manufactured with tempered round steel wire, forty-five cents per square foot; when manufactured with plated wire or other than round iron or steel wire, or with felt face, wool face, or rubber-face cloth containing wool, fifty-five cents per square foot.

PAR. 124. Card clothing not actually and permanently fitted to and attached to carding machines or to parts thereof at the time of importation, when manufactured with round iron or untempered round steel wire, 10 per centum ad valorem; when manufactured with tempered round steel wire, or with plated wire or other than round iron or steel wire, or with felt face, or wool face, or rubber-face cloth containing wool, 35 per centum ad valorem.

CARD CLOTHING.

(See Survey C-8.)

Description and use.—Card clothing is a wire-toothed cloth or leather used for covering the cylinders, rollers, doffers, etc., of a carding machine. Carding is the process of cleaning and disentangling the fibers of cotton or wool by action of wire-toothed cylinders, and is the first important mechanical operation in the treatment of fibers preparatory to yarn making. The cloth is measured by the square foot in the trade.

Production.—The carding machines (including card clothing) used in cotton-spinning mills are for the most part of domestic production, but no statistics are available. Much of the carding machinery for woollen yarn is imported from England, although more than one-half of that used by domestic manufacturers is produced at home.

Imports for the fiscal year 1918 amounted to 200,035 square feet, valued at \$307,343. England and the United States are the main producing countries, the former the only important source of imports. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|---------------------|--------|-------|------------------|
| CARD CLOTHING MANUFACTURED WITH UNTEMPERED ROUND IRON OR STEEL WIRE. | | | | |
| | <i>Square feet.</i> | | | <i>Per cent.</i> |
| 1918..... | 688 | 8448 | 845 | 10 |
| 1919..... | 1,860 | 3,486 | 349 | 10 |
| 1920..... | 4,241 | 11,853 | 1,185 | 10 |
| 1921 (9 months)..... | 964 | 4,399 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

MANUFACTURED WITH TEMPERED WIRE.

| | Square feet. | | | Per cent. |
|----------------------|--------------|-----------|-----------|-----------|
| 1918..... | 207,155 | \$344,520 | \$120,582 | 35 |
| 1919..... | 175,169 | 356,548 | 134,791 | 35 |
| 1920..... | 238,837 | 490,408 | 171,643 | 35 |
| 1921 (9 months)..... | 208,153 | 394,189 | | |

CARD CLOTHING * * * WHEN MANUFACTURED WITH PLATED WIRE.

| | | | | |
|----------------------|--------|----------|----------|----|
| 1918..... | 22,062 | \$48,336 | \$16,918 | 35 |
| 1919..... | 35,020 | 48,379 | 16,933 | 35 |
| 1920..... | 48,887 | 83,276 | 28,796 | 35 |
| 1921 (9 months)..... | 45,689 | 84,943 | | |

Exports.—None recorded.

Important changes of classification.—Card clothing of all kinds is classified in a single paragraph in H. R. 7456 instead of in two brackets, as in the act of 1913 (par. 124).

PARAGRAPH 338.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 338. Screws, commonly called wood screws, of iron or steel, more than two inches in length, 10 cents per gross; over one inch and not over two inches in length, 8 cents per gross; over one-half inch and not over one inch in length, 5 cents per gross; one-half inch and less in length, 3 cents per gross: *Provided*, That each package or carton shall have conspicuously marked thereon the number of screws contained therein and the duty shall not be assessed upon a less number than so marked.

ACT OF 1909.

ACT OF 1913.

PAR. 169. Screws, commonly called wood screws, made of iron or steel, more than two inches in length, three cents per pound; over one inch and not more than two inches in length, five cents per pound; over one-half inch and not more than one inch in length, eight cents per pound; one-half inch and less in length, 10 cents per pound.

PAR. 140. Screws, commonly called wood screws, made of iron or steel, 25 per centum ad valorem.

WOOD SCREWS.

(See Survey C-8.)

Description and use.—Screws known in the trade as "wood screws," because intended for use in wood, are of mild steel or iron; or of brass, copper, and zinc when protection from rust is desirable.

Production.—In 1914 wood screws, including those made of brass and bronze, were valued at \$6,217,000, the output of 12 establishments. In 1919 the value was \$16,462,000, the output of the same number of establishments.

Imports of wood screws are small compared with production. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 11,411 | 927 | 3232 | 25 |
| 1919..... | 1,798 | 507 | 127 | 26 |
| 1920..... | 9,945 | 2,595 | 640 | 25 |
| 1921 (9 months)..... | 5,481 | 1,781 | | |

Exports.—Exports for the calendar years 1918–1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-------------|-------------|-------------|---------------------|
| Quantity (gross)..... | 8,576,249 | 10,461,928 | 9,002,489 | 4,106,472 |
| Value..... | \$2,368,264 | \$2,737,716 | \$1,968,495 | \$932,608 |

Important changes in classification.—H. R. 7456 divides screws into four groups according to the length, with a specific rate of duty for each group. The proviso is new.

PARAGRAPH 339.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 339. Table, household, kitchen, and hospital utensils, and similar hollow or flat ware, not specially provided for; composed of iron or steel and enameled or glazed with vitreous glasses, 5 cents per pound and 30 per centum ad valorem; composed wholly or in chief value of aluminum, 28 per centum ad valorem; and in addition thereto, upon any of the foregoing articles containing electrical heating elements as constituent parts thereof, 10 per centum ad valorem.

ACT OF 1909.

PAR. 158. Table, kitchen, and hospital utensils, or other similar hollow ware, of iron or steel, enameled or glazed with vitreous glasses, but not ornamented or decorated with lithographic or other printing, forty per centum ad valorem.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of * * * aluminum, or other metal, * * * forty-five per centum ad valorem.

ACT OF 1913.

PAR. 134. Table, kitchen, and hospital utensils or other similar hollow ware composed of iron or steel, enameled or glazed with vitreous glasses; table, kitchen, and hospital utensils or other similar hollow ware composed wholly or in chief value of aluminum; all the foregoing not specially provided for in this section, 25 per centum ad valorem.

HOUSEHOLD AND HOSPITAL UTENSILS AND HOLLOW WARE.

(See Surveys C-15 and C-16.)

Description and use.—The names of the articles enumerated in this paragraph sufficiently indicate their description and uses.

Production statistics indicate production of enameled ware to the value of about \$20,000,000 in 1914, consisting mainly of enameled kitchen ware and similar articles.

Aluminum articles, other than castings, manufactured in the United States in 1914 were valued at \$19,597,465, and nearly the whole amount was consumed at home.

Imports.—From 1910 to 1913 the imports of table, kitchen, and hospital utensils of iron and steel declined, but after the passage of the act of 1913 increased nearly 25 per cent—from \$667,831 in 1913 to \$833,251 in 1914. After 1914 imports again decreased, due probably to the blockade of Germany and Austria-Hungary, whence came three-fourths of the imports in previous years.

Imports in the last nine months of 1914 (fiscal year) of the above articles made of aluminum were \$507,349, but decreased rapidly until 1918. The war demand by European countries for aluminum metal was largely responsible for the decreased importation. Imports have come from Germany, Great Britain, France, and Switzerland—mostly from Germany. Imports since 1917 are shown below.

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|---|----------|---------|------------------|
| ENAMEL WARE, TABLE, HOUSEHOLD, KITCHEN, AND HOSPITAL UTENSILS, ETC. | | | |
| 1918..... | \$19,497 | \$4,874 | 25 |
| 1919..... | 65,828 | 16,457 | 25 |
| 1920..... | 366,232 | 91,559 | 25 |
| 1921 (9 months)..... | 249,296 | | |

TABLE, HOUSEHOLD, KITCHEN, AND HOSPITAL UTENSILS, * * * COMPOSED WHOLLY OR IN CHIEF VALUE OF ALUMINUM.

| | | | |
|----------------------|---------|---------|----|
| 1918..... | \$1,049 | \$262 | 25 |
| 1919..... | 1,835 | 464 | 25 |
| 1920..... | 422,024 | 105,506 | 25 |
| 1921 (9 months)..... | 551,214 | | |

Exports of "enameled ware, all other," were valued at \$448,789 in 1913. They declined to \$271,426 in 1915, and then rose sharply to \$1,282,262 in 1916 and to \$2,266,641 in 1917. The leading countries of destination in 1913 were Canada, Argentina, Mexico, England, and Cuba. During the war period England became less important in the export trade.

Domestic exports of aluminum utensils are not reported separately. Exports of all aluminum manufactures other than ingot metal, plates, and sheets amounted to \$1,804,632 in the fiscal year 1918 and to \$2,563,164 in the calendar year 1920. More than half of the exports during the latter year was destined to American countries. Included in these exports are motor castings, rods, leaf, wire, and other forms not properly belonging to this paragraph.

Exports of electrical heating and cooking apparatus during recent calendar years were as follows: 1918, \$686,339; 1919, \$1,579,757; 1920, \$1,801,127; 1921 (9 months), \$1,419,175.

Important changes in classification.—All the articles in this paragraph were classified together in the act of 1913. H. R. 7456 classifies the articles in two groups: The first, those composed of iron or steel, enameled or glazed with vitreous glasses, and second, those composed wholly or in chief value of aluminum. "Household," in the first line, and "flatware," in the second line, and the words "and in addition thereto, upon any of the foregoing articles containing electrical heating elements as constituent parts thereof, 10 per centum ad valorem," are new.

PARAGRAPH 840.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 340. Crosscut saws, mill saws, pit and drag saws, circular saws, steel band saws, finished or further advanced than tempered and polished, hand, back, and all other saws, not specially provided for, 15 per centum ad valorem; jewelers' or piercing saws, 40 cents per gross.

ACT OF 1909.

ACT OF 1913.

PAR. 168. Crosscut saws, five cents per linear foot; mill saws, eight cents per linear foot; pit and drag saws, six cents per linear foot; circular saws, twenty per centum ad valorem; steel band saws, finished or further advanced than tempered and polished, five cents per pound and twenty per centum ad valorem; hand, back, and all other saws, not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 139. Crosscut saws, mill saws, pit and drag saws, circular saws, steel band saws, finished or further advanced than tempered and polished, hand, back, and all other saws, not specially provided for in this section, 12 per centum ad valorem.

SAWS.

(See Survey C-4.)

Description and uses.—Crosscut saws of the hand-manipulated type vary greatly in character. They are used in logging and in sawing wood for fuel. Drag-saws are similar to crosscut saws, but are operated by machinery, and are usually used in mills for cutting defective logs or for cutting logs into shorter lengths. Pit saws are handsaws used for sawing boards directly from the log. Mill saws are upright saws operated by machinery and used for rift sawing. The circular saw of disk shape is commonly used in sawmills and for sawing wood for fuel. Band saws are continuous bands run over pulleys and used in sawmills; they require the highest grade of steel and the greatest care in manufacture of any of the saws mentioned. A backsaw is a small variety of handsaw. It is used for very fine cutting requiring a straight or even saw cut. The blade is so thin that a strip of metal, usually steel or brass, is necessary along the back to prevent its buckling. Handsaws, broadly speaking, include

such saws as buck, hack, keyhole, plumbers', back, pruning saws, and many others for special purposes. The most common is the familiar handsaw used by carpenters and other woodworkers. A jeweler's saw has a very thin blade, tempered hard throughout, for cutting metal, and is used in a frame. Metal-splitting saws, whether of carbon or high-speed tool steel, are classed as saws, although they more closely resemble thin milling cutters.

Production.—In 1914 there were 100 establishments manufacturing saws in the United States. Wage earners numbered 4,560; capital was \$15,860,000; wages paid, \$3,019,000; cost of materials, \$4,714,000; and value of product, \$12,517,000. In 1919 there were 112 establishments, and the value of the product was \$31,473,000. The States leading in production in 1914 were Illinois, New York, Ohio, and Pennsylvania.

Imports of saws embraced in this paragraph were valued at \$63,570 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|---------------------|
| 1918..... | \$18,473 | \$2,217 | <i>Per cent.</i> 12 |
| 1919..... | 51,645 | 6,196 | 12 |
| 1920..... | 126,906 | 15,228 | 12 |
| 1921 (9 months)..... | 78,075 | | |

Exports in 1914 were valued at \$1,474,077, more than half of which went to Canada, Australia, England, and Germany, the rest being widely distributed. Later exports by calendar year have been valued as follows: 1918, \$3,790,416; 1919, \$4,851,791; 1920, \$4,455,639; 1921 (9 months), \$2,020,723. The principal countries of destination were, in 1919, United Kingdom, Japan, Australia, Brazil; in 1920, United Kingdom, Japan, Canada, Australia.

Important changes of classification.—Jewelers' or piercing saws are added.

PARAGRAPH 341.

H. R. 7466.

SENATE AMENDMENTS.

PAR. 341. Steel plates, stereotype plates, electrotype plates, halftone plates, photogravure plates, photo-engraved plates, and plates of other materials, engraved for printing, and plates of iron or steel engraved or fashioned for use in the production of designs, patterns, or impressions on glass in the process of manufacturing plate or other glass, 15 per centum ad valorem; lithographic plates of stone or other material engraved, drawn, or prepared, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 166. Steel plates engraved, stereotype plates, electrotype plates, and plates of other materials, engraved for printing, twenty per centum ad valorem; plates of iron or steel engraved or fashioned for use in the production of designs, patterns, or impressions on glass in the process of manufacturing plate or other glass, twenty-five per centum ad valorem; lithographic plates of stone or other material, engraved, drawn, or prepared, * * * fifty per centum ad valorem.

PAR. 137. Steel plates engraved, stereotype plates, electrotype plates, halftone plates, photogravure plates, photo-engraved plates, and plates of other materials, engraved for printing, plates of iron or steel engraved or fashioned for use in the production of designs, patterns, or impressions on glass in the process of manufacturing plate or other glass, 15 per centum ad valorem; lithographic plates of stone or other material engraved, drawn, or prepared, * * * 25 per centum ad valorem.

PAR. 612. Steel engraved forms for bonds, debentures, stock certificates, negotiable receipts, notes and other securities; and engraved steel plates, * * * suitable for use in engraving or printing bonds, stock certificates or other securities [Free].

STEEL PLATES FOR PRINTING, DESIGNS, ETC.

(See Survey C-15.)

Description and uses.—These articles include plates engraved or prepared for printing or used for making impressions on glass in process of manufacture. They may be divided into three classes: (1) Steel plates engraved for printing and plates of iron and steel engraved or fashioned for use in the production of plate or other glass; (2) plates, electrotyped, stereotyped, photo-engraved, etc., and plates of other material than steel engraved for printing; and (3) lithographic plates, drawn or prepared, and wet transfer paper prepared wholly or partly with glycerin and containing imprints taken from lithographic plates.

Production.—The latest available figures cover only part of these materials. In 1914 the country's output of engraved steel and copper plate, including plate printing, amounted to \$13,786,000; photoengraved plates not done in printing establishments, to \$15,359,000; and stereotype and electrotype plates, to \$8,154,000. The figures for the output of lithographic plates include so much other material as to be valueless in this connection. England and Germany are large producers of the several articles embraced in this paragraph.

Imports in 1914 approximated \$50,000. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------------------|---------|-------|------------------|
| ENGRAVED PLATES, STEEL, N. E. S. | | | |
| 1918..... | \$5,139 | \$771 | 15 |
| 1919..... | 587 | 88 | 15 |
| 1920..... | 600 | 90 | 15 |
| 1921 (9 months)..... | 255 | | |

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|--------|-------|------------------|
| ENGRAVED PLATES OF IRON OR STEEL, ENGRAVED OR FASHIONED FOR USE IN THE PRODUCTION OF DESIGNS, PATTERNS, OR IMPRESSIONS ON GLASS, ETC. | | | |
| 1918..... | \$44 | \$7 | Per cent. 15 |
| 1919..... | 58 | 9 | 15 |
| 1920..... | 990 | 148 | 15 |
| 1921 (9 months)..... | 290 | | |

| | | | |
|---|----------|--|--|
| ENGRAVED STEEL PLATES, DIES, AND ROLLS, FOR USE IN ENGRAVING OR PRINTING BONDS, STOCK CERTIFICATES, ETC. | | | |
| 1918..... | \$15,946 | | |
| 1919..... | 18,920 | | |
| 1920..... | 28,761 | | |
| 1921 (9 months)..... | 44,010 | | |

| | | | |
|--|----------|---------|----|
| PLATES, ELECTROTYPE, STEREOTYPE, HALFTONE, PHOTOGRAVURE, PHOTOGRAVED, AND PLATES OF OTHER MATERIAL THAN STEEL, ENGRAVED FOR PRINTING. | | | |
| 1918..... | \$15,360 | \$2,305 | 15 |
| 1919..... | 32,312 | 4,847 | 15 |
| 1920..... | 72,535 | 10,880 | 15 |
| 1921 (9 months)..... | 20,546 | | |

| | | | |
|--|--------|-------|----|
| LITHOGRAPHIC PLATES OF STONE OR OTHER MATERIAL ENGRAVED, ETC. | | | |
| 1918..... | \$979 | \$345 | 25 |
| 1919..... | 482 | 120 | 25 |
| 1920..... | 16,474 | 4,118 | 25 |
| 1921 (9 months)..... | 1,903 | | |

Exports in 1914 amounted to \$72,752. Exports of plates and cuts, electrotype, stereotype, or engraved, for later calendar years have been valued as follows: 1918, \$181,020; 1919, \$389,048; 1920, \$535,597; 1921 (9 months), \$299,431. The principal countries of destination were, in 1919, Canada, United Kingdom, Cuba, Brazil; in 1920, Canada, United Kingdom, Cuba, Argentina.

Important changes in classification.—Steel engraved forms for bonds, stock certificates, etc., now included in this paragraph are exempt from duty under paragraph 612 of the act of 1913.

Suggested changes.—The plates named in this paragraph are not strictly engraved plates. The words "or otherwise prepared" might be inserted in line 6, page 57, of H. R. 7456, after "engraved." The provision is evidently intended to apply to plates, irrespective of material, for printing; a specific provision, therefore, for steel plates and the words "and plates of other materials" appear to be unnecessary.

PARAGRAPH 342.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 342. Umbrella and parasol ribs and stretchers, composed wholly or in chief value of iron, steel, or other metal, in frames or otherwise, and tubes for umbrellas, wholly or partly finished, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 170. Umbrella and parasol ribs and stretchers, composed in chief value of iron, steel, or other metal, in frames or otherwise, and tubes for umbrellas, wholly or partially finished, fifty per centum ad valorem.

PAR. 141. Umbrella and parasol ribs and stretchers, composed in chief value of iron, steel, or other metal, in frames or otherwise, and tubes for umbrellas, wholly or partially finished, 35 per centum ad valorem.

UMBRELLA RIBS AND TUBES.

(See Survey C-8.)

Description and uses are indicated by the articles themselves.

Production.—The United States is a large producer of umbrella and parasol ribs and tubes. The value of the annual production is estimated at from \$1,250,000 to \$2,000,000. Although figures regarding the extent of the output of parts are not available, the production of umbrellas, parasols, and canes in 1914 was valued at \$13,813,353, and in 1919 at \$22,199,000. These completed articles are provided for in paragraph 1454.

Imports.—In the calendar year 1918 the imports of metallic ribs, stretchers, and tubes for umbrellas and parasols were valued at \$14, the smallest annual importation on record since 1884. In the fiscal year 1914, the amount was \$28,985. After that year the annual imports decreased steadily until 1918.

Statistics for the years 1919–1921 are as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|---------|------------------|
| 1919..... | \$7,809 | \$2,733 | Per cent. 35 |
| 1920..... | 18,068 | 6,322 | 35 |
| 1921 (9 months)..... | 20,539 | | |

Exports.—The total amount and value of the annual exportation of umbrella hardware is difficult to ascertain. It is known, however, that exports of the domestic product to foreign markets have increased since 1914.

PARAGRAPH 343.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 343. Spring-beard needles, and other needles for knitting, sewing, shoe, or embroidery machines of every description, not specially provided for, and crochet needles, \$1.15 per thousand and 25 per centum ad valorem; latch needles, \$2 per thousand and 35 per centum ad valorem; tape, knitting, and all other needles, not specially provided for, bodkins of metal, and needle cases or needle-books furnished with assortments of needles or combinations of needles and other articles, 30 per centum ad valorem.

ACT OF 1909.

PAR. 164. Needles for knitting or sewing machines, one dollar per thousand and twenty-five per centum ad valorem; latch needles, one dollar and fifteen cents per thousand and thirty-five per centum ad valorem; crochet needles and tape needles, knitting and all other needles, not specially provided for in this section, and bodkins of metal, twenty-five per centum ad valorem; but no articles other than the needles which are specifically named in this section shall be dutiable as needles unless having an eye, and fitted and used for carrying a thread. Needle cases or needle books furnished with assortments of needles or combinations of needles and other articles, shall pay duty as entireties according to the component material of chief value therein.

ACT OF 1913.

PAR. 135. Needles for knitting or sewing machines, latch needles, crochet needles, and tape needles, knitting and all other needles not specially provided for in this section, bodkins of metal, and needle cases or needle books furnished with assortments of needles or combinations of needles and other articles, 20 per centum ad valorem; but no articles other than the needles which are specifically named in this section shall be dutiable as needles unless having an eye and fitted and used for carrying a thread.

PAR. 555. * * * needles for shoe machines [Free].

NEEDLES.

(See Survey C-15.)

Description and uses.—The dutiable needles used in the largest quantities are knitting-machine needles, sewing-machine needles, hand-crochet and hand-knitting needles, and tape needles or bodkins.

The latch and the spring-beard are the two important kinds of knitting-machine needles. A knitting-machine needle has no eye. The latch needle carries the thread by a tiny hook over which the latch, a proportionately small piece of metal held in place by a rivet, alternately opens and closes to form each stitch or loop in the operation of knitting. The spring-beard needle is made of one piece of wire, one end of which is drawn out extremely fine and bent back along the shank, forming a hook much longer and more delicate than the hook on a latch needle.

Sewing-machine needles are sufficiently familiar.

Crochet needles have at one end a small hook with which the thread is pulled through successive loops. Hand-knitting needles have neither eye nor hook. These needles are frequently made of other material than steel.

Tape needles, made with an elongated eye through which the tape may be easily threaded, have a blunt end designed merely to carry the tape in and out of holes already provided. The term "bodkin" is also applied to tape needles, but may mean a small puncher or stiletto without an eye, used simply to puncture the material.

Shoe-machine needles are extensively used in this country and are of two kinds—wax-thread and dry-thread—which differ widely. The wax-thread needle is eyeless, curved to almost a half circle, and has a hook near the point, closely resembling the hook of a crochet needle. It is used exclusively in a machine for sewing the sole to the upper with a waxed thread. The dry-thread needle is straight, with an eye near the point, and closely resembles an ordinary sewing-machine needle in appearance and use. The machine using this needle differs from the ordinary sewing machine only in the shape of the table holding the article. A dry or unwaxed thread is used

ordinarily, hence its name. The use of this needle is confined, practically, to the sewing of uppers of shoes; it is not employed for sewing soles to uppers.

Production.—The two principal classes of knitting-machine needles involve so many differences in construction—chiefly in labor and factory equipment—that they are distinct industries. In 1914 the domestic production of latch needles amounted to 46,165,000, valued at \$492,387, while spring-beard needles amounted to 47,934,000, valued at \$129,397; in 1919 latch needles amounted to 121,000,000, valued at \$3,845,000, and spring-beard needles amounted to 43,000,000, valued at \$341,000. Reports of manufacturers of spring-beard needles show production for 1919 to have been over 80,000,000 needles, valued at more than \$600,000. Germany is the largest producer of knitting-machine needles.

The Census includes sewing-machine needles in "all other needles," and gave the production for 1914 as 74,635,000, valued at \$656,660; for 1919, as 100,000,000 valued at \$1,829,000. According to figures submitted by manufacturers, this is less than one-half the actual production in 1914. Returns made by three of these companies, not included in the Census reports, added to those figures, give a total for 1914 of 173,214,000 needles, with an estimated value of \$1,500,000. This represents closely the entire domestic output of sewing-machine needles in 1914. The United States, Germany, and England produce practically the world supply. Some crochet hooks are manufactured here. England and Germany are the leading manufacturers of hand crochet and knitting needles, but nearly all the shoe machine needles are a domestic product.

Imports.—The largest annual importation since 1910 was in 1913 (fiscal year), 26,751,000 needles, and in 1917 (fiscal year) imports were less than 1,000,000 needles. Prewar imports averaged about 50 per cent of the domestic output and were increasing. Spring-beard needles have been imported less extensively. Most knitting needles imported come from Germany.

Imports of sewing-machine needles are small, estimated in 1914 as about 5 per cent of domestic production.

Hand-crochet needles, hand-knitting needles, and tape needles or bodkins are grouped together with "all other" in statistics of imports which in 1918 (fiscal year) showed a value of \$139,455. The largest annual importation since 1908 was in 1917 (fiscal year), \$171,983, and the smallest in 1908 (fiscal year), \$50,044.

Imports of shoe-machine needles in 1918 (fiscal year) amounted to \$3,038, and in 1915 (fiscal year) to \$3,217, the maximum.

Imports since 1917 of the various kinds of needles have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------------|-----------|-----------|----------|------------------|
| NEEDLES, ALL KINDS. | | | | |
| 1918..... | | \$388,432 | \$77,186 | 20 |
| 1919..... | | 507,301 | 101,460 | 20 |
| 1920..... | | 538,057 | 106,375 | 20 |
| 1921 (9 months)..... | | 276,803 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

LATCH NEEDLES.

| | Thousands. | | | Per cent. |
|----------------------|------------|----------|---------|-----------|
| 1918..... | 1,432 | \$34,136 | \$6,827 | 20 |
| 1919..... | 2,022 | 44,937 | 8,967 | 20 |
| 1920..... | 5,301 | 95,538 | 19,108 | 20 |
| 1921 (9 months)..... | 3,467 | 43,936 | | |

KNITTING OR SEWING-MACHINE NEEDLES.¹

| | | | | |
|----------------------|--------|-----------|----------|----|
| 1918..... | 36,238 | \$235,154 | \$47,031 | 20 |
| 1919..... | 28,537 | 282,540 | 56,508 | 20 |
| 1920..... | 41,362 | 343,418 | 68,684 | 20 |
| 1921 (9 months)..... | 22,824 | 126,822 | | |

CROCHET NEEDLES—CROCHET AND TAPE NEEDLES, KNITTING AND ALL OTHER, N. S. P. F., AND BODKINS OF METAL.¹

| | | | | |
|----------------------|--------|-----------|----------|----|
| 1918..... | | \$119,142 | \$23,828 | 20 |
| 1919..... | 18,979 | 179,824 | 35,965 | 20 |
| 1920..... | 38,334 | 197,917 | 39,583 | 20 |
| 1921 (9 months)..... | 18,128 | 101,318 | | |

SHOE-MACHINE NEEDLES (FREE).¹

| | | | | |
|----------------------|-------|---------|--|--|
| 1920..... | 596 | \$6,184 | | |
| 1921 (9 months)..... | 1,282 | 4,727 | | |

NEEDLE CASES OR NEEDLE BOOKS, ETC.

| | Number. | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | | \$12,063 | \$2,413 | 20 |
| 1919..... | 130,901 | 19,937 | 3,987 | 20 |
| 1920..... | 285,160 | 38,536 | 7,707 | 20 |
| 1921 (9 months)..... | 275,402 | 38,468 | | |

¹ Spring-beard needles and other needles for knitting, sewing, shoe, or embroidery machines.

Exports.—It is estimated that somewhat less than one-half of the domestic sewing-machine needles are exported; other classes of needles exported are insignificant. Some domestic shoe-machine needles are exported, but the extent is unknown.

Exports for the calendar years 1918 to 1921 are valued as follows: 1918, \$321,651; 1919, \$535,656; 1920, \$548,783; 1921 (9 months), \$270,749. Principal countries of destination were, in 1918, Canada, Brazil, Argentina; in 1919, Canada, Brazil, Mexico; in 1920, Canada, Argentina, Brazil.

Important changes in classification.—Shoe-machine needles are transferred from the free list of the act of 1913 (par. 555), and spring-beard needles and needles for embroidery machines are specifically mentioned. The provision in paragraph 135 of the act of 1913 for needles not specifically named, having an eye and fitted and used for carrying a thread, has been omitted.

PARAGRAPH 344.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 344. Fishhooks, fishing rods and reels, artificial flies, artificial baits, snelled hooks, leaders or casts, and all other fishing tackle and parts thereof, fly books, fly boxes, baskets or creels, finished or unfinished, not specially provided for, except fishing lines, fishing nets, and seines, 35 per centum ad valorem: *Provided*, That any prohibition of the importation of feathers in this Act shall not be construed as applying to artificial flies used for fishing, or to feathers used for the manufacture of such flies.

ACT OF 1909.

PAR. 165. Fish hooks, fishing rods and reels, artificial flies, artificial baits, snelled hooks and all other fishing tackle or parts thereof, not specially provided for in this section, except fishing lines, fishing nets and seines, forty-five per centum ad valorem.

ACT OF 1913.

PAR. 136. Fishhooks, fishing rods and reels, artificial flies, artificial baits, snelled hooks, and all other fishing tackle or parts thereof, not specially provided for in this section, except fishing lines, fishing nets and seines, 30 per centum ad valorem: *Provided*, That any prohibition of the importation of feathers in this section shall not be construed as applying to artificial flies used for fishing.

FISHING TACKLE.

(See Survey C—15.)

Description and uses.—This includes the equipment of the man who fishes for diversion or on a limited scale. Fishing nets and seines used for more extensive operations are provided for in paragraph 1006.

Practically the only items in this paragraph that are used in quantity by commercial fishermen are hooks, especially those used in marine fisheries for trawling and hand-lining.

Production.—The United States, like Canada, England, and some other countries of a considerable fishing industry, is a large producer of fishhooks, fishing rods and reels, and similar equipment. Statistics are not available.

Imports.—The average annual imports during the five-year period, 1910 to 1914, were valued at \$160,101. Over 95 per cent of the total foreign fishing tackle sold in the United States comes from the United Kingdom and Norway. Imports since 1917 have been as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|-----------|----------|------------------|
| FISHHOOKS, FISHING RODS AND REELS, ARTIFICIAL FLIES, ETC. | | | |
| 1918..... | \$202,211 | \$60,663 | 30 |
| 1919..... | 227,307 | 68,192 | 30 |
| 1920..... | 313,234 | 93,970 | 30 |
| 1921 (9 months)..... | 494,365 | | |
| FISHHOOKS, ETC.—FOR THE EQUIPMENT OF VESSELS, ETC. | | | |
| 1918..... | \$2,342 | | |
| 1919..... | 1,332 | | |
| 1920..... | 3,063 | | |
| 1921 (9 months)..... | | | |

Exports.—None reported.

Important changes in classification.—Leaders or casts, fly books, fly boxes, baskets or creels, finished or unfinished, are added. Feathers used for the manufacture of flies, prohibited in former acts, are specifically exempted from the prohibition.

Suggested changes.—Page 58, line 3: Insert "fishing" before "baskets" to prevent a conflict with paragraph 413.

PARAGRAPH 345.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 345. Saddlery and harness hardware: Buckles, rings, snaps, bits, swivels, and all other articles of iron, steel, brass, composition, or other metal, commonly or commercially known as saddlery or harness hardware, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

SADDLERY AND HARNESS HARDWARE.

(See Survey N-18.)

Description and uses.—The phrase "saddlery and harness hardware" is applied to buckles, rings, etc., made of metal and used on bridles, saddles, and harness.

Production.—In 1914 there were 58 establishments in the United States manufacturing saddlery hardware, with an output valued at \$4,040,000. In 1919 the number of establishments had declined to 37, but the value of the product had increased to \$14,137,000.

Imports and exports.—No separate statistics.

Important changes in classification.—This is a new paragraph.

PARAGRAPH 346.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 346. Belt buckles, trouser buckles, and waistcoat buckles, shoe or slipper buckles, and parts thereof, made wholly or partly of iron or steel, valued at not more than 20 cents per hundred, 5 cents per hundred; valued at more than 20 and not more than 50 cents per hundred, 10 cents per hundred; valued at more than 50 cents per hundred, 15 cents per hundred; and in addition thereto, on all of the foregoing, 20 per centum ad valorem.

ACT OF 1909.

PAR. 425. Trousers buckles and waistcoat buckles, made wholly or partly of iron or steel, or parts thereof, valued at not more than fifteen cents per hundred, five cents per hundred; valued at more than fifteen cents per hundred and not more than fifty cents per hundred, ten cents per hundred; valued at more than fifty cents per hundred, fifteen cents per hundred; and in addition thereto on each and all of the above buckles or parts of buckles, fifteen per centum ad valorem.

[No corresponding provision for belt buckles, shoe and slipper buckles; classable according to kind or component material of chief value.]

ACT OF 1913.

PAR. 151. Belt buckles, trousers buckles, waistcoat buckles, * * * any of the foregoing made wholly or in chief value of iron or steel; * * * all the foregoing and parts thereof, not otherwise specially provided for in this section, 15 per centum ad valorem.

[No corresponding provision for shoes or slipper buckles; classable according to kind or component material of chief value.]

BUCKLES.

(See Survey C-20.)

Description and uses.—These articles include various kinds of fastening devices used chiefly on men's clothing. Other fasteners belonging to this general group are provided for in paragraph 349.

Production.—No separate figures are published for buckles, but production of garment buckles amounts to approximately \$1,000,000 annually.

Imports in 1908 of buckles—belt, trouser, and waistcoat—made wholly or partly of iron or steel, amounted to \$19,304, and decreased until 1918. Germany, Austria, and France are the principal countries exporting to this country. Imports since 1917 by calendar years have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------------|--------|-------|------------------|
| | <i>Gross.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$494 | \$73 | 15 |
| 1919..... | 2,524 | 17,890 | 2,682 | 15 |
| 1920..... | 14,688 | 7,349 | 1,095 | 15 |
| 1921 (9 months)..... | 642 | 793 | | |

Exports are not reported.

Important changes in classification.—Hooks and eyes, etc.; snap fasteners, etc.; and steel trouser buttons, etc., which are classified with belt buckles, etc., in the act of 1913 with an ad valorem rate of duty, have each been given a separate paragraph, 347, 348, and 349, respectively, in H. R. 7456.

Shoe and slipper buckles have been inserted in this paragraph, and all articles have been classified into groups according to value with a specific rate of duty and an additional ad valorem duty.

Suggested changes.—Page 58, line 17: Substitute a comma for "or" between "iron" and "steel" and add the words "of other base metal" after "steel" to make the paragraph include buckles, etc., made of any base metal.

PARAGRAPH 347.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 347. Hooks and eyes, wholly or in chief value of metal, whether loose, carded, or otherwise, including weight of cards, cartons, and immediate wrappings and labels, 4½ cents per pound and 15 per centum ad valorem.

ACT OF 1909.

PAR. 180. Hooks and eyes, metallic, whether loose, carded, or otherwise, including weight of cards, cartons, and immediate wrappings and labels, four and one-half cents per pound and fifteen per centum ad valorem.

ACT OF 1913.

PAR. 151. * * * hooks and eyes, metallic; * * * all the foregoing and parts thereof, not otherwise specially provided for in this section, 15 per centum ad valorem.

HOOKS AND EYES.

(See Survey C-20.)

Description and uses.—Hooks and eyes are used as dress fasteners.

Production in 1914 of hooks and eyes amounted to 1,076,177 great gross, valued at \$1,394,745; and in 1919 to 4,098,000 great gross, valued at \$2,354,000, according to the census report. An important manufacturer of hooks and eyes estimates the value of production in 1914 at \$4,000,000.

Imports.—No imports of hooks and eyes are reported for 1918, but in 1917 they amounted to 1,061 pounds, valued at \$374; and in 1914 to 86,710 pounds, valued at \$27,878. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1919..... | 16 | \$50 | \$8 | 15 |
| 1920..... | | 3,401 | 510 | 15 |
| 1921 (9 months)..... | | 3,533 | | |

Exports.—None reported.

Important changes in classification.—Hooks and eyes are classified with belt buckles, etc., in the act of 1913 with an ad valorem rate of duty.

H. R. 7456 provides a specific and an ad valorem rate of duty on the articles, whether loose, carded, or otherwise, including weight of cards, cartons, and immediate wrappings and labels as in 1909.

PARAGRAPH 348.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 348. Snap fasteners and clasps, and parts thereof, by whatever name known, or of whatever material composed, not plated with gold, silver, or platinum, and not mounted on tape, 40 per centum ad valorem; mounted on tape, 45 per centum ad valorem.

ACT OF 1909.

PAR. 427. * * * snap fasteners, or clasps, or parts thereof, by whatever name known, fifty per centum ad valorem; * * *.

ACT OF 1913.

PAR. 151. * * * snap fasteners and clasps by whatever name known, any of the foregoing made wholly or in chief value of iron or steel; * * * all the foregoing and parts thereof, not otherwise specially provided for in this section, 15 per centum ad valorem.

[Snap fasteners and clasps composed of metal other than iron or steel, dutiable as manufactures of metal, Par. 167, 20 per centum ad valorem.]

SNAP FASTENERS AND CLASPS.

(See Survey C 20.)

Description and uses.—These articles are fastening devices chiefly for clothing, and are used as a substitute for buttons, hooks, and eyes, buckles, and pins.

Production.—In 1914 snap fasteners and clasps, or parts of, amounted to 91,957 great gross, valued at \$714,492. Production was estimated by a well-informed manufacturer in July, 1919, to be at the rate of about 1,500,000 great gross annually, valued at approximately \$6,000,000.

Imports.—The value of imports increased steadily from \$11,064 in 1910 to \$130,078 in 1914. Then came a sharp drop to \$18,994 in 1915, a slight further decline in 1916, and a recovery to \$34,315 in 1917.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|-----------|---------|-------|------------------|
| SNAP FASTENERS AND CLASPS, AND PARTS THEREOF, ETC. | | | | |
| | Number. | | | Per cent. |
| 1918..... | | \$1,513 | \$277 | 15 |
| 1919..... | | 778 | 117 | 15 |
| 1920..... | | 20,351 | 3,983 | 18 |
| 1921 (9 months)..... | | 7,000 | | |

BRASS SNAP FASTENERS AND CLASPS, OR PARTS OF.

| | | | | |
|----------------------|-----|--------|-------|----|
| 1918..... | | \$524 | \$105 | 20 |
| 1919..... | 804 | 18 | 4 | 20 |
| 1920..... | | 11,114 | 2,223 | 20 |
| 1921 (9 months)..... | | 65,578 | | |

Exports.—Official statistics of exports are lacking, but it is stated in Commerce Reports, March 1, 1918, that exports to Brazil reached a large volume in 1917.

Important changes in classification.—Snap fasteners and clasps are classified with belt buckles, etc., in the act of 1913 (par. 151), with a limitation to such as are made wholly or in chief value of iron or steel.

The restriction to mounting on tape is new.

Suggested changes.—If snap fasteners mounted on tape are distinguished from those in bulk, it is suggested that snap fasteners

mounted on cards be similarly distinguished. The mounting on cards is common with respect to the style of fasteners imported in the past. The mounting of the cheaper grades abroad is done by machinery while in the United States all mounting is done by hand.

PARAGRAPH 349.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 349. Metal trouser buttons, except steel and nickel bar buttons, one-twelfth of 1 cent per line per gross; steel trouser buttons, one-fourth of 1 cent per line per gross; buttons of metal, not specially provided for, three-fourths of 1 cent per line per gross; and in addition thereto, on all of the foregoing, 10 per centum ad valorem; metal buttons embossed with a design, device, pattern, or lettering, 35 per centum ad valorem: *Provided*, That the term "line" as used in this paragraph shall mean the line button measure of one-fortieth of one inch.

ACT OF 1909.

ACT OF 1913.

PAR. 427. * * * metal-trousers buttons (except steel), and nickel bar buttons, one-twelfth of one cent per line per gross; * * * steel trousers buttons, one-fourth of one cent per line per gross; * * * buttons of * * * metal, not specially provided for in this section, three-fourths of one cent per line per gross, and in addition thereto, on all the foregoing articles in this paragraph, fifteen per centum ad valorem; * * * buttons of metal, embossed with a design, device, pattern, or lettering, forty-five per centum ad valorem; * * *

PAR. 151. * * * steel trousers buttons, and metal buttons; all the foregoing and parts thereof, not otherwise specially provided for in this section, 15 per centum ad valorem.

METAL BUTTONS.

(See T. I. S.-4.)

Description and use.—The industry includes practically every kind of metal button, from the most ordinary button of sheet iron, made automatically, to the expensive gold button, made by hand. There are sew-on trouser buttons; tack buttons, put on by machine; bachelor buttons, put on by hand; uniform buttons; and buttons for women's and children's clothing.

Production.—Connecticut, New Jersey, New York, Massachusetts, and Rhode Island are the leading States in the manufacture of metal buttons. Production in 1914 of steel trouser buttons amounted to 535,207 gross, valued at \$307,802; other metal trouser buttons, to 252,248 gross, at \$44,150; metal buttons, not including trouser or collar or cuff buttons, to 872,563 gross, at \$455,485.

Imports.—Before the war trouser buttons were imported from Germany and Austria. They were inferior in quality and workmanship, but were 30 per cent cheaper than the domestic product. Gold-plated collar and link buttons were also imported from Germany. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|---------------|---------|-------|------------------|
| METAL BUTTONS, TOTAL, ALL KINDS. | | | | |
| | <i>Gross.</i> | | | <i>Per cent.</i> |
| 1918..... | 7,495 | \$1,567 | \$235 | 15 |
| 1919..... | 4,150 | 4,141 | 622 | 15 |
| 1920..... | 76,746 | 27,694 | 4,153 | 15 |
| 1921 (9 months)..... | 31,577 | 17,765 | | |

METAL TROUSER BUTTONS, EXCEPT STEEL AND NICKEL BAR BUTTONS, ETC., OTHER METAL.

| | | | | |
|----------------------|--------|-------|-----|----|
| 1918..... | 2,400 | 990 | 90 | 15 |
| 1919..... | 23 | 37 | 6 | 15 |
| 1920..... | 16,299 | 4,325 | 650 | 15 |
| 1921 (9 months)..... | 23 | 13 | | |

STEEL TROUSER BUTTONS.

| | | | | |
|----------------------|-------|-------|------|----|
| 1918..... | 445 | \$201 | \$30 | 15 |
| 1919..... | 344 | 291 | 44 | 15 |
| 1920..... | 895 | 644 | 97 | 15 |
| 1921 (9 months)..... | 2,299 | 1,560 | | |

ALL OTHER METAL BUTTONS, N. S. P. F.

| | | | | |
|----------------------|--------|---------|-------|----|
| 1918..... | 3,738 | \$1,094 | \$164 | 15 |
| 1919..... | 3,783 | 3,813 | 572 | 15 |
| 1920..... | 53,559 | 23,705 | 3,408 | 15 |
| 1921 (9 months)..... | 29,598 | 16,192 | | |

Exports.—All kinds of metal buttons were being exported in 1918, but doubt was expressed as to whether this trade could be held in competition with the cheaper foreign goods after the war. In 1918 (fiscal year) exports of buttons, other than pearl, amounted to \$1,503,865. These figures, of course, cover more than metal buttons.

Important changes in classification.—The provision in the act of 1913 (par. 151) has been enlarged.

Suggested changes.—"Except stee'" should be put in parentheses as in paragraph 427 of the act of 1909, unless nickel bar buttons are also intended to be excepted, as appears by paragraph 427 of the act of 1909 not to be the case.

The duties on some embossed buttons might be less than the duty on plain buttons under this paragraph. In the absence of a specific provision therefor in this paragraph, parts of buttons of metal would come within paragraph 1411 which imposes a rate of 38 per centum ad valorem. This rate might be more than the rates imposed in paragraph 349 on finished metal buttons.

PARAGRAPH 350.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 350. Pins with solid heads, without ornamentation, including hair, safety, hat, bonnet, and shawl pins; and brass, copper, iron, steel, or other basic metal pins, with heads of glass, paste, or fusible enamel; all the foregoing not plated with gold or silver, and not commonly known as jewelry, 28 per centum ad valorem.

ACT OF 1909.

PAR. 188. Pins with solid heads, without ornamentation, including hair, safety, hat, bonnet, and shawl pins; any of the foregoing composed wholly of brass, copper, iron, steel, or other base metal, not plated with gold or silver, and not commonly known as jewelry, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 158. Pins with solid heads, without ornamentation, including hair, safety, hat, bonnet, and shawl pins; any of the foregoing composed wholly of brass, copper, iron, steel, or other base metal, not plated with gold or silver, and not commonly known as jewelry, 20 per centum ad valorem.

PINS.

(See Survey C-8.)

Production of common or toilet pins in 1914 amounted to 641,121 pounds plus 1,825,673 packs of 3,360 pins of steel wire, and 1,186,397 pounds plus 1,638,035 packs of 3,600 pins of brass wire, with a combined value of \$1,248,757. Some firms report output in pounds and others in packs. *Production of hairpins* was 9,242,012 gross, valued at \$528,362; and of *safety pins*, 4,744,303 gross, valued at \$936,663. *Production of common or toilet pins in 1919* amounted to 2,799,000 pounds plus 1,342,000 packs of 3,360 pins of steel wire, valued at \$1,521,000; and 741,000 pounds plus 1,089,000 packs of 3,600 pins of brass wire, valued at \$1,269,000.

Production of hair pins was 24,310,000 gross, valued at \$1,481,000; and of *safety pins*, 8,428,000 gross, valued at \$2,977,000.

The total value of common pins, hairpins, and safety pins produced in 1914 was \$2,713,782, and in 1919 was \$7,248,000. Connecticut leads in the manufacture of articles covered by this paragraph. The leading foreign producers are France, Germany, and England.

Imports of all pins covered by paragraph 350 amounted to \$235,571 in 1914. Imports have been mainly from England and Germany.

Imports of pins with solid heads, without ornamentation, etc., have been, since 1917, as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|------------------|
| 1918..... | \$104,081 | \$20,816 | 20 |
| 1919..... | 130,165 | 26,033 | 20 |
| 1920..... | 161,142 | 32,228 | 20 |
| 1921 (9 months)..... | 156,175 | | |

Exports.—Before the war American manufacturers produced some pins for export, but England and Germany held most of the export trade. After 1915 there was a better foreign market for American pins, but American producers had difficulty in supplying the domestic demand and made little effort to develop the foreign trade.

Important changes in classification.—The first clause of this paragraph enumerates pins, but does not mention the material or materials of which they are made. The second clause classifies brass, copper, iron, steel, or other "basic" metal pins with heads of glass in the same group.

Suggested changes.—Page 59, line 20 of H. R. 7456: Change "basic" to "base."

PARAGRAPH 851.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 351. Pens, metallic, not specially provided for, 12 cents per gross; with nib and barrel in one piece, 15 cents per gross.

ACT OF 1909.

PAR. 186. Pens, metallic, except gold pens, twelve cents per gross; with nib and barrel in one piece, fifteen cents per gross.

ACT OF 1913.

PAR. 156. Pens, metallic, not specially provided for in this section, 8 cents per gross; with nib and barrel in one piece, 12 cents per gross.

PENS.

(See Survey C-24.)

Description and uses.—This paragraph relates to metallic pens other than gold. Pens are made principally of steel, but there is a growing demand for gold pens, because more flexible and of greater durability. "Fountain pens" have attained wide use in recent years.

Production.—The domestic manufacture of steel pens began in 1860, when the knowledge of the quality of metal best adapted for their manufacture was acquired. Most of the steel used has been imported from England and Sweden. Five establishments, with a capital of \$870,601 and 573 wage earners, manufactured steel pens in 1914. Materials used were worth \$117,113, wages amounted to \$243,043, and the value of the product was \$513,498. Steel pens valued at \$160,068 were also produced by establishments classified under other industries. The value of the product of five establishments in 1919 was \$1,706,000. A prewar estimate credited domestic production with 2,500,000 gross.

Imports.—Imports of metallic pens, n. s. p. f., in 1914 were 698,642 gross, valued at \$174,044. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|---------------|-----------|----------|------------------------|
| PENS, METALLIC, WITH NIB AND BARREL IN ONE PIECE. | | | | |
| | <i>Gross.</i> | | | <i>Per cent.</i> |
| 1918..... | 942 | \$2,839 | \$113 | 3.98 |
| 1919..... | 12,066 | 12,202 | 1,448 | 11.87 |
| 1920..... | 5,142 | 9,091 | 617 | 6.79 |
| 1921 (9 months)..... | 1,740 | 3,770 | | |
| ALL OTHER METALLIC PENS, N. S. P. F. | | | | |
| 1918..... | 546,999 | \$193,040 | \$43,758 | 22.67 |
| 1919..... | 572,604 | 265,066 | 45,908 | 17.28 |
| 1920..... | 923,397 | 360,920 | 73,888 | 18.90 |
| 1921 (9 months)..... | 384,169 | 166,036 | | |

Exports in 1914 were 295,525 gross, valued at \$116,501, going to the United Kingdom, British India, Germany, and Canada. Later exports of metallic pens (except gold) have been as follows (calendar years):

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-----------------------|-----------|-----------|-----------|-----------------|
| Quantity (gross)..... | 465,028 | 1,098,677 | 968,809 | 129,740 |
| Value..... | \$231,345 | \$569,239 | \$489,826 | \$83,165 |

The principal countries of destination were: In 1919, United Kingdom, British India, Brazil, Cuba; in 1920, United Kingdom, Brazil, British India, and Cuba.

PARAGRAPH 352.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 352. Penholder tips, penholders and parts thereof, gold pens, combination penholders comprising penholders, pencil, rubber eraser, automatic stamp, or other attachments, 25 cents per gross and 20 per centum ad valorem; mechanical pencils made of base metal and not plated with gold, silver, or platinum, 45 cents per gross and 20 per centum ad valorem: *Provided*, That pens and penholders shall be assessed for duty separately.

ACT OF 1909.

ACT OF 1913.

PAR. 187. Penholder tips, penholders and parts thereof, five cents per gross and twenty-five per centum ad valorem; gold pens, twenty-five per centum ad valorem; * * * combination penholders, comprising penholder, pencil, rubber eraser, automatic stamp, or other attachment, forty per centum ad valorem: *Provided*, That pens and penholders shall be assessed for duty separately.

PAR. 157. Penholder tips, penholders and parts thereof, gold pens, * * * combination penholders, comprising penholder, pencil, rubber eraser, automatic stamp, or other attachment, 25 per centum ad valorem: *Provided*, That pens and penholders shall be assessed for duty separately.

PENHOLDERS, ETC.

(See Survey C-24.)

Description and uses.—A penholder tip is the end of a penholder designed for holding a pen, and made as a separate part of the penholder.

Gold pens are superior to steel pens in flexibility and durability and are essential in fountain pens, the gold being alloyed with silver and copper and protected by an iridium point.

Combination penholders consist of tubes made to hold a reversible tube at either end, in one of which is a penholder tip with or without pen and in the other a lead pencil, rubber eraser, or other attachment.

Mechanical metal pencils have a hollow center throughout the length for insertion of pencil lead, one end of which protrudes to form the point of the pencil which may be regulated mechanically.

Production.—In 1914 there were 12 manufacturers of gold pens, with 246 wage earners, a capital of \$408,228, wages of \$174,209, cost of materials \$301,893, and value of product \$642,461. In 1919 there were 15 manufacturers, with an output valued at \$1,801,000.

Imports.—In 1914 imports of penholder tips were 15,420 gross, valued at \$16,615; and of combination penholders, \$11,257. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

PENHOLDER TIPS, PENHOLDERS, AND PARTS THEREOF.

| | Gross. | | | Per cent. |
|----------------------|--------|---------|---------|-----------|
| 1918..... | 8,054 | \$4,419 | \$1,105 | 25 |
| 1919..... | 8,141 | 5,505 | 1,626 | 25 |
| 1920..... | 9,515 | 9,737 | 2,434 | 25 |
| 1921 (9 months)..... | 8,133 | 7,224 | | |

COMBINATION PENHOLDERS COMPRISING PENHOLDERS, PENCIL, RUBBER, ERASER, ETC.

| | Gross. | | | Per cent. |
|----------------------|--------|---------|-------|-----------|
| 1918..... | | \$1,424 | \$356 | 25 |
| 1919..... | 310 | 357 | 89 | 25 |
| 1920..... | 1,441 | 2,589 | 647 | 25 |
| 1921 (9 months)..... | 361 | 606 | | |

Very few gold pens are imported. In 1920 there were but 19 recorded, valued at \$362.

Exports.—In 1914 exports of penholders were 79,648 gross, valued at \$38,056, of which \$57,446 worth went to Europe (mainly England), \$19,914 to North America, \$7,576 to South America, and \$3,120 to all other countries. Exports of penholders for the calendar years 1918 to 1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-----------|-----------|-----------|------------------|
| Quantity (gross)..... | 59,666 | 112,674 | 107,042 | 59,542 |
| Value..... | \$114,031 | \$200,354 | \$223,376 | \$146,045 |

The principal countries of destination were: In 1919, United Kingdom, Canada, Brazil, Argentina; in 1920, United Kingdom, Canada, Argentina, British India.

Important changes in classification.—A provision for mechanical pencils, not plated with precious metals, is added. (Other mechanical pencils are dutiable under par. 1449 or par. 1428.)

PARAGRAPH 353.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 353. Fountain pens, fountain-pen holders, stylographic pens, and parts thereof, valued at not more than \$2 per dozen, 72 cents per dozen; valued at more than \$2 and not more than \$6 per dozen, \$1.50 per dozen; and in addition thereto, on all of the foregoing, 25 per cent ad valorem: *Provided*, That the value of cartons and fillers shall be included in the dutiable value.

ACT OF 1909.

ACT OF 1913.

PAR. 187. * * * fountain pens, stylographic pens, thirty per centum ad valorem; * * *

PAR. 157. * * * fountain pens, and stylographic pens: * * * 25 per centum ad valorem: * * *

FOUNTAIN PENS, ETC.

(See Survey C-24.)

Description and uses.—Stylographic pens, like fountain pens, have a reservoir to hold the ink. The point of a stylographic pen is tubular and pencil shaped, with a needle playing in it which releases the ink when pressed on the paper. This form of pen is especially useful for manifolding with carbon paper.

Production.—In 1914 there were 55 manufacturers of fountain and stylographic pens, with 1,154 wage earners, a capital of \$3,269,809, wages of \$717,533, cost of material \$1,614,145, and value of product \$6,865,074. In 1919 there were 56 manufacturers with an output valued at \$15,997,000.

Imports in 1914 of fountain and stylographic pens were valued at \$51,526; later imports of fountain pens, fountain-pen holders, stylographic pens, and parts thereof have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------------|---------|---------|------------------|
| | <i>Gross.</i> | | | <i>Per cent.</i> |
| 1918..... | 817 | \$4,408 | \$1,102 | 25 |
| 1919..... | 1,861 | 12,189 | 3,042 | 25 |
| 1920..... | 2,360 | 70,083 | 17,521 | 25 |
| 1921 (9 months)..... | | 51,482 | | |

Exports.—In 1914 the exports of fountain pens were 332,935, valued at \$326,966, about two-thirds going to England and most of the rest to Canada, France, and Brazil. Exports of fountain pens for the calendar years, 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-----------|-----------|-----------|--------------------|
| Quantity (number)..... | 161,399 | 423,906 | 465,300 | 147,023 |
| Value..... | \$123,962 | \$409,517 | \$518,410 | \$197,563 |

The principal countries of destination were, in 1919, Canada, British India, Denmark, Spain; in 1920, Italy, British India, France, Spain.

Important changes in classification.—Fountain-pen holders, are specifically provided for, also "parts". Cartons and fillers are included in the dutiable value. The value of these pens has been limited to \$6 per dozen.

Suggested changes.—No provision has been made for fountain pens, etc., valued at more than \$6 per dozen.

PARAGRAPH 354.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 354. Penknives, pocketknives, clasp knives, pruning knives, budding knives, erasers, manicure knives, and all knives by whatever name known, including such as are denominatively mentioned in this Act, which have folding or other than fixed blades or attachments, valued at not more than 40 cents per dozen, 40 per centum ad valorem; valued at more than 40 and not more than 50 cents per dozen, 1 cent each and 30 per centum ad valorem; valued at more than 50 cents and not more than \$1.25 per dozen, 5 cents each and 30 per centum ad valorem; valued at more than \$1.25 and not more than \$3 per dozen, 10 cents each and 30 per centum ad valorem; valued at more than \$3 and not more than \$8 per dozen, 20 cents each and 30 per centum ad valorem; valued at more than \$8 per dozen, 30 cents each and 30 per centum ad valorem; blades, handles, or other parts of any of the foregoing knives or erasers shall be dutiable at not less than the rate herein imposed upon knives and erasers valued at more than 50 cents and not exceeding \$1.25 per dozen; cuticle knives, corn knives, nail files, tweezers, hand forceps, and parts thereof, finished or unfinished, by whatever name known, 40 per centum ad valorem: *Provided*, That any of the foregoing, if imported in the condition of assembled, but not fully finished, shall be dutiable at not less than the rate of duty herein imposed upon fully finished articles of the same material and quality, but not less in any case than 15 cents each and 35 per centum ad valorem: *Provided further*, That all the articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die sunk conspicuously and indelibly on the shank or tang of at least one or, if practicable, each and every blade thereof.

ACT OF 1909.

PAR. 152. Penknives, pocketknives, clasp knives, pruning knives, budding knives, erasers, manicure knives, and all knives by whatever name known, including such as are denominatively mentioned in this section, which have folding or other than fixed blades or attachments, valued at not more than forty cents per dozen, forty per centum ad valorem; valued at more than forty cents per dozen and not exceeding fifty cents per dozen, one cent per piece and forty per centum ad valorem; valued at more than fifty cents per dozen and not exceeding one dollar and twenty-five cents per dozen, five cents per piece and forty per centum ad valorem; valued at more than one dollar and twenty-five cents per dozen and not exceeding three dollars per dozen, ten cents per piece and forty per centum ad valorem; valued at more than three dollars per dozen, twenty cents per piece and forty per centum ad valorem: *Provided*, That any of the foregoing knives or erasers, if imported in the condition of assembled, but not fully finished, shall be dutiable at not less than the rate of duty herein imposed upon fully finished knives and erasers of the same material and quality, but not less in any case than ten cents each and forty per centum ad valorem: *Provided further*, That blades, handles, or other parts of any of the foregoing knives or erasers shall be dutiable at not less than the rate herein imposed upon knives and erasers valued at more than fifty cents per dozen and not exceeding one dollar and twenty-five cents per dozen; * * * *Provided further*, That on and after October first, nineteen hundred and nine, all the articles specified in this paragraph shall when imported have the name of the maker or purchaser and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the shank or tang of at least one or, if practicable, each and every blade thereof. * * *

[No corresponding provision for the other commodities.]

ACT OF 1913.

PAR. 128. Penknives, pocketknives, clasp knives, pruning knives, budding knives, erasers, manicure knives, and all knives by whatever name known, including such as are denominatively mentioned in this section, which have folding or other than fixed blades or attachments, * * * all the foregoing, whether assembled but not fully finished or finished; valued at not more than \$1 per dozen, 35 per centum ad valorem; valued at more than \$1 per dozen, 55 per centum ad valorem: *Provided*, That blades, handles, or other parts of any of the foregoing knives, * * * or erasers shall be dutiable at not less than the rate herein imposed upon the knives, * * * and erasers, of which they are parts. * * * *Provided further*, That all articles specified in this paragraph shall, when imported, have the name of the maker or purchaser and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the blade, shank, or tang of at least one or, if practicable, each and every blade thereof.

[No corresponding provision for the other commodities.]

PENKNIVES, POCKETKNIVES, ETC.

(See Survey C-13.)

Description and uses.—The distinctive feature of the pocketknife is that the blade folds into the handle. All such knives, as well as other knives named, are included under paragraph 354.

Production of penknives and pocketknives was valued at \$4,177,000 in 1914. Domestic manufacturers ordinarily specialize in a particular article, and generally all stages in manufacturing are performed in the same establishment, though there is some trade in parts. Factories in Germany and Great Britain, on the other hand,

specialize in the parts, and the final manufacturer is often simply an assembler of parts. The structure of these knives is complicated, and they are demanded in almost endless variety. In addition, the industry is one requiring highly skilled hand labor which commands higher wages than are paid in Europe. The nature of the product, which largely resists the use of machine processes, renders inapplicable our characteristic advantages in production.

New York, Connecticut, Ohio, and Pennsylvania lead in the domestic manufacture of penknives and pocketknives. Germany, Great Britain, and France, each sending some output to our market, are the principal foreign producers.

Imports in 1914 were valued at over \$1,300,000 (31 per cent of the domestic production), and at \$57,000 in 1918. Preceding the war Germany furnished 80 per cent and Great Britain 16 per cent of these imports. Very cheap knives, retailing from 5 to 10 cents, form the bulk of the imports. Importation of the best grades, penknives particularly, is also important. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

PENKNIVES, POCKETKNIVES, ETC., FINISHED—TOTAL, ALL KINDS.

| | Dozen. | | | Per cent. |
|----------------------|---------|----------|----------|-----------|
| 1918..... | 85,641 | \$82,189 | \$37,975 | 46.20 |
| 1919..... | 97,156 | 139,217 | 68,443 | 49.16 |
| 1920..... | 314,424 | 581,831 | 299,034 | 51.40 |
| 1921 (9 months)..... | 421,603 | 606,549 | | |

PENKNIVES, POCKETKNIVES, CLASP KNIVES, ETC., FINISHED, VALUED AT MORE THAN \$1 PER DOZEN.

| | | | | |
|----------------------|---------|----------|----------|----|
| 1918..... | 14,661 | \$46,041 | \$25,323 | 55 |
| 1919..... | 28,996 | 98,588 | 54,223 | 55 |
| 1920..... | 165,342 | 476,970 | 262,333 | 55 |
| 1921 (9 months)..... | 179,619 | 460,878 | | |

PENKNIVES, POCKETKNIVES, CLASP KNIVES, PRUNING KNIVES, BUDDING KNIVES, ETC., FINISHED, VALUED AT NOT MORE THAN \$1 PER DOZEN.

| | | | | |
|----------------------|---------|----------|----------|----|
| 1918..... | 70,980 | \$36,148 | \$12,652 | 35 |
| 1919..... | 68,170 | 40,629 | 14,220 | 35 |
| 1920..... | 149,082 | 104,861 | 36,701 | 35 |
| 1921 (9 months)..... | 241,961 | 145,671 | | |

PENKNIVES, POCKETKNIVES, ETC., ASSEMBLED, BUT NOT FULLY FINISHED—TOTAL, ALL KINDS.

| | | | | |
|----------------------|-------|---------|---------|-------|
| 1918..... | 7,160 | \$6,699 | \$2,805 | 41.87 |
| 1919..... | 6 | 21 | 12 | 55.00 |
| 1920..... | 838 | 1,573 | 864 | 54.93 |
| 1921 (9 months)..... | 128 | 770 | | |

PENKNIVES, POCKETKNIVES, CLASP KNIVES, ETC., ASSEMBLED, BUT NOT FULLY FINISHED, VALUED AT MORE THAN \$1 PER DOZEN.

| | | | | |
|----------------------|-----|---------|---------|----|
| 1918..... | 474 | \$2,301 | \$1,266 | 55 |
| 1919..... | 6 | 21 | 12 | 55 |
| 1920..... | 827 | 1,565 | 861 | 55 |
| 1921 (9 months)..... | 128 | 770 | | |

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|------------------------|---------|---------|------------------------|
| PENKNIVES, POCKETKNIVES, CLASP KNIVES, PRUNING KNIVES, BUDDING KNIVES, ETC., ASSEMBLED BUT NOT FULLY FINISHED, VALUED AT NOT EXCEEDING \$1 PER DOZEN. | | | | |
| 1918..... | <i>Dozen.</i> 6,696 | \$4,398 | \$1,539 | 35 |
| 1920..... | 11 | 8 | 3 | 35 |

KNIFE BLADES, HANDLES, OR OTHER PARTS OF—TOTAL, ALL KINDS.

| | | | | |
|----------------------|-------|---------|---------|-------|
| 1918..... | 693 | \$2,853 | \$1,534 | 53.77 |
| 1919..... | 107 | 204 | 112 | 54.93 |
| 1920..... | 3,926 | 1,972 | 808 | 40.97 |
| 1921 (9 months)..... | 5,692 | 4,237 | | |

KNIFE BLADES, HANDLES, OR OTHER PARTS OF, VALUED AT MORE THAN \$1 PER DOZEN.

| | | | | |
|----------------------|-----|---------|---------|----|
| 1918..... | 444 | \$2,676 | \$1,473 | 55 |
| 1919..... | 107 | 204 | 112 | 55 |
| 1920..... | 176 | 587 | 323 | 55 |
| 1921 (9 months)..... | 402 | 1,611 | | |

KNIFE BLADES, HANDLES, OR OTHER PARTS OF, VALUED AT NOT EXCEEDING \$1 PER DOZEN.

| | | | | |
|----------------------|-------|-------|------|----|
| 1918..... | 249 | \$175 | \$61 | 35 |
| 1920..... | 3,750 | 1,385 | 485 | 35 |
| 1921 (9 months)..... | 5,290 | 2,626 | | |

Exports.—Exports are very small and statistics are not available.

Important changes in classification.—The articles are separated into six classes, according to value, and compound rates of duty are provided which increase with the value of each class. Cuticle knives, corn knives, nail files, tweezers, hand forceps, and parts thereof, are specifically provided for. Razors and razor blades and handles have been classified in a separate paragraph (358). Scissors and shears, and blades also have been classified in a separate paragraph (357). A provision has been made that if any of the articles in this paragraph be imported in the condition of assembled, but not fully finished, they shall be dutiable at not less than the rate of duty herein imposed upon fully finished articles of the same material and quality, but not less in any case than 15 cents each and 35 per centum ad valorem. There is also a provision that blades, handles, or other parts of the knives and erasers enumerated in this paragraph shall be dutiable at not less than the rate imposed upon knives and erasers valued at more than 50 cents and not exceeding \$1.25 per dozen, while the act of 1913 provides that these articles shall be dutiable at not less than the rate imposed upon the knives and erasers, of which they are parts. Provision in the second proviso for the name of the purchaser has been omitted.

PARAGRAPH 355.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 355. Table, butchers', carving, cooks', hunting, kitchen, bread, cake, pie, slicing, cigar, butter, vegetable, fruit, cheese, canning, fish, carpenters' bench, curriers', drawing, farriers', fleshing, hay, sugar-beet, beet-topping, tanners', plumbers', painters', palette, artists', shoe and similar knives, forks, and steels, and cleavers, all the foregoing, finished or unfinished, not specially provided for, with or without handles of mother-of-pearl, shell, ivory, deer, or other animal horn, silver, nickel silver, or other metal than iron or steel, 16 cents each; with handles of hard rubber, solid bone, celluloid, or any pyroxylin, casein, or similar material, 8 cents each; with handles of any other material, if less than four inches in length, exclusive of handle, 3 cents each; if four inches in length or over, exclusive of handle, 8 cents each; and in addition thereto, on all of the foregoing, 35 per centum ad valorem: *Provided*, That all articles specified in this paragraph when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk legibly and indelibly upon the blade in a place that shall not be covered.

ACT OF 1909.

ACT OF 1913.

PAR. 154. Table, butchers', carving, cooks', hunting, kitchen, bread, butter, vegetable, fruit, cheese, carpenters' bench, curriers', drawing, farriers', fleshing, hay, tanners', plumbers', painters', palette, artists', and shoe knives, forks and steels, finished or unfinished; if imported with handles of mother-of-pearl, shell, ivory, silver, nickeled silver, or other metal than iron or steel, fourteen cents each; with handles of deerhorn, ten cents each; with handles of hard rubber, solid bone, celluloid, or any pyroxyline material, four cents each; with handles of any other material than those above mentioned, one cent each, and in addition, on all the above articles, fifteen per centum ad valorem; any of the knives, forks or steels, enumerated in this paragraph, if imported without handles, forty per centum ad valorem: *Provided*, That none of the above-named articles shall pay a less rate of duty than 40 per centum ad valorem: *Provided*, That all the articles specified in this paragraph when imported on and after October first, nineteen hundred and nine, shall have the name of the maker or purchaser and beneath the same the name of the country of origin indelibly stamped or branded thereon in a place that shall not be covered thereafter.

PAR. 130. Table, butchers', carving, cooks', hunting, kitchen, bread, butter, vegetable, fruit, cheese, carpenters' bench, curriers', drawing, farriers', fleshing, hay, tanners', plumbers', painters', palette, artists', and shoe knives, forks and steels, finished or unfinished, without handles, 25 per centum ad valorem; with handles, 30 per centum ad valorem: *Provided*, That all the articles specified in this paragraph, when imported, shall have the name of the maker or purchaser, and beneath the same the name of the country of origin indelibly stamped or branded thereon in a place that shall not be covered thereafter.

TABLE AND OTHER CUTLERY.

(See Survey C-13.)

Description and uses.—The name of the article indicates its use.

Production.—The Census recorded the production of "table" and "other" cutlery at \$8,863,000 in 1914. Later figures for these classes of cutlery are not yet available. Preliminary Census figures for all classes of cutlery and edge tools for 1919 show an output valued at \$62,526,000. About 30 or 40 per cent of this value is covered by articles in this paragraph. New York, Connecticut, and Massachusetts are important producing States.

Steel cutlery is largely superseded by plated ware, for the manufacture of which the American factory methods are better adapted than to that of steel table cutlery. Domestic production of the latter does not supply the entire market.

Imports in 1914, of which table cutlery formed the bulk, were valued at \$333,576. Prior to the war Germany and Great Britain together (about equally) furnished 80 per cent and France almost all the rest of the imports. In 1920 these ratios were not greatly different, except that Japan furnished a rather considerable amount. Later imports of cutlery have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

TABLE, CARVING, COOKS', KITCHEN, ETC., WITH HANDLES.

| | Dozen. | Value. | Duty. | Per cent. |
|----------------------|---------|----------|----------|-----------|
| 1918..... | 13,031 | \$45,867 | \$13,760 | ..... |
| 1919..... | 7,759 | 43,210 | 12,963 | 30 |
| 1920..... | 96,191 | 235,705 | 70,711 | 30 |
| 1921 (9 months)..... | 174,040 | 173,837 | ..... | ..... |

TABLE, CARVING, COOKS', KITCHEN, BREAD, BUTTER, VEGETABLE, FRUIT, AND CHEESE KNIVES, FORKS, AND STEELS—WITHOUT HANDLES.

| | | | | |
|----------------------|--------|--------|-------|-------|
| 1918..... | 57 | \$112 | \$28 | 25 |
| 1919..... | 241 | 225 | 56 | 25 |
| 1920..... | 5,323 | 6,127 | 1,532 | 25 |
| 1921 (9 months)..... | 13,249 | 18,231 | ..... | ..... |

BUTCHERS', HUNTING, CARPENTERS', BENCH KNIVES, ETC.—WITH HANDLES.

| | | | | |
|----------------------|--------|----------|----------|-------|
| 1918..... | 16,823 | \$45,908 | \$13,768 | 30 |
| 1919..... | 11,063 | 45,376 | 13,613 | 30 |
| 1920..... | 45,000 | 97,818 | 29,345 | 30 |
| 1921 (9 months)..... | 45,531 | 87,913 | ..... | ..... |

BUTCHERS', HUNTING, CARPENTERS', BENCH, CURRIERS', DRAWING, FARRIERS' FLESHING, HAY, TANNERS', PLUMBERS', PALETTE, ARTISTS', AND SHOE KNIVES—WITHOUT HANDLES.

| | | | | |
|----------------------|-------|-------|-------|-------|
| 1918..... | 69 | \$214 | \$53 | 25 |
| 1919..... | 267 | 721 | 180 | 25 |
| 1920..... | 5,791 | 6,354 | 1,588 | 25 |
| 1921 (9 months)..... | 1,368 | 2,672 | ..... | ..... |

Exports of table cutlery were valued at only \$168,623 in 1914. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Table cutlery..... | \$831,744 | \$2,379,848 | \$3,458,756 | \$1,082,660 |
| All other cutlery..... | 2,499,776 | 3,808,376 | 3,999,063 | 1,072,283 |

The principal countries of destination of table cutlery were, in 1919, Brazil, Argentina, and Norway; in 1920, Brazil, Argentina, and Sweden.

The principal countries of destination of all other cutlery were, in 1919, Canada, Brazil, Argentina; in 1920, Canada, Cuba, Brazil.

Important changes in classification.—Cake, pie, slicing, cigar, canning, fish, sugar-beet, beet topping, and similar knives, and cleavers are added. The articles are divided into four classes, according to kind or length of handles, and compound, instead of ad valorem, rates of duty are given to each class; provision for the name of the purchaser is omitted, and the name of the maker is required to be die sunk, instead of stamped or branded, on the article.

PARAGRAPH 356.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 356. Planing-machine knives, tannery and leather knives, tobacco knives, paper and pulp mill knives, roll bars, bedplates, and all other stock-treating parts for pulp and paper machinery, shear blades, circular cloth cutters, circular cork cutters, circular cigarette cutters, meat slicing cutters, and all other cutting knives and blades used in power or hand machines, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1918.

[No corresponding provision.]

[No corresponding provision.]

POWER, OR HAND MACHINE KNIVES.

Description and uses.—Planing-machine knives are used mainly on wood-working machines, and rarely for metalworking. Tannery and leather knives are employed to remove the flesh and hair from leather skins, and to split leather. These knives are known as fleshing, shaving, whitening blades, and bark knives. Paper and pulp mill knives are made of a straight piece of steel and used on "roll" or "fly" bars of beater engines, and on chippers and cutters. Slitter knives are of circular form and used in paper machines for slitting, or cutting, the paper lengthwise. A roll bar is a metal

cylinder about 4 or 5 feet in diameter with heavy knives parallel with the shaft fitted into its face. A bedplate is a series of steel plates standing on edge and bolted together. The "stock," or rough paper material, passes between the revolving "roll bar" and the stationary "bedplate" to be cut up. The names of the other kinds of knives mentioned in the paragraph indicate the kinds and their uses.

Production, imports, and exports.—No data available.

Important changes in classification.—A new provision.

PARAGRAPH 857.

H. E. 7456.

SENATE AMENDMENTS.

PAR. 357. Steel laid scissors and shears, and blades for the same, finished or unfinished, 10 cents each and 30 per centum ad valorem; all other scissors and shears, and blades for the same, finished or unfinished, valued at not more than 50 cents per dozen, 3 cents each and 35 per centum ad valorem; valued at more than 50 cents and not more than \$1.75 per dozen, 15 cents each and 35 per centum ad valorem; valued at more than \$1.75 per dozen, 20 cents each and 35 per centum ad valorem: *Provided*, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the outside of the blade between the screw or rivet and the handle.

ACT OF 1909.

ACT OF 1913.

PAR. 152. * * * *Provided further*, That on and after October first, nineteen hundred and nine, all the articles specified in this paragraph shall when imported have the name of the maker or purchaser and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the shank or tang of at least one or, if practicable, each and every blade thereof. Scissors and shears, and blades for the same, finished or unfinished, valued at not more than fifty cents per dozen, fifteen cents per dozen and fifteen per centum ad valorem; valued at more than fifty cents and not more than one dollar and seventy-five cents per dozen, fifty cents per dozen and fifteen per centum ad valorem; valued at more than one dollar and seventy-cents per dozen, seventy-five cents per dozen and twenty-five per centum ad valorem.

PAR. 128. * * * Scissors and shears, and blades for the same, finished or unfinished, 30 per centum ad valorem: *Provided further*, That all articles specified in this paragraph shall, when imported, have the name of the maker or purchaser and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the blade, shank, or tang of at least one or, if practicable, each and every blade thereof.

SCISSORS AND SHEARS.

(See Survey C-13.)

Description and use.—Shears are distinguished from scissors only by their greater length.

Production of scissors and shears, including clippers, was valued at \$2,500,000 in 1914. Manufacturers are located in Connecticut, New Jersey, New York, and other States. The domestic producers of shears supply the domestic market and export as well. The making of "laid" shears—attaching a steel cutting edge to backs and handles of malleable iron—is an American process, not successfully applied abroad. Of scissors, except cheap cast scissors, domestic manufacturers supply only a small portion of the market. Germany was the most important producer of scissors prior to the war.

Imports were valued at \$775,000 (31 per cent of domestic production) in 1914. Before the war Germany was the source of 96.5 per cent of the imports, while 83 per cent of the 1918 imports, largely scissors, came from Japan. In 1920 (calendar year), however, 90 per cent of the quantity and 87.5 per cent of the value of the total imports came from Germany. Recent imports of all kinds of scissors and shears, and blades for the same, finished or unfinished, have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------------|----------|----------|------------------|
| | <i>Dozen.</i> | | | <i>Per cent.</i> |
| 1918..... | 26,350 | \$91,317 | \$27,395 | 30 |
| 1919..... | 71,330 | 168,340 | 50,502 | 30 |
| 1920..... | 211,909 | 518,153 | 155,446 | 30 |
| 1921 (9 months)..... | 404,633 | 787,105 | | |

Exports.—American-made shears are exported to all parts of the world. No figures are available.

Important changes in classification.—Steel-laid scissors and shears, and blades for the same, are separately provided for. Other kinds are divided, according to value, into three classes. The act of 1913 fixes a straight ad valorem rate of duty on scissors and shears, and parts thereof, regardless of kind or class. The requirements concerning marking are different.

Suggested changes.—Nail clippers, barbers' clippers, animal clippers, sheep shears, and pruning shears might be added.

Was it intended to impose a specific rate on each of the two blades constituting a part of scissors or shears while the same specific rate would be imposed on the finished article? In other words, was it intended to make the specific duties on the blades alone twice that on the scissors or shears?

Does "outside of the blade," in lines 12 and 13, page 63, mean one blade or both blades?

PARAGRAPH 358.

H. E. 7456.

SENATE AMENDMENTS.

PAR. 358. Razors, finished or unfinished, valued at less than \$2 per dozen, 10 cents each; valued at \$2 and less than \$3 per dozen, 12 cents each; valued at \$3 and less than \$4 per dozen, 16 cents each; valued at \$4 or more per dozen, 20 cents each; and in addition thereto, on all of the foregoing, 30 per centum ad valorem; *Provided*, That handles, unfinished razors and blades (except for safety razors), safety razors, and safety-razor handles and frames, shall pay no less duty than that imposed on finished razors valued at \$2 per dozen: *Provided further*, That finished or unfinished blades for safety razors shall pay a duty of 1 cent each and 30 per centum ad valorem: *Provided further*, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the blade or shank or tang of each and every blade and on safety razors and parts thereof.

ACT OF 1909.

PAP. 152. * * * razors, finished, valued at less than one dollar per dozen, thirty-five per centum ad valorem; valued at one dollar and less than one dollar and fifty cents per dozen, six cents each and thirty-five per centum ad valorem; valued at one dollar and fifty cents and less than two dollars per dozen, ten cents each and thirty-five per centum ad valorem; valued at two dollars and less than three dollars per dozen, twelve cents each and thirty-five per centum ad valorem; valued at three dollars or more per dozen, fifteen cents each and thirty-five per centum ad valorem: *Provided*, That blades (except for safety razors), handles, and unfinished razors shall pay no less duty than that imposed on finished razors valued at two dollars per dozen: *Provided further*, That on and after October first, nineteen hundred and nine, all the articles specified in this paragraph shall when imported have the name of the maker or purchaser and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the shank or tang of at least one or, if practicable, each and every blade thereof. * * *

ACT OF 1913.

PAR. 128. * * * razors, all the foregoing, whether assembled but not fully finished or finished; valued at not more than \$1 per dozen, 35 per centum ad valorem; valued at more than \$1 per dozen, 55 per centum ad valorem: *Provided*, That blades, handles, or other parts of any of the foregoing * * * razors. * * * shall be dutiable at not less than the rate herein imposed upon the * * * razors, * * * of which they are parts. * * * *Provided further*, That all articles specified in this paragraph shall, when imported, have the name of the maker or purchaser and beneath the same the name of the country of origin die-sunk conspicuously and indelibly on the blade, shank, or tang of at least one or, if practicable, each and every blade thereof.

RAZORS.

(See Survey C-13.)

Production of razors (safety and straight) was valued at over \$5,000,000 in 1914, New York leading among manufacturing States. Germany and Great Britain are the chief foreign producers.

The best German and English straight razors have a reputation for superiority, which rests on the great technical proficiency of Solingen and Sheffield. Since the war, however, American manufacturers have produced a razor of comparable quality. But the safety razor, by methods of quantity production not fully applicable to the straight razor, has offset any disadvantage America has suffered in producing the latter.

Imports in 1914 were valued at \$473,000. The bulk of these in quantity was of the cheapest grades, not manufactured here; in point of value, the imports of the highest grades were of more importance. Both the cheap and the better grades come from Germany, but only the better grades from Great Britain. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|---------------|----------|----------|------------------------|
| RAZORS, FINISHED AND UNFINISHED—TOTAL, ALL KINDS. | | | | |
| | <i>Dozen.</i> | | | <i>Per cent.</i> |
| 1918..... | 5,318 | \$24,085 | \$13,243 | 54.98 |
| 1919..... | 9,312 | 47,523 | 26,011 | 54.73 |
| 1920..... | 75,296 | 380,132 | 206,181 | 54.77 |
| 1921 (9 months)..... | 101,411 | 357,896 | | |
| RAZORS, FINISHED—VALUED AT MORE THAN \$1 PER DOZEN. | | | | |
| 1918..... | 5,294 | \$24,066 | \$13,236 | 55 |
| 1919..... | 8,358 | 46,889 | 25,789 | 55 |
| 1920..... | 67,516 | 375,675 | 206,621 | 55 |
| 1921 (9 months)..... | 87,687 | 345,108 | | |
| RAZORS, FINISHED—VALUED AT NOT MORE THAN \$1 PER DOZEN. | | | | |
| 1918..... | 24 | \$19 | \$7 | 35 |
| 1919..... | 954 | 634 | 222 | 35 |
| 1920..... | 5,780 | 4,457 | 1,560 | 35 |
| 1921 (9 months)..... | 13,724 | 12,778 | | |
| RAZOR HANDLES, UNFINISHED RAZORS, AND BLADES, ETC.—TOTAL, ALL KINDS. | | | | |
| 1918..... | 9,469 | \$44,436 | \$24,300 | 54.69 |
| 1919..... | 6,724 | 22,939 | 12,224 | 53.29 |
| 1920..... | 15,943 | 48,632 | 26,604 | 54.49 |
| 1921 (9 months)..... | 33,181 | 16,691 | | |
| HANDLES, UNFINISHED RAZORS, AND BLADES, ETC.—VALUED AT MORE THAN \$1 PER DOZEN. | | | | |
| 1918..... | 8,489 | \$43,739 | \$24,056 | 55 |
| 1919..... | 4,490 | 20,979 | 11,538 | 55 |
| 1920..... | 10,192 | 47,666 | 26,161 | 55 |
| 1921 (9 months)..... | 3,226 | 11,489 | | |
| HANDLES, UNFINISHED RAZORS, AND BLADES, ETC.—VALUED AT NOT MORE THAN \$1 PER DOZEN. | | | | |
| 1918..... | 890 | \$697 | \$244 | 35 |
| 1919..... | 2,244 | 1,960 | 666 | 35 |
| 1920..... | 5,751 | 1,266 | 443 | 35 |
| 1921 (9 months)..... | 29,955 | 4,202 | | |

Exports.—Exports in 1914 were valued at \$472,000; in 1918, at \$2,355,000, largely of safety razors. Although straight razors are exported, production in the United States does not satisfy the domestic demand. The values of exports for the calendar years 1918 to 1921 are as follows: 1918, \$1,905,385; 1919, \$4,150,803; 1920, \$5,715,089; 1921 (9 months), \$1,134,956. The principal countries of destination in 1920 were France, Belgium, United Kingdom, and Denmark.

Important changes in classification.—Razors are divided, according to value, into four classes, as against two classes in the act of 1913. Safety razors and safety-razor handles and frames have been included in this paragraph and shall pay no less duty than that imposed on finished razors valued at \$2 per dozen. Blades for safety razors are classified separately. There is a provision that "handles, unfinished razors, and blades," etc., shall pay no less duty than that imposed on finished razors valued at \$2 per dozen, while the act of 1913 provides that blades, handles, or other parts shall be dutiable at not less than the rate imposed upon the razors of which they are parts.

Suggested changes.—Page 64, line 3: Insert "or indelibly etched" after the words "die-sunk" because if the name of the maker and country of origin is die-sunk on a safety-razor blade, it spoils the blade. Strike out hyphen between die and sunk to agree with paragraphs 354 and 361.

PARAGRAPH 359.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 359. Surgical and dental instruments, or parts thereof, composed wholly or in part of iron, steel, copper, brass, nickel, aluminum, or other metal, finished or unfinished, valued at not more than \$5 per dozen, 60 cents per dozen; valued at more than \$5 per dozen, 12 cents per dozen for each \$1 per dozen of such value; and in addition thereto, on all of the foregoing, 35 per centum ad valorem: *Provided*, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the country of origin die-sunk conspicuously and indelibly on the outside, or if a jointed instrument on the outside when closed.

ACT OF 1909.

ACT OF 1913.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or other metal, and whether partly or wholly manufactured, forty-five per centum ad valorem.

PAR. 167. Articles or wares not specially provided for in this section; if composed wholly or in part of platinum, gold, or silver, and articles or wares plated with gold or silver, and whether partly or wholly manufactured, 50 per centum ad valorem; if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, but not plated with gold or silver, and whether partly or wholly manufactured, 20 per centum ad valorem.

SURGICAL INSTRUMENTS.

(See Survey C-30.)

Description and use.—The bulk of the surgical instruments made in the United States prior to 1914 was what is known as soft-metal goods, i. e., those composed of brass, copper, or nickel silver. Steel instruments were never produced in this country in quantities before the war.

Production.—Manufacturers of surgical instruments must produce a large number of different styles of each class of instrument and, therefore, can not place production of any one type on a quantity basis. Surgical instruments in 1914 were produced by about 40 establishments, and the total value of the production was roughly \$1,400,000; of this amount \$1,000,000 represents the value of soft-metal goods and \$400,000 the value of steel instruments. The war caused a great expansion in the industry in this country, as no German instruments had been received since the early months of 1916. The product of American factories in 1917 was valued at \$3,385,000, of which \$1,927,000 represented soft-metal goods and \$1,458,000 steel instruments. The number of workmen employed increased from 958 in April, 1914, to 2,128 in April, 1918.

Imports.—Practically 80 per cent of the steel instruments used in the United States were of foreign manufacture, chiefly German. The war caused a shortage which has been somewhat relieved since the beginning of 1917 by the importation of steel instruments from Japan. Japanese instruments are on the whole of inferior quality and often are defective.

Exports.—In the fiscal year 1914 exports of surgical and medical instruments amounted to \$206,421, of which nearly three-fourths went to Canada. During the war there was at times a considerable demand from Europe for certain classes of instruments, and exports to other parts of the world also increased rapidly. Statistics for the calendar years 1918 to 1921 follow:

| | |
|----------------------|-----------|
| 1918..... | \$771,282 |
| 1919..... | 854,279 |
| 1920..... | 848,370 |
| 1921 (9 months)..... | 422,516 |

About one-half of the exports have gone to Canada; the remainder has been rather widely distributed.

DENTAL INSTRUMENTS.

(See Survey B-10.)

Description and use.—Dental instruments are made almost exclusively of steel and include a large number of standard tools. Although there is some demand for instruments of special design, it is not comparable to that for surgical instruments.

Production.—The dental appliance, instrument, and supply industry produces sufficient material to furnish the home market, and exports large quantities of its products to all the world's markets. Dental instruments are more nearly standardized than surgical instruments and can therefore be manufactured in quantity.

Imports.—There is practically no importation of dental instruments.

Exports.—The export business absorbs a considerable proportion of the entire production, a proportion which is estimated at over 35 per cent. These exports amounted to over \$1,100,000 in 1913, and to almost \$10,800,000 in 1919.

Important changes in classification.—A new provision.

Suggested changes.—It has been represented that because of different competitive positions surgical and dental instruments might be separated.

“The country of origin die sunk” should be made to read “the name of the country of origin die sunk.”

To assure the classification in this paragraph of scissors and other surgical instruments, specially provided for elsewhere in H. R. 7456, it is suggested that the words “of all kinds whatsoever” be inserted after the word “instruments” and before the comma in line 6 at page 64.

Page 64, line 6: Change “or” to “and” before “parts.”

Page 64, line 15: Strike out hyphen between die and sunk to agree with paragraphs 354 and 361.

PARAGRAPH 360.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 360. Philosophical, scientific, and laboratory instruments, apparatus, utensils, appliances (including drawing, surveying, and mathematical instruments), and parts thereof, composed wholly or in chief value of metal, and not plated with gold, silver, or platinum, finished or unfinished, not specially provided for, 40 per centum ad valorem: *Provided*, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the country of origin die-sunk conspicuously and indelibly on the outside, or if a jointed instrument on the outside when closed.

ACT OF 1909.

PAR. 650. Philosophical and scientific apparatus, utensils, instruments, and preparations,² including bottles and boxes containing the same, specially imported in good faith for the use and by order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, or seminary of learning in the United States, or any state or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe [Free].

ACT OF 1913.

PAR. 573. Philosophical and scientific apparatus, utensils, instruments, and preparations,² including bottles and boxes containing the same, specially imported in good faith for the use and by order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, or seminary of learning in the United States, or any State or public library, and not for sale, and articles solely for experimental purposes, when imported by any society or institution of the character herein described, subject to such regulations as the Secretary of the Treasury shall prescribe [Free].

² Preparations classable under H. R. 7456 according to component materials.

ACT OF 1909.

ACT OF 1913.

PAR. 653. * * * vases, retorts, and other apparatus, vessels, and parts thereof, composed of platinum, for chemical uses [Free].

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or other metal, and whether partly or wholly manufactured, forty-five per centum ad valorem.

PAR. 578. * * * vases, retorts, and other apparatus, vessels, and parts thereof, composed of platinum, for chemical uses [Free].

PAR. 167. Articles or wares not specially provided for in this section; if composed wholly or in part of platinum, gold, or silver, and articles or wares plated with gold or silver, and whether partly or wholly manufactured, 50 per centum ad valorem; if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, but not plated with gold or silver, and whether partly or wholly manufactured, 20 per centum ad valorem.

PHILOSOPHICAL, SCIENTIFIC, AND LABORATORY INSTRUMENTS.

(See Survey B-10.)

Description and uses.—The term “scientific instruments” covers a large variety of articles intended for the accurate observation and measurement of natural phenomena. Most important among them are engineering, physical, chemical, and medical instruments of various kinds, used for the measurement of weight, volume, length, heat, temperature, light, color, and time.

Production in 1914, excluding medical and surgical instruments, was reported as valued at \$15,000,000. In general those instruments which before the war had a sufficiently large market to permit large-scale production were produced here successfully; but certain instruments of high precision, for which the demand was not large and for which skillful hand labor was necessary, were imported. Germany, with a world-wide reputation based upon skilled hand labor trained for generations, was the chief producer. During the war, however, foreign competition was removed and domestic production expanded in volume and variety.

Imports in 1914 were valued at \$704,496. These figures include certain articles in addition to scientific instruments, such as chemical ware and exclude scientific instruments not admitted free; hence they can not properly be used in comparison with production and export figures. Of the imports in 1914, 80 per cent came from Germany; the remainder mainly from England and France. In 1918 about 84 per cent of the imports came from England, Japan, and Canada. In 1914 imports of vases, retorts, and other apparatus, vessels, and parts of, composed of platinum, for chemical uses were valued at \$82,000; total imports of platinum and manufactures of platinum, including a small quantity of ore, were valued at \$3,982,708. Later imports have been as follows (calendar years):

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|----------|----------|-----------|---------------------|
| Platinum vases, retorts, and other apparatus, vessels, and parts of, for chemical use: | | | | |
| Quantity (ounces, Troy)..... | | 22 | 781 | 58 |
| Value..... | \$2,750 | \$2,672 | \$78,697 | \$6,718 |
| Philosophical and scientific apparatus, etc., all other, value..... | \$51,972 | \$71,453 | \$151,334 | \$142,314 |

Exports of scientific instruments, other than those used for medical, surgical, and optical purposes, in 1914, amounted to \$689,366, more than one-half of which went to Canada; the remainder was widely distributed. In 1918 the exports were destined mainly to Canada, England, France, Russia, Chile, Japan, and Spain.

Exports of manufactures of platinum in 1914 were valued at \$71,172, about 75 per cent of which went to Canada, and nearly all the rest to Germany. Exports of scientific instruments for recent calendar years have been valued as follows: 1918, \$2,921,474; 1919, \$3,550,261; 1920, \$3,995,484; 1921 (9 months), \$2,266,598.

Important changes in classification.—This paragraph makes dutiable philosophical or scientific instruments for institutions. Laboratory instruments, apparatus, and appliances (including drawing, surveying, and mathematical instruments), and parts thereof, composed of metal, finished or unfinished, and not plated with gold, silver, or platinum, have been added. The proviso is new.

Conflicting provisions.—Surveying instruments are mentioned in both paragraphs 228 and 360; parts of surveying instruments are provided for only in paragraph 360.

Suggested changes.—"Surveying" might be stricken out of paragraph 360. This might, however, restrict the specific provision for surveying instruments to those that are optical. If it should be desired to have all surveying instruments wholly or in chief value of metal specially provided for, the word "surveying" should be taken out of paragraph 228 and left in paragraph 360.

"The name of" should be inserted just before "the country of origin."

Under the wording of this paragraph, philosophical, scientific and laboratory instruments, etc., wholly or in chief value of gold, silver, or platinum, would be included although such instruments, etc., plated with precious metals are excluded. If it should be desired to make the exclusion complete, insertion of the word "base" before "metal" in line 21, page 64, would accomplish the purpose.

Page 65, line 1: Strike out the hyphen between die and sunk to agree with paragraphs 354 and 361.

PARAGRAPH 361.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 361. Pliers, plucers, and nippers of all kinds, finished or unfinished, four inches in length and under, 8 cents each; over four and not over six inches in length, 10 cents each; over six inches in length, 12 cents each; and in addition thereto on all of the foregoing 25 per centum ad valorem: *Provided*, That all articles specified in this paragraph, when imported, shall have the name of the maker and beneath the same the name of the country of origin die sunk conspicuously and indelibly on the outside of the joint.

ACT OF 1909.

PAR. 198. Nippers and pliers of all kinds (except blacksmiths' tongs, surgical and dental instruments or parts thereof), wholly or partly manufactured, eight cents per pound and forty per centum ad valorem.

ACT OF 1913.

PAR. 166. Nippers and pliers of all kinds wholly or partly manufactured, 30 per centum ad valorem.

NIPPERS AND PLIERS.

(See Survey C-9.)

Description and uses.—Nippers and pliers are tools ordinarily having two lever handles and two jaws working on a pivot, for grasping or cutting small objects. Pliers have numerous forms and sizes for many purposes. Two of the most important uses are in bending and cutting wire and in screwing or unscrewing gas burners or gas pipes. They are much employed by linemen, electricians, plumbers, mechanics, farmers, and in the household. Weavers' nippers are composed of two narrow strips of steel welded together at one end and having sharp cutting jaws on the other, and are used by weavers while the cloth is in the loom or to clear the cloth of loose ends after it comes from the loom. Nippers differ from pliers generally in having cutting jaws approximating semicircles in form and meeting only at the ends. A pincer differs but little in form from a nipper, but is commonly distinguished from it in trade. A pincer is designed only for grasping and not for cutting, as, for example, carpenters' pincers and farriers' pincers. Pincers and nippers are less extensively used than pliers.

Production.—There are, according to nonofficial report, 32 firms manufacturing pliers and 16 firms making pincers, but no official figures of output are available. The value of domestic production has been estimated at from \$2,000,000 to \$3,000,000 for 1914, and \$8,000,000 to \$10,000,000 for 1918.

Imports in 1914 of nippers and pliers of all kinds amounted to \$144,818. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$10,065 | \$3,019 | 30 |
| 1919..... | 100,103 | 40,302 | 12,091 | 30 |
| 1920..... | | 194,445 | 58,333 | 30 |
| 1921 (9 months)..... | | 226,457 | | |

Exports.—Export statistics are lacking, but all classes of nippers, pliers, and pincers have been exported in recent years. It is estimated that 2½ per cent of domestic production is exported.

Important changes in classification.—Pincers are added. Pliers, pincers, and nippers are divided into three groups, according to length. The proviso is new.

PARAGRAPH 362.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 362. Files, file blanks, rasps, and floats of all cuts and kinds, two and one-half inches in length and under, 25 cents per dozen; over two and one-half and not over four and one-half inches in length, 47½ cents per dozen; over four and one-half and under seven inches in length, 62½ cents per dozen; seven inches in length and over, 77½ cents per dozen.

ACT OF 1909.

PAR. 155. Files, file-blanks, rasps, and floats, of all cuts and kinds, two and one-half inches in length and under, twenty-five cents per dozen; over two and one-half inches in length and not over four and one-half inches, forty-seven and one-half cents per dozen; over four and one-half inches in length and under seven inches, sixty-two and one-half cents per dozen; seven inches in length and over, seventy-seven and one-half cents per dozen.

ACT OF 1913.

PAR. 131. Files, file blanks, rasps, and floats, of all cuts and kinds, 25 per centum ad valorem.

FILES, FILE BLANKS, RASPS, AND FLOATS.

(See Survey C-13.)

Description and uses.—Files are made in varying sizes. Those with raised points, instead of lines, are technically known as rasps, and are used by carpenters, horseshoers, and shoemakers.

Files grade according to fineness. The "cuts" in general use for 12-inch files are classified as follows: First, or coarsest, rough; second, middle; third, bastard; fourth, second cut; fifth, smooth; the finest, dead smooth. Files are used for abrading, reducing, or smoothing metal, ivory, wood, marble, or other resistant materials.

Floats are single cut files of the coarse grades for use on soft metals, wood, or ivory.

Production.—In 1914 there were 48 establishments manufacturing files, with 4,349 wage earners, a capital of \$11,327,000, wages of \$2,135,000, cost of materials \$1,595,000, and value of product \$5,608,000. In 1909 there were 57 establishments and the value of product \$5,691,000. In 1919 there were 50 establishments and the value of product \$17,617,000. Pennsylvania, Rhode Island, and New Jersey are among the leading producing States.

Imports.—Imports have been small compared with domestic production and exports. The greatest from 1907 to 1920 were in 1914, when imports amounted to \$101,949, which was 1.82 per cent of domestic production. Most of the files entered at New York during the six months from July to December, 1919, came from Switzerland, which country is admittedly the source of files of high quality. Sweden and, more recently, Germany, are also important sources of imports. Later imports of files, file blanks, rasps, and floats of all cuts and kinds have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------------|----------|----------|------------------|
| | <i>Dozen.</i> | | | <i>Per cent.</i> |
| 1918..... | 31,713 | \$41,384 | \$10,346 | 25 |
| 1919..... | 33,129 | 49,865 | 12,464 | 25 |
| 1920..... | 63,197 | 100,471 | 25,118 | 25 |
| 1921 (9 months)..... | 63,396 | 96,278 | | |

Exports for many years have been large. Official statistics are not available prior to the fiscal year 1918, when exports of files and rasps were valued at \$3,681,457, of which \$1,653,933 went to Europe. The five leading countries of destination were: Italy, British India, Australia, England, and Russia in Europe. Exports of files and rasps for recent calendar years have been valued as follows: 1918, \$3,285,385; 1919, \$5,181,792; 1920, \$5,550,619; 1921 (9 months), \$2,155,940. The principal countries of destination were, in 1919, British India, Australia, United Kingdom, Brazil; in 1920, Brazil, United Kingdom, Denmark, British India.

Important changes in classification.—H. R. 7456 divides files into four groups.

PARAGRAPH 363.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 363. Sword blades, and swords and side arms, irrespective of quality or use, wholly or in part of metal, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 153. Sword blades, and swords and side arms irrespective of quality or use, in part of metal, fifty per centum ad valorem.

PAR. 129. Sword blades, and swords and side arms, irrespective of quality or use, in part of metal, 30 per centum ad valorem.

SWORDS AND SWORD BLADES.

(See Survey C-13.)

Description and uses.—The term swords, sword blades, and side arms includes bayonets, daggers, foils and foil blades for fencing, and other small arms, but not revolvers and parts thereof, which are specifically enumerated in the provision in paragraph 366 for "pistols, whether automatic, magazine or revolving, or parts thereof and fittings therefor."

Production.—Figures for production are not available. The most essential of these articles is the bayonet.

Imports have been continuous, but small—in 1914 (fiscal year) valued at \$15,212. Later imports have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------|------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$2,737 | \$821 | 30 |
| 1919..... | 460 | 969 | 289 | 30 |
| 1920..... | 6,641 | 8,984 | 2,425 | 30 |
| 1921 (9 months)..... | 39,026 | 20,543 | | |

Exports.—Not recorded. During the war there were large exports of bayonets to Europe.

PARAGRAPH 364.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 364. Muzzle-loading muskets, shotguns, rifles, and parts thereof, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 156. Muskets, muzzle-loading shotguns, rifles, and parts thereof, twenty-five per centum ad valorem.

PAR. 132. Muskets, * * * muzzle-loading shotguns and rifles, and parts thereof, 15 per centum ad valorem.

MUZZLE-LOADING GUNS AND RIFLES.

(See Survey C-14.)

Description, uses, and production.—The musket, muzzle-loading shotgun, and muzzle-loading rifle are old forms of firearms whose domestic manufacture has been practically discontinued.

Imports.—Imports since 1917 have been as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------|-------|------------------|
| 1918..... | \$821 | \$123 | Per cent. 15 |
| 1919..... | 1,214 | 182 | 15 |
| 1920..... | 12,670 | 1,900 | 15 |
| 1921 (9 months)..... | 3,691 | | |

Exports.—None recorded.

Important changes in classification.—Air rifles were included in the corresponding paragraph (132) of the act of 1913, and are classified with toys in paragraph 1414 of H. R. 7456.

PARAGRAPH 365.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 365. Double or single barreled sporting breech-loading and repeating shotguns, rifles, and combination shotguns and rifles, valued at not more than \$5 each, \$1.50 each; valued at more than \$5 and not more than \$10 each, \$4 each; valued at more than \$10 and not more than \$25 each, \$8 each; valued at more than \$25 each, \$10 each; and in addition thereto, on all of the foregoing, 35 per centum ad valorem; barrels for sporting breech-loading shotguns and rifles, further advanced in manufacture than rough bored only, \$4 each; stocks for sporting breech-loading shotguns and rifles, wholly or partly manufactured, \$5 each; and in addition thereto, on all of the foregoing, 40 per centum ad valorem; on all parts of such guns or rifles, and fittings for such stocks or barrels, finished or unfinished, 45 per centum ad valorem: *Provided*, That all sporting breech-loading shotguns and rifles imported without a lock or locks or other fittings shall be subject to a duty of \$10 each and 40 per centum ad valorem.

ACT OF 1909.

PAR. 157. Double-barreled, sporting, breech-loading shotguns, combination shotguns and rifles, valued at not more than five dollars, one dollar and fifty cents each and in addition thereto fifteen per centum ad valorem; valued at more than five dollars and not more than ten dollars, four dollars each and in addition thereto fifteen per centum ad valorem each; valued at more than ten dollars, six dollars each; double barrels for sporting breech-loading shotguns and rifles, further advanced in manufacture than rough bored only, three dollars each; stocks for double-barreled sporting breech-loading shotguns and rifles wholly or partially manufactured, three dollars each; and in addition thereto on all such guns and rifles, valued at more than ten dollars each, and on such stocks and barrels, thirty-five per centum ad valorem; on all other parts of such guns or rifles, and fittings for such stocks or barrels, finished or unfinished, fifty per centum ad valorem: *Provided*, That all double-barreled sporting breech-loading shotguns and rifles imported without a lock or locks or other fittings shall be subject to a duty of six dollars each and thirty-five per centum ad valorem; single-barreled breech-loading shotguns, or parts thereof, except as otherwise specially provided for in this section, one dollar each and thirty-five per centum ad valorem; * * *

ACT OF 1918.

PAR. 133. Breech-loading shotguns and rifles, combination shotguns and rifles, and parts thereof and fittings therefor, including barrels further advanced than rough bored only; * * * 35 per centum ad valorem.

BREECH-LOADING SHOTGUNS AND RIFLES.

(See Survey C-14.)

Description and use.—Commercial firearms may be divided broadly into three classes—rifles, shotguns, and pistols. Rifles fire a single bullet and may be equipped with a magazine carrying a number of cartridges, which are fed into the firing chamber by the return motion of the breech mechanism after the exploded cartridge case is ejected. Their distinguishing feature is the spiral grooving of the barrel.

Shotguns fire a charge of several small shot. They may be single-barreled, double-barreled, or magazine repeating, and are used almost entirely for sporting purposes.

Production of shotguns, rifles, pistols, and parts thereof, in 1914 amounted to \$10,544,000, and is known to have increased enormously during the war. Exports alone in 1918 were valued at nearly five times the entire domestic output in 1914. The value of firearms produced doubled in the 15 years previous to 1914 and increased 25 per cent in the 10 years prior to 1914. At the beginning of the war practically all production of commercial firearms was stopped, and during its progress the supply became exhausted. Practically the entire industry is located in Connecticut, Massachusetts, and New York.

Imports.—Imports in general have decreased since 1902, at which time they reached a maximum. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

DOUBLE-BARRELED AND COMBINATION SHOTGUNS AND RIFLES.

| | Number. | | | Per cent. |
|----------------------|---------|---------|--------|-----------|
| 1918..... | 22 | \$1,619 | \$567 | 35 |
| 1919..... | 184 | 9,195 | 3,218 | 35 |
| 1920..... | 2,423 | 53,607 | 18,762 | 35 |
| 1921 (9 months)..... | 1,021 | 58,378 | | |

SINGLE BARRELED, ETC.

| | | | | |
|----------------------|-------|--------|--------|----|
| 1918..... | 18 | \$228 | \$80 | 35 |
| 1919..... | 244 | 5,907 | 2,067 | 35 |
| 1920..... | 7,678 | 68,535 | 23,987 | 35 |
| 1921 (9 months)..... | 2,179 | 39,719 | | |

ALL OTHER PARTS OF GUNS, PISTOLS, OR RIFLES, AND FITTINGS FOR STOCKS, ETC.

| | | | | |
|----------------------|--|----------|---------|----|
| 1918..... | | \$10,931 | \$3,826 | 35 |
| 1919..... | | 1,969 | 689 | 35 |
| 1920..... | | 6,041 | 2,114 | 35 |
| 1921 (9 months)..... | | 9,884 | | |

BARRELS FOR SPORTING BREECH-LOADING SHOTGUNS AND RIFLES, FURTHER ADVANCED IN MANUFACTURE THAN ROUGH-BORED ONLY.

| | | | | |
|----------------------|----|-------|-------|----|
| 1919..... | 72 | \$601 | \$210 | 35 |
| 1920..... | 3 | 253 | 89 | 35 |
| 1921 (9 months)..... | 4 | 9 | | |

STOCKS FOR SPORTING BREECH-LOADING SHOTGUNS AND RIFLES, WHOLLY OR PARTLY MANUFACTURED.

| | | | | |
|----------------------|-----|------|------|----|
| 1920..... | 125 | \$91 | \$32 | 35 |
| 1921 (9 months)..... | 48 | 30 | | |

Exports.—Exports during the four years previous to the war amounted to between three and four million dollars annually, of which approximately one-half went to Latin American countries. In the fiscal year 1914, the exports amounted to over 30 per cent of the production. Exports of rifles and shotguns for the fiscal year 1918 amounted to \$37,299,450, and those of all other firearms were valued at \$11,541,913. Statistics for the calendar years 1918 to 1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------|--------------|--------------|-------------|------------------|
| Rifles and shotguns..... | \$21,014,509 | \$13,414,032 | \$3,456,431 | \$989,639 |
| All other firearms..... | 8,635,963 | 419,221 | 711,697 | 321,098 |

The principal countries of destination of rifles and shotguns were, in 1918, England, Russia in Asia, France; in 1919, Russia in Asia, Russia in Europe, Belgium, Canada; in 1920, Canada, Australia, Argentina, and Brazil.

Important changes in classification.—Shotguns, rifles, and combination shotguns and rifles are divided into four classes according to value, with specific duties for each class and an additional ad valorem duty on all classes.

Repeating shotguns and stocks for shotguns and rifles are mentioned in H. R. 7456, and pistols, which are in the same paragraph with shotguns and rifles in the act of 1913, are provided for in paragraph 366 of H. R. 7456. The provision for repeating shotguns is new.

Suggested changes.—Provision is made for shotguns and repeating rifles and combination shotguns and rifles, and for barrels for sporting breech-loading shotguns and rifles, but none for barrels for repeating shotguns, etc. Nor is provision made for shotguns, rifles, and combination shotguns and rifles that are not sporting. If it should be desired to have the paragraph apply as well to arms of those descriptions, the word "sporting" should be omitted from page 66 of H. R. 7456, lines 1, 8, 10, and 15.

There is doubt whether "repeating" embraces more than shotguns.

PARAGRAPH 366.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 366. Pistols: Automatic, magazine, or revolving, and parts thereof and fittings therefor, valued at not more than \$4 each, \$1.25 each; valued at more than \$4 and not more than \$8 each, \$2.50 each; valued at more than \$8 each, \$3.50 each; and in addition thereto, on all of the foregoing, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 157. * * * pistols, automatic, magazine, or revolving, or parts thereof, seventy-five cents each and twenty-five per centum ad valorem.

PAR. 133. * * * pistols, whether automatic, magazine, or revolving, or parts thereof and fittings therefor, 35 per centum ad valorem.

PISTOLS.

(See Survey C-14.)

Description and uses.—Pistols fire a single bullet and are rifled. They may be single shot (used chiefly for target practice), revolving (called revolvers), or automatic, in which the used shell is ejected, a new cartridge inserted from the magazine, and the arm cocked automatically by the action of the recoil.

Production.—There are no separate figures of production of pistols.

Imports of pistols and parts thereof for the calendar years 1918 to 1921, have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|--------|------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | 21 | \$165 | \$58 | 35 |
| 1919..... | 2,270 | 13,421 | 4,697 | 35 |
| 1920..... | 36,597 | 169,217 | 59,226 | 35 |
| 1921 (9 months)..... | 127,703 | 452,302 | ..... | ..... |

In 1921, Spain supplied the bulk of the imports and smaller quantities came from Germany and Belgium.

Exports of revolvers and pistols for the calendar years 1918 to 1921 have been as follows: 1918, \$592,078; 1919, \$512,145; 1920, \$1,337,400; 1921 (9 months), \$446,059. The principal countries of destination were, in 1918, Italy, England, Canada; in 1919, Canada, United Kingdom, Argentina, Brazil, Japan; in 1920, Argentina, Brazil, Cuba, Uruguay, and Canada.

Important changes in classification.—In the act of 1913 pistols were included with shotguns and rifles at the same rate of duty. They are divided into three classes according to value, with a specific rate of duty for each class and an additional ad valorem duty.

PARAGRAPH 367.

H. R. 7486.

SENATE AMENDMENTS.

PAR. 367. Watch movements, whether imported in cases or otherwise, assembled or knocked down for reassembling, if having less than seven jewels, 75 cents each; having seven and not more than eleven jewels, \$1.25 each; having more than eleven and not more than fifteen jewels, \$2 each; having more than fifteen and not more than seventeen jewels, unadjusted, \$2.75 each; having seventeen jewels and adjusted to temperature, \$3.50 each; having seventeen jewels and adjusted to three positions, \$4.75 each; having seventeen jewels and adjusted to five positions, \$6.50 each; having more than seventeen jewels, adjusted or unadjusted, \$10.75 each; watchcases and parts of watches, chronometers, box or ship, and parts thereof, 35 per centum ad valorem; all jewels for use in the manufacture of watches, clocks, meters, or compasses, 10 per centum ad valorem; enameled dials for watches or other instruments, 3 cents per dial and 35 per centum ad valorem: *Provided*, That all watch and clock dials, whether attached to movements or not, when imported shall have indelibly painted or printed thereon the name of the country of origin, and that all watch movements and plates, lever clock movements with jewels in the escapement, assembled or knocked down for reassembling, and cases shall have the name of the manufacturer and the country of manufacture cut, engraved, or die-sunk conspicuously and indelibly on the plate of the movement and the inside of the case, respectively, and the movement and plates shall also have marked thereon by one of the methods indicated the number of jewels and adjustments, said numbers to be expressed both in words and in Arabic numerals, and if the movement is not adjusted, the word "unadjusted" shall be marked thereon by one of the

H. B. 7456

SENATE AMENDMENTS.

methods indicated, and none of the said articles shall be delivered to the importer unless marked in exact conformity to this direction: *Provided further*, That only the number of the jewels which serve a mechanical purpose as frictional bearings shall be marked as herein provided.

ACT OF 1909.

PAR. 192. Watch movements, including time-detectors, whether imported in cases or not, if having not more than seven jewels, seventy cents each; if having more than seven jewels and not more than eleven jewels, one dollar and thirty-five cents each; if having more than eleven jewels and not more than fifteen jewels, one dollar and eighty-five cents each; if having more than fifteen and not more than seventeen jewels, one dollar and twenty-five cents each and twenty-five per centum ad valorem; if having more than seventeen jewels, three dollars each and twenty-five per centum ad valorem; watch cases and parts of watches, chronometers, box or ship, and parts thereof, forty per centum ad valorem; * * * all jewels for use in the manufacture of watches or clocks, ten per centum ad valorem; enameled dials for watches or other instruments, three cents per dial and forty per centum ad valorem: *Provided*, That all watch and clock dials, whether attached to movements or not, shall have indelibly painted or printed thereon the country of origin, and that all watch movements, lever clock movements with jewels in the escapement, and cases of foreign manufacture shall have the name of the manufacturer and country of manufacture cut, engraved, or die-sunk conspicuously and indelibly on the plate of the movement and the inside of the case, respectively, and the movements shall also have marked thereon by one of the methods indicated the number of jewels and adjustments, said number to be expressed both in words and in Arabic numerals; and none of the aforesaid articles shall be delivered to the importer unless marked in exact conformity to this direction.

ACT OF 1913.

PAR. 161. Watch movements, whether imported in cases or not, watch cases and parts of watches, chronometers, box or ship, and parts thereof * * * all jewels for use in the manufacture of watches, clocks, or meters, 10 per centum ad valorem; * * * enameled dials and dial plates for watches or other instruments, 30 per centum ad valorem: *Provided*, That all watch and clock dials, whether attached to movements or not, shall have indelibly painted or printed thereon the name of the country of origin, and that all watch movements, and plates, lever clock movements with jewels in the escapement, whether imported assembled or knocked down for reassembling, and cases of foreign manufacture, shall have the name of the manufacturer and country of manufacture cut, engraved, or die-sunk conspicuously and indelibly on the plate of the movement and the inside of the case, respectively; and the movements and plates shall also have marked thereon by one of the methods indicated the number of jewels and adjustments, said numbers to be expressed either in words or in Arabic numerals; and if the movement is not adjusted, the word "unadjusted" shall be marked thereon by one of the methods indicated; and none of the aforesaid articles shall be delivered to the importer unless marked in exact conformity to this direction.

WATCHES, CHRONOMETERS, DIALS, AND PARTS.

(See Survey C-26.)

WATCHES AND CHRONOMETERS.

Description and uses.—The chronometer, a timepiece of great accuracy, is used on ships or wherever precise measurements of time are required. It differs from the watch in its escapement, which is so constructed that the balance is free from the wheels during the

greater part of its vibration; and also in being fitted with a compensating adjustment to prevent expansion by heat or contraction by cold from affecting the movements. Its balance spring is helicoidal; that of the watch is spiral.

The watch is a small portable timepiece or timekeeper that may be worn on the person. It is operated by power stored in a coiled spring, and is capable of keeping time when held in any position.

Modern watch movements require the use of gold, nickel, brass, steel, and jewels of sapphire, ruby, and garnet. Watch cases are made of gold, silver, nickel, brass, and gun metal, and of various alloys known under trade names as silveroid, nickel silver, and the like.

Production.—The principal watch-producing centers are in Massachusetts and Illinois; most of the clocks are manufactured in Connecticut and New York. In 1914 there were 119 establishments, employing 23,328 wage earners, manufacturing watches and clocks and their parts. The capital invested was \$62,470,000, and the value of the product \$35,237,431, of which \$23,267,620 represented the value of watches and parts. Of the 119 establishments, 15 were engaged primarily in the manufacture of watches with a total capital invested of \$36,388,700, 31 establishments were engaged in the manufacture of watch cases with a total capital invested of \$11,220,024, and 25 establishments were engaged in the manufacture of parts of watches and clocks with a total capital invested of \$1,296,290. The consumption of watches in 1914 was approximately \$1,200,000 more in value than the domestic production.

Imports of watches and parts of watches for 1911–1915 averaged \$2,729,898 annually. The largest importation of chronometers since 1907 was in 1914, amounting to \$11,109, and the smallest in 1907, valued at \$1,738. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

WATCHES, COMPLETE.

| | Number. | | | Per cent. |
|----------------------|-----------|-------------|-------------|-----------|
| 1918..... | | \$3,532,570 | \$1,059,771 | 30 |
| 1919..... | 1,084,123 | 3,195,305 | 958,608 | 30 |
| 1920..... | 1,252,325 | 3,284,498 | 985,349 | 30 |
| 1921 (9 months)..... | 847,075 | 1,768,500 | | |

WATCH MOVEMENTS.

| | | | | |
|----------------------|-----------|-------------|-------------|----|
| 1918..... | | \$4,191,237 | \$1,257,371 | 30 |
| 1919..... | 2,316,262 | 6,505,267 | 1,951,580 | 30 |
| 1920..... | 2,105,131 | 7,813,445 | 2,344,033 | 30 |
| 1921 (9 months)..... | 821,607 | 3,226,260 | | |

WATCH CASES AND PARTS OF WATCHES, EXCEPT DIALS.

| | | | | |
|----------------------|--|-------------|-----------|----|
| 1918..... | | \$1,191,743 | \$357,523 | 30 |
| 1919..... | | 1,180,361 | 354,108 | 30 |
| 1920..... | | 1,308,989 | 392,697 | 30 |
| 1921 (9 months)..... | | 1,088,781 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|---------|---------|------------------|
| CHRONOMETERS, BOX OR SHIP, AND PARTS OF. | | | | |
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$6,540 | \$1,954 | 30 |
| 1919..... | | 13,607 | 4,082 | 30 |
| 1920..... | | 20,627 | 6,188 | 30 |
| 1921 (9 months)..... | | 9,276 | | |

CHRONOMETERS, ETC., FOR THE SUPPLIES, CONSTRUCTION, EQUIPMENT, AND REPAIRS OF VESSELS.

| | | | |
|----------------------|----------|--|--|
| 1918..... | \$21,974 | | |
| 1919..... | 56,151 | | |
| 1920..... | 46,932 | | |
| 1921 (9 months)..... | 23,759 | | |

Foreign watches come chiefly from Switzerland.

Exports.—From 5 to 7 per cent of American-made watches is exported, chiefly to the United Kingdom and Canada. Exports increased a little in 1919 and 1920, but fell off in 1921.

Exports since 1917 of watches and parts thereof have been by calendar years as follows: 1918, \$1,804,388; 1919, \$2,273,045; 1920, \$2,145,463; 1921 (9 months), \$659,999. The principal countries of destination were: In 1918, Canada, England, Australia; in 1919, Canada, United Kingdom, Argentina, China, Australia; in 1920, Canada, United Kingdom, Cuba, Argentina, and Australia.

JEWELS.

Description.—Jewels used in the manufacture of watches, clocks, and meters include various kinds of stones—agate, garnet, sapphire, diamond, ruby, and also the synthetic or manufactured ruby and sapphire.

Production.—Scarcely any jewels are produced in the United States, chiefly because of the lack of skilled workers and experience in jewel manufacture. Fully 95 per cent of the consumption of watch and clock jewels is imported, principally from Switzerland, Germany, and Italy.

Imports are from England and France in addition to the countries mentioned. The annual average for the 12-year period 1907–1918, was \$707,932. Imports in later years of jewels for use in the manufacture of watches, clocks, meters, or compasses have been as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$943,077 | \$94,308 | 10 |
| 1919..... | 1,341,473 | 134,147 | 10 |
| 1920..... | 1,853,115 | 185,311 | 10 |
| 1921 (9 months)..... | 1,217,772 | | |

Exports.—None recorded.

DIALS.

Description and uses.—A dial is the plate or face on which the pointer or index moves for the purpose of indicating time, revolutions, pressure, points of the compass, etc.

Production.—Most domestic dials are produced in Waltham, Mass.

Imports.—Between 70 and 95 per cent of the annual imports come from Switzerland.

Imports since 1917 of enameled dials for watches or other instruments have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|---------|------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$7,286 | \$3,186 | 30 |
| 1919..... | 38,108 | 14,035 | 4,211 | 30 |
| 1920..... | 52,784 | 18,487 | 5,546 | 30 |
| 1921 (9 months)..... | 139,594 | 44,559 | | |

Exports.—None recorded.

WATCH CRYSTALS.

[For discussion see par. 238, p. 356.]

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—In H. R. 7456, watch movements, whether imported in cases or otherwise, assembled or knocked down for reassembling, have been divided into eight classes, according to the number of jewels and adjustment of each movement, with specific rate of duty on each class and an additional ad valorem rate of duty; watchcases and parts of watches, chronometers, box or ship, and parts thereof, are classed together.

Lever clock movements, etc., which were classed with the above articles in the act of 1913, have been provided for in paragraph 368 of H. R. 7456.

Time detectors have been omitted from paragraph 367 of H. R. 7456, but might be said to be covered by paragraph 368.

Jewels for compasses are specifically mentioned in H. R. 7456 (par. 367).

H. R. 7456 has an additional provision that only the number of jewels which serve a mechanical purpose as frictional bearings shall be marked.

Conflicting provisions.—Paragraphs 367 and 368: The provisos to these two paragraphs contain in part similar provisions, but differing in some requirements.

Suggested changes.—This paragraph includes in the first proviso "lever clock movements with jewels in the escapement, assembled or knocked down for reassembling," but omits them from the purview of the paragraph. Paragraph 368 relates to clock movements.

Page 67, lines 4-8 of page 67 of H. R. 7456: There is apparently no provision for 16 jewels adjusted. If it is intended to include them with the 17 jewels, "having seventeen jewels and" might be stricken out in lines 6, 7, and 8.

"For reassembling" requires determination of use, which is difficult "assembled or knocked down" appears sufficient for the purpose in view.

PARAGRAPH 368.

H. E. 7466.

SENATE AMENDMENTS.

PAR. 368. Clocks and clock movements, and clockwork mechanisms, cased or uncased, whether imported complete or in parts, and any device or mechanism having an essential operating feature intended for measuring time, or the flowage of water, gas, electricity, or similar uses, or for regulating or controlling the speed of arbors, drums, disks, or similar uses, or for recording, indicating, or performing any operation or function at a predetermined time or times, any of the foregoing whether wholly or partly complete or knocked down for reassembling (in which condition they shall be appraised at the valuation of the complete article); cases and casings for clockwork mechanisms imported separately; all the foregoing, 35 per centum ad valorem; and in addition thereto, upon any of the foregoing articles or parts thereof, having jewels, but not more than two jewels, in the escapement, \$1 each; having more than two but not more than four jewels, \$2 each; having more than four jewels, \$4 each; if without jewels in the escapement and valued at not over \$1.10 each, 35 cents each; valued at more than \$1.10 and not more than \$2.25 each, 70 cents each; valued at more than \$2.25 but not more than \$5 each, \$1 each; valued at more than \$5 but not more than \$10 each, \$2 each; valued at more than \$10 each, \$3 each; all parts and materials for use in any of the foregoing if imported separately, and not specially provided for, 40 per centum ad valorem: *Provided*, That all dials and the front or back plate of the movement frame of any of the foregoing when imported shall have the name of the maker, the country where manufactured, and the number of jewels, if any, indelibly stamped on the most visible part of same; but if such markings are in whole or in part sufficiently similar to the trade name of an established American manufacturer as to be liable to deceive the user in the United States, entry thereof shall be denied if such trade name or trademark has been placed on file with the collector of customs.

ACT OF 1909.

PAR. 192. * * * lever clock movements having jewels in the escapement, and clocks containing such movements, one dollar each and forty per centum ad valorem; all other clocks and parts thereof, not otherwise provided for in this section, whether separately packed or otherwise, not composed wholly or in chief value of china, porcelain, parian, bisque, or earthenware, forty per centum ad va-

ACT OF 1913.

PAR. 161. * * * lever clock movements having jewels in the escapement, and clocks containing such movements, all other clocks and parts thereof, not otherwise provided for in this section, whether separately packed or otherwise, not composed wholly or in chief value of china, porcelain, parian, bisque, or earthenware, 30 per centum ad valorem; * * * time detectors, 15 per centum

ACT OF 1909. AND HERRING ACT OF 1913.

enamel dials for ad valorem; enameled dials and dial
watches or other instruments, three cents plates for watches or other instruments,
per dial and forty per centum ad valorem: 30 per centum ad valorem: * * *

[See proviso to par. 367, H. R. 7456.]

[See proviso to par. 367, H. R. 7456.]

CLOCKS.

(See Survey C-26.)

Description and use.—Modern clock movements require the use of gold, nickel, brass, steel, and jewels of sapphire, ruby, and garnet. Clock cases are made of wood, metal, china, porcelain, parian, bisque, marble, earthenware, stoneware, and crockery ware.

Production.—Most of the clocks are manufactured in Connecticut and New York. In 1914 there were 48 establishments engaged in the manufacture of clocks, with a total capital invested of \$13,564,482, and 25 establishments engaged in the manufacture of parts of watches and clocks, with a total capital invested of \$1,296,290. The production of clocks and parts for 1914 amounted to \$11,969,811. The production of clocks exceeded the consumption by about \$600,000. In 1919 there were 46 establishments with a total output valued at \$23,380,000.

Imports.—Before the war clocks were received chiefly from Germany, and since the war mainly from France, Switzerland, and the United Kingdom. The importation of clocks and parts of clocks during the five year period 1911 to 1915 shows an annual average of \$794,389; of this amount clocks and parts received from Germany averaged \$586,407, or 73 per cent. After 1915 the imports decreased rapidly until the fiscal year 1918. The imports from Germany in 1918 were valued at only \$12. However, by 1920 the imports from that country increased to \$115,023. Statistics for the years 1918 to 1921 follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

LEVER CLOCK MOVEMENTS HAVING JEWELS IN THE ESCAPEMENT, AND CLOCKS CONTAINING SUCH MOVEMENTS.

| | Number. | | | Per cent. |
|----------------------|---------|---------|---------|-----------|
| 1918..... | 602 | \$4,629 | \$1,299 | 30 |
| 1919..... | 81 | 2,291 | 687 | 30 |
| 1920..... | 1,520 | 5,988 | 1,796 | 30 |
| 1921 (9 months)..... | 2,691 | 2,465 | | |

ALL OTHER CLOCKS AND CLOCK MOVEMENTS, ETC., AND PARTS OF (EXCEPT DIALS).

| | | | | |
|----------------------|--|----------|----------|----|
| 1918..... | | \$48,223 | \$14,467 | 30 |
| 1919..... | | 140,537 | 42,161 | 30 |
| 1920..... | | 500,831 | 150,249 | 30 |
| 1921 (9 months)..... | | 739,886 | | |

Exports.—A large percentage of the exports of clocks and parts of clocks has gone to the United Kingdom and Canada. The exports from 1910 to 1915 averaged about \$1,500,000, and from 1916 to 1918 about \$2,500,000. Exports since 1917 have been by calendar years as follows: 1918, \$2,147,980; 1919, \$3,920,514; 1920, \$4,897,972; and 1921 (9 months), \$2,136,505.

Exports of gas and water meters were: 1918, \$473,001; 1919, \$763,691; 1920, \$705,037; 1921 (9 months), \$629,269; and of electrical meters and measuring instruments, 1918, \$1,887,925; 1919, \$2,891,307; 1920, \$2,676,538; 1921 (9 months), \$2,347,921.

The principal countries of destination for clocks and parts of clocks were Canada, Australia, the United Kingdom, and Argentina. Electrical meters and measuring instruments went principally to Japan, Canada, the United Kingdom, Brazil, and Australia.

Important changes in classification, etc.—See General Notes on Paragraph below.

TIME DETECTORS.

Description and use.—A time detector is a watch or clock used for obtaining time records of watchmen's rounds.

Production.—Time detectors are largely made by hand. The variety in styles and sizes, and the small number sold, preclude the use of automatic machinery in their manufacture.

Imports.—During the nine months October 4, 1913, to June 30, 1914, imports were valued at \$27,476. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------|------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$5,058 | \$759 | 15 |
| 1919..... | 19 | 527 | 79 | 15 |
| 1920..... | 151 | 1,324 | 199 | 15 |
| 1921 (9 months)..... | 4,601 | 35,251 | | |

Exports.—None recorded.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Lever clock movements having jewels in the escapement, and clocks containing such movements, all other clocks and parts thereof, etc., are classified with watch movements, etc., in paragraph 161 of the act of 1913. Clocks and clock movements are given a separate paragraph in H. R. 7456, with the special mention of cases and casings for clockwork mechanisms, which were omitted in the act of 1913. The following clause is also inserted in this paragraph: "any device or mechanism having an essential operating feature intended for measuring time, or the flowage of water, gas, electricity, or similar uses, or for regulating or controlling the speed of arbors, drums, disks, or similar uses, or for recording, indicating, or performing any operation or function at a predetermined time or times."

Clock movements, which were all in one class in the act of 1913, have been divided into three groups according to the number of jewels in the movement; and of movements without jewels, into five groups

according to value. Each group or class has in addition to an ad valorem rate of duty, a specific rate of duty.

The provision in the proviso "but if such markings are in whole or in part sufficiently similar to the trade name of an established American manufacturer as to be liable to deceive the user in the United States, entry thereof shall be denied if such trade name or trade-mark has been placed on file with the collector of customs" is new.

Suggested changes.—The proviso states that "dials, etc., * * * when imported shall have the name of the maker, the country where manufactured, and the number of jewels, if any, indelibly stamped on the most visible part of same; * * *." This clause might be as follows: "Provided, That all dials, whether attached to movements or not, when imported, shall have indelibly painted, printed, or stamped thereon the name of the country of origin, and the front or back plate of the movement frame of any of the foregoing, when imported, shall have the name of the maker, the name of the country where manufactured, and the number of jewels, if any, indelibly stamped on the most visible part of same; but if such markings are in whole or in part sufficiently similar to the trade name of an established American manufacturer as to be liable to deceive the user in the United States, entry thereof shall be denied, if such trade name or trade-mark has been placed on file with the collector of customs."

If the name of the maker and name of country of origin are to be marked upon clock cases, provision should also be made therefor.

"For reassembling" requires determination of use, which is difficult; "assembled or knocked down" appears sufficient for the purpose in view.

PARAGRAPH 369.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 369. Automobiles, automobile bodies, automobile chassis, and parts of automobiles, not including tires, 25 per centum ad valorem: *Provided*, That if there be imported into the United States any of the foregoing articles manufactured in or exported from any country which imposes a duty greater than 25 per centum ad valorem upon similar articles exported from the United States, there shall be levied, paid, and collected upon such articles a duty equal to the duty imposed by such country upon such articles imported from the United States, but not to exceed in any case 50 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 141. Automobiles, * * * and finished parts of any of the foregoing, not including tires, forty-five per centum ad valorem.

PAR. 119. Automobiles, valued at \$2,000 or more, and automobile bodies, 45 per centum ad valorem; automobiles valued at less than \$2,000, 30 per centum ad valorem; automobile chassis, and finished parts of automobiles, not including tires, 30 per centum ad valorem.

AUTOMOBILES. (See Survey C-10.)

Description and use.—Automobiles may be divided into two general classes—passenger and commercial. Unofficial reports gave registered motor vehicles in the United States (Dec. 1, 1921) as 10,000,000, of which 1,000,000 were trucks or commercial cars, and the remainder passenger cars. In 1921, 83 per cent of the cars in use in the world were in the United States. The license fees paid amounted to \$102,034,000. The domestic gasoline production for 11 months of 1918 is officially given as 3,278,568,498 gallons.

Production.—The summary of the Census Bureau concerning the automobile industry for 1919 states that reports were received in 1919 from 315 establishments with products valued at \$2,387,834,000, as compared with 300 establishments in 1914 with products to the amount of \$508,230,000. Of the total value of products in 1919, about 56 per cent, or \$1,332,076,000, was reported by the 68 establishments located in Michigan. The total number of automobiles manufactured in 1919 was 1,683,938, valued at \$1,555,129,000, as compared with 537,039 in 1914, valued at \$465,058,000, an increase nearly three fold in number and more than that in value. In 1919 the total number of automobiles included only 3,034 electric and 406 steam propelled machines, while in 1914 there were 4,669 electric and 401 steam automobiles manufactured. The \$533,068,000 reported as the value of bodies and parts represents only such bodies and parts as were produced for sale by establishments engaged in the manufacture of complete automobiles, and does not include the value of bodies and parts made by establishments making no automobiles. Relative production figures are given in the following table:

| Type. | 1914 | | 1919 | |
|--------------------------------|---------|---------------|-----------|-----------------|
| | Number. | Value. | Number. | Value. |
| Passenger vehicles..... | 534,438 | \$418,696,000 | 1,553,349 | \$1,318,038,000 |
| Business vehicles..... | 24,172 | 40,278,000 | 120,914 | 212,204,000 |
| All other vehicles..... | 5,429 | 11,084,000 | 9,675 | 14,887,000 |
| Total..... | 573,039 | \$465,058,000 | 1,683,938 | \$1,555,129,000 |
| Total product of industry..... | | \$508,230,000 | | \$2,387,834,000 |

Furthermore, in 1919, the manufacture of 5,012 automobiles and 80 trailers to the value of \$8,067,562, and in 1914, 4,258 automobiles valued at \$6,296,558, were reported by establishments engaged primarily in other industries.

Imports.—The imports of automobiles and parts reached a maximum in 1907; thereafter it declined until 1918. Since 1918 imports have increased rapidly, amounting in 1920 to over \$2,000,000, which, nevertheless, is only about one-tenth of 1 per cent of the domestic production for that year. Before the war the principal sources of

imports were France (which furnished about half), Great Britain, Germany, and Italy. Imports for later years have been as follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|-----------|----------|----------|------------------|
| AUTOMOBILES, VALUED AT LESS THAN \$2,000. | | | | |
| | Number. | | | Per cent. |
| 1918..... | 72 | \$21,134 | \$6,340 | 30 |
| 1919..... | 97 | 32,150 | 9,639 | 30 |
| 1920..... | 811 | 659,975 | 197,892 | 30 |
| 1921 (9 months)..... | 222 | 233,302 | | |
| AUTOMOBILES VALUED AT \$2,000 OR OVER. | | | | |
| 1918..... | 3 | \$3,175 | \$3,679 | 45 |
| 1919..... | 18 | 79,907 | 35,958 | 45 |
| 1920..... | 93 | 297,428 | 133,848 | 45 |
| 1921 (9 months)..... | 99 | 346,592 | | |
| AUTOMOBILE BODIES. | | | | |
| 1918..... | 11 | \$2,355 | \$1,060 | 45 |
| 1919..... | 1,004 | 52,066 | 23,430 | 45 |
| 1920..... | 380 | 81,397 | 36,629 | 45 |
| 1921 (9 months)..... | 9 | 15,545 | | |
| AUTOMOBILE CHASSIS. | | | | |
| 1918..... | 20 | \$35,890 | \$10,767 | 30 |
| 1919..... | 37 | 113,989 | 34,195 | 30 |
| 1920..... | 200 | 865,164 | 256,547 | 30 |
| 1921 (9 months)..... | 176 | 579,952 | | |
| PARTS OF AUTOMOBILES, NOT INCLUDING TIRES. | | | | |
| 1918..... | | \$13,141 | \$3,942 | 30 |
| 1919..... | | 115,823 | 34,747 | 30 |
| 1920..... | | 258,781 | 71,607 | 30 |
| 1921 (9 months)..... | | 152,585 | | |

In 1920 Canada supplied about one-third of the imports: one-third came from England, and consisted almost entirely of parts. A considerable portion of the remainder was from France.

The importations of automobile engines are small, being in 1919 and 1921 as follows: 1919, 3 valued at \$185; 1921 (9 months), 2 valued at \$1,232.

Exports.—Exports for the year 1916, the last year before the United States entered the war, were \$122,633,710, amounting to about 13 per cent of the domestic production. In the fiscal year 1918 they had declined to \$114,266,875, or about 9 per cent of the production. In the fiscal year 1920 exports had increased to \$298,219,875, or 13 per cent of production. Parts of automobiles, other than engines and tires, exported in the calendar year 1920, show a value of \$86,198,013, as compared with \$6,624,232 in 1914. Export statistics for the calendar years 1918 to 1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|--------------|--------------|---------------|---------------------|
| Commercial automobiles: | | | | |
| Quantity (number)..... | 10,308 | 15,885 | 17,686 | 3,541 |
| Value..... | \$25,814,952 | \$35,425,437 | \$27,588,544 | \$5,033,302 |
| Passenger automobiles: | | | | |
| Quantity (number)..... | 36,936 | 67,145 | 129,711 | 21,401 |
| Value..... | \$36,278,562 | \$78,700,527 | \$152,664,024 | \$34,138,756 |
| Commercial chassis: | | | | |
| Quantity (number)..... | (1) | (1) | 11,450 | 2,404 |
| Value..... | | | \$19,187,237 | \$8,681,241 |
| Passenger chassis: | | | | |
| Quantity (number)..... | (1) | (1) | 11,797 | 2,499 |
| Value..... | | | \$12,561,897 | \$2,239,856 |
| Automobile engines, gasoline: | | | | |
| Quantity (number)..... | 30,813 | 31,358 | 30,581 | 6,577 |
| Value..... | \$4,188,675 | \$4,738,241 | \$5,031,858 | \$1,390,148 |
| Parts of automobiles (not including engines and tires)..... | \$33,607,050 | \$42,562,186 | \$36,198,013 | \$31,126,453 |

¹ Included in "automobiles, parts of," prior to 1920.

The principal countries of destination in 1920 were, in order of magnitude, the United Kingdom, Canada, Australia and New Zealand, Cuba, Argentina, and Brazil.

Important changes in classification.—In H. R. 7456, "automobiles, automobile bodies, automobile chassis, and parts of automobiles, not including tires," are classed together. A new proviso is as follows: If there be imported into the United States any of the foregoing articles manufactured in or exported from any country which imposes a duty greater than 25 per centum ad valorem upon similar articles exported from the United States, there shall be levied, paid, and collected upon such articles a duty equal to the duty imposed by such country upon such articles imported from the United States, but not to exceed in any case 50 per centum ad valorem.

The word "finished" in paragraph 119 of the act of 1913 is omitted before "parts of automobiles."

Suggested changes.—Page 70, lines 1 and 2, of H. R. 7456: Change "levied, paid, and collected," to "levied, collected, and paid" to agree with usual practice.

If it shall be desired to have unfinished bodies and other parts of automobiles come within this paragraph instead of being classified according to component material of chief value, it is suggested that the words "all the foregoing, whether finished or unfinished," be inserted after the word "automobiles" in line 21, page 69.

PARAGRAPH 870.

H. R. 7450.

SENATE AMENDMENTS.

PAR. 370. Airplanes, hydroplanes, motor boats, and parts thereof, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision; classable according to component material of chief value.]

[No corresponding provision; classable according to component material of chief value.]

AIRPLANES.

Production.—Statistics of the Bureau of the Census show that reports were received from 31 establishments engaged in the aircraft industry in 1919 with products valued at \$14,372,643, as compared with 16 establishments in 1914 with products valued at \$789,872. Of the 31 establishments reporting for the year 1919, 10 were located in New York, 4 in Ohio, 2 each in California, Massachusetts, and Missouri.

Summary of statistics of the aircraft industry, 1919.

| | |
|--|--------------|
| Number of establishments..... | 31 |
| Total value of products..... | \$14,372,643 |
| Airplanes: | |
| Number..... | 432 |
| Value..... | \$3,466,452 |
| Seaplanes: | |
| Number..... | 230 |
| Value..... | \$4,580,016 |
| Value of work done during year on airplanes and seaplanes not completed..... | \$1,658,670 |
| All other products, including parts and repair work..... | \$4,667,505 |

MOTOR BOATS.

In 1919 there were built by private establishments 1,159 motor boats of 5 gross tons or less, valued at \$1,797,000, as compared with 3,706 boats, valued at \$2,001,284 in 1914. The production of motor boats in 1919 was as follows:

| | Number launched. | Gross tonnage. | Value. |
|--|------------------|----------------|-------------|
| Motor boats of over 5 gross tons, including sailing vessels equipped with auxiliary motor power..... | 195 | 32,400 | \$4,773,000 |
| Motor boats of less than 5 gross tons..... | 1,159 | | 1,797,000 |

Imports.—Imports of airplanes for the fiscal year 1918 were valued at \$423,980. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|--------|-------|------------------|
| 1917..... | | | | |
| 1918..... | | | | |
| 1919..... | | | | |
| 1920..... | | | | |
| 1921 (9 months)..... | | | | |

AIRPLANES.

| Year. | Number. | Value. | Duty. | Per cent. |
|----------------------|---------|-----------|----------|-----------|
| 1918..... | 3 | \$119,218 | \$23,844 | 20 |
| 1919..... | 7 | 18,202 | 3,640 | 20 |
| 1920..... | 78 | 178,028 | 35,606 | 20 |
| 1921 (9 months)..... | 14 | 30,495 | | |

PARTS OF AIRPLANES, METAL CHIEF VALUE.

| Year. | Value. | Duty. | Per cent. |
|----------------------|-----------|----------|-----------|
| 1918..... | \$437,897 | \$87,579 | 20 |
| 1919..... | 44,080 | 8,818 | 20 |
| 1920..... | 146,270 | 29,254 | 20 |
| 1921 (9 months)..... | 17,467 | | |

| Calendar year | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|-----------|-------------|----------|------------------|
| PARTS OF AIRPLANES, METAL—FOR THE CONSTRUCTION AND EQUIPMENT OF VESSELS. | | | | |
| 1918..... | | \$70,500 | | Per cent. |
| 1919..... | | 5,062 | | |
| AIRPLANES AND PARTS OF, FOR THE UNITED STATES, N. E. S. | | | | |
| 1918..... | | \$1,656,148 | | |
| 1919..... | | 467,061 | | |
| AIRPLANES AND PARTS OF, FOR DIPLOMATIC OFFICERS (C. R. ART. 377). | | | | |
| 1918..... | | \$50,966 | | |
| AIRPLANES AND PARTS OF, WOOD CHIEF VALUE. | | | | |
| 1918..... | | \$72,151 | \$10,823 | 15 |
| 1919..... | | 419,481 | 62,922 | 15 |
| 1920..... | | 61,567 | 9,235 | 15 |
| 1921 (9 months)..... | | 17,749 | | |

In addition, there were imported "parts of airplanes, wood chief value," valued at \$51,275 for the construction and equipment of vessels.

Imports of motor boats are not separately classified; they are probably small.

Export statistics for the calendar years 1918 to 1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------|--------------|-------------|-------------|--------------------|
| Airplanes: | | | | |
| Quantity (number)..... | 44 | 44 | 65 | 43 |
| Value..... | \$607,255 | \$215,300 | \$598,274 | \$271,940 |
| Parts of airplanes..... | \$14,670,208 | \$3,219,226 | \$554,875 | \$122,534 |
| Motor boats: | | | | |
| Quantity (number)..... | 206 | 140 | 298 | 146 |
| Value..... | \$3,669,912 | \$348,851 | \$1,008,872 | \$456,069 |

The principal countries of destination in 1920 were as follows: Of airplanes, Peru, Brazil, France, and Argentina; of airplane parts, the United Kingdom, Hongkong, Brazil, and Canada; of motor boats, about one-half went to Latin-American countries.

Important changes in classification.—This is a new paragraph. Under the act of 1913 they are classified according to the component material of chief value.

Suggested changes.—The word "thereof" in line 7, page 70, might be changed to "of the foregoing" to prevent possible restriction to motor boats, the immediately preceding commodity. Consideration might also be given to the discussion of finished and unfinished parts under paragraph 369 and paragraph 371.

PARAGRAPH 871.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 371. Bicycles, motor cycles, and finished parts of bicycles and motor cycles, 30 per centum ad valorem: *Provided*, That if there be imported into the United States any of the foregoing articles manufactured in or exported from any country which imposes a duty greater than 30 per centum ad valorem upon similar articles exported from the United States, there shall be levied, paid, and collected upon such articles a duty equal to the duty imposed by such country upon such articles imported from the United States, but not to exceed in any case 50 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 141. * * * bicycles, and motor-cycles, and finished parts of any of the foregoing, not including tires, forty-five per centum ad valorem.

PAR. 120. Bicycles, motor cycles, and finished parts thereof, not including tires, 25 per centum ad valorem.

BICYCLES AND MOTOR CYCLES.

(See Survey C-14.)

Description and uses.—Bicycles and motor cycles are used to a considerable extent by workmen and others as a means of transportation to and from work. Both are used commercially for the delivery of messages and small parcels of merchandise, and by police organizations for patrol and special duty. Motor cycles are of great value for military as well as police purposes. Four-cylinder machines of 20 horsepower are made, and side cars are provided with a seating capacity of two or more, and are equipped with tops, wind shields, and upholstery.

Production. of bicycles in 1914 was 398,899 machines, valued at \$5,361,230. The output in the year ended August 31, 1918, was estimated by the War Industries Board as 507,207. The production of motor cycles for the same period was estimated as 53,700. In the calendar year 1914 the output was 62,793 machines, valued at \$12,306,447. The production of bicycles in 1919 was 470,675 machines, valued at \$12,277,341, and the number of motor cycles was 59,214, valued at \$16,176,055. During the period 1914 to 1919 the bicycle industry again showed rapid growth, much greater than that of the motor cycle. The total value of the product of the bicycle industry was \$22,234,262 in 1914 and \$53,105,995 in 1919. Other industries produced \$4,647,798 in 1914 and \$2,205,743 in 1919.

Imports.—Imports of bicycles increased up to the time of the war; they were chiefly from England, but a portion came from Germany.

Imports in 1914 of bicycles and finished parts were valued at \$205,062, motor cycles and finished parts at \$55,869.

Later statistics follow:

| Calendar year | Value | Duty | Ad valorem rate. |
|--|---------|--------|------------------|
| BICYCLES AND FINISHED PARTS THEREOF, NOT INCLUDING TIRES. | | | |
| 1918..... | \$3,990 | \$990 | 25 |
| 1919..... | 10,953 | 2,738 | 25 |
| 1920..... | 45,193 | 12,048 | 25 |
| 1921 (9 months)..... | 35,695 | | |
| MOTOR CYCLES AND FINISHED PARTS THEREOF, NOT INCLUDING TIRES. | | | |
| 1918..... | \$1,273 | \$319 | 25 |
| 1919..... | 2,018 | 505 | 25 |
| 1920..... | 15,472 | 3,868 | 25 |
| 1921 (9 months)..... | 6,658 | | |

Exports.—Exports of bicycles, tricycles, etc., in the fiscal year 1918 amounted to \$1,366,747 and in 1914 to \$608,931, which was 10 per cent of domestic production. Motor cycles exported in 1918 numbered 10,599, valued at \$2,364,785, having increased from 6,410, valued at \$1,234,194, in 1914. The exports in 1914 equaled 10 per cent of the domestic production. In the year 1919, 42 per cent of the domestic production of motorcycles and about 21 per cent of domestic production of bicycles were exported. Exports of bicycles, tricycles, etc., for the calendar years 1918 to 1921 have been valued as follows: 1918, \$1,540,920; 1919, \$3,234,915; 1920, \$4,725,643; 1921 (9 months), \$1,353,234. The principal countries of destination were, in 1918, Japan, Norway, Canada, Italy; in 1919, United Kingdom, Japan, Denmark, Netherlands, in 1920, Japan, Sweden, United Kingdom, Netherlands. Exports of motorcycles for the calendar years 1918 to 1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|--------------|---------------------|
| Quantity (number)..... | 9,212 | 24,481 | 37,622 | 9,240 |
| Value..... | \$2,160,385 | \$6,637,436 | \$10,756,580 | \$3,011,236 |

The principal countries of destination were, in 1918, Australia, Italy, British South Africa; in 1919, Netherlands, Australia, Norway, British South Africa; in 1920, Sweden, Netherlands, Australia, United Kingdom.

Important changes in classification.—The words "not including tires" are omitted, and the proviso is new.

Suggested changes.—Page 70, line 14, of H. R. 7456: Change "levied, paid, and collected" to "levied, collected, and paid" to agree with usual practice.

If the suggestion under paragraph 369 that both finished and unfinished parts of automobiles be specially provided for should be adopted, there is a question whether unfinished parts of bicycles and motor cycles should not be specially provided for in this paragraph.

Bicycles and motor cycles in line 9, page 70, might be changed to "the foregoing," if the suggestion under paragraph 370 should be adopted.

PARAGRAPH 872.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 372. Steam engines and steam locomotives, 15 per centum ad valorem; machine tools and parts of machine tools, embroidery machines, including shuttles for sewing and embroidery machines, lace-making machines, machines for making lace curtains, nets and nettings, and all other machines or parts thereof, finished or unfinished, not specially provided for, 35 per centum ad valorem: *Provided*, That machine tools as used in this paragraph shall be held to mean any machine operating other than by hand power which employs a tool for work on metal.

ACT OF 1909.

PAR. 197. * * * jute manufacturing machinery, * * * machine tools, printing presses, sewing machines, * * * and all steam engines, thirty per centum ad valorem; embroidery machines and lace-making machines, including machines for making lace curtains, nets, or nettings, forty-five per centum ad valorem: *Provided, however*, That all embroidery machines and Lever or Go-through lace-making machines, machines used only for the weaving of linen cloth from flax and flax fiber, * * * shall, if imported prior to January first, nineteen hundred and eleven, be admitted free of duty.

ACT OF 1913.

PAR. 165. All steam engines, steam locomotives, printing presses, and machine tools, 15 per centum ad valorem; embroidering machines, and lace-making machines, including machines for making lace curtains, nets, or nettings, 25 per centum ad valorem; machine tools as used in this paragraph shall be held to mean any machine operated by other than hand power which employs a tool for working on metal.

PAR. 441. * * * sewing machines, cream separators, valued at not exceeding \$75, * * * whether imported in whole or in parts, * * * [Free].³

PAR. 167. Articles or wares not specially provided for in this section; * * * if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, but not plated with gold or silver, and whether partly or wholly manufactured, 20 per centum ad valorem. [Covering parts of machine tools.]

STEAM ENGINES, STEAM LOCOMOTIVES, MACHINE TOOLS, ETC.

Description.—Steam engines may be described as prime movers which utilize the heat energy, pressure, or kinetic energy of steam to generate power; reciprocating and rotary engines and steam turbines are included in this designation. Steam locomotives are of two general classes, standard railroad engines and industrial locomotives. Railroad engines are further distinguished as passenger, freight, and switching engines. The machines enumerated in this paragraph are certain specialized types producing widely varying commodities or utilities. The term "machine tools" has no very definite or fixed meaning. One class of power-driven machines is designed to produce a single type of article in great numbers with a considerable

³ Exempt under Par. 1404 if held to be agricultural implements; otherwise possibly dutiable as machines not specially provided for, Par. 372, H. R. 7456.

degree of automatic action; i. e. screw-making machines, bolt threaders, nut tappers, gear cutters, and spring-making machines. These are styled "special" machines. They usually turn out a completed product or one requiring little subsequent finishing. The other class, properly called machine tools, consists of power-driven forming or shaping machines which are not special, but are adaptable for all kinds of work within their sphere, on all shapes of metal stock or raw material. Machine tools are so defined in the act of 1913 as to include both the above classes.

"Metal-working machinery" is a term applied to power-operated machines for working metals in the form of bars, rods, wire, plates, sheets, or casting, but excluding machinery used in the production of the metal in the forms mentioned. Metal-working machinery, as ordinarily understood, does not include machines or tools for use in the hand trades, like plumber's and tinsmith's tools and watch-maker's lathes, nor rolling-mill machinery, cranes, hoists, etc.

Embroidering and lace-making machines and machines for making lace curtains, nets, or net curtains are highly specialized forms of textile machinery. Other kinds of textile machinery, which are provided for under the basket clause and constitute one of the largest imports in the machinery group, are included in the new paragraph under "All other machines." Printing machinery, calculating machines, electrical machinery, cream separators, cigarette machinery, baker's machinery, and candy-making machinery may also be mentioned as of competitive interest in this group.

Production.—In 1914 steam locomotives, valued at \$46,968,144, were manufactured in 33 establishments, and all other steam engines, valued at \$30,498,638, in 243 establishments. The value of all steam engines made in 1919 was \$72,047,000. The production of printing presses in 1914 amounted to \$8,396,508, the output of 88 establishments. Manufactured metal-working machinery for 1914 was valued at \$48,866,186, of which \$31,446,660 represented machine tools. The census figures for 1919 show an output of metal-working machines valued at \$212,225,000. The census reports a production of textile machinery valued at \$30,437,689 in 1914 and \$121,006,000 in 1919, but gives no separate figures for embroidering and lace-making machinery and machines for making lace curtains, nets, or net curtains. Lace and embroidery machines are not made in the United States.

Both England and Germany are important producers of the articles in this paragraph. Before the war Germany had a large foreign trade in machine tools and exported to the United States. England was a great producer and exporter of textile machinery.

Imports.—The imports of steam engines in recent years have been negligible as compared with the domestic production. Imports were \$183,539 in 1912 and \$13,945 in 1917. Imports of steam locomotives have been negligible, ranging from 1, valued at \$3,324, in 1915 to 21, valued at \$170,037, in 1918 (fiscal year). Imports of machine tools were \$306,096 in 1914 and \$100,685 in 1915. Imports of embroidery and lace-making machines, etc., were \$1,792,216 in 1911 and \$434,041 in 1914. Imports of printing presses were

\$88,301 in 1914 and \$3,305 in 1917. Later imports are shown in the tables below.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|----------|------------------|
| LOCOMOTIVES. | | | | |
| 1918..... | 14 | \$28,853 | \$14,843 | 15 |
| 1919..... | 6 | 37,785 | 5,668 | 15 |
| 1920..... | 6 | 63,739 | 3,561 | 15 |
| 1921 (9 months)..... | 6 | 20,080 | | |

ALL OTHER STEAM ENGINES.

| | | | | |
|----------------------|----|-----------|-----------|----|
| 1918..... | | \$758,501 | \$113,775 | 15 |
| 1919..... | 52 | 344,092 | 51,614 | 15 |
| 1920..... | 69 | 148,878 | 23,332 | 15 |
| 1921 (9 months)..... | 2 | 3,529 | | |

STEAM ENGINES FOR THE CONSTRUCTION, EQUIPMENT, AND REPAIR OF VESSELS.

| | | | | |
|----------------------|----|----------|--|--|
| 1918..... | | \$85,970 | | |
| 1919..... | 54 | 193,441 | | |
| 1920..... | 2 | 7,322 | | |
| 1921 (9 months)..... | 1 | 1,217 | | |

MACHINE TOOLS.

| | | | | |
|----------------------|-------|-----------|----------|----|
| 1918..... | | \$306,872 | \$45,086 | 15 |
| 1919..... | 3,438 | 130,619 | 20,943 | 15 |
| 1920..... | 9,507 | 432,581 | 64,887 | 15 |
| 1921 (9 months)..... | 2,547 | 173,546 | | |

EMBROIDERY AND LACE-MAKING MACHINES, ETC.

| | | | | |
|----------------------|-------|----------|----------|----|
| 1918..... | | \$58,843 | \$14,711 | 25 |
| 1919..... | 283 | 245,758 | 61,439 | 25 |
| 1920..... | 1,308 | 554,438 | 138,609 | 25 |
| 1921 (9 months)..... | 2,118 | 573,192 | | |

JUTE-MANUFACTURING MACHINERY.

| | | | | |
|----------------------|--|----------|---------|----|
| 1918..... | | \$46,261 | \$9,252 | 20 |
| 1919..... | | 57,048 | 11,410 | 20 |
| 1920..... | | 49,362 | 9,872 | 20 |
| 1921 (9 months)..... | | 148,907 | | |

ALL OTHER TEXTILE MACHINERY.

| | | | | |
|----------------------|--|-----------|-----------|----|
| 1918..... | | \$563,174 | \$116,635 | 20 |
| 1919..... | | 766,069 | 152,214 | 20 |
| 1920..... | | 2,168,879 | 433,776 | 20 |
| 1921 (9 months)..... | | 2,738,361 | | |

CREAM SEPARATORS, VALUED NOT OVER \$75.

| | | | | |
|----------------------|--------|-----------|--|--|
| 1918..... | 16,884 | \$273,419 | | |
| 1919..... | 23,641 | 667,903 | | |
| 1920..... | 42,904 | 1,364,287 | | |
| 1921 (9 months)..... | 9,437 | 384,200 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

PARTS OF CREAM SEPARATORS.

| | Number. | Value. | Duty. | Per cent. |
|----------------------|---------|----------|-------|-----------|
| 1918..... | | \$33,402 | | |
| 1919..... | | 55,091 | | |
| 1920..... | | 211,624 | | |
| 1921 (9 months)..... | | 50,281 | | |

PRINTING PRESSES.

| | Number. | Value. | Duty. | Per cent. |
|----------------------|---------|----------|---------|-----------|
| 1918..... | | \$22,118 | \$3,318 | 15 |
| 1919..... | 171 | 20,909 | 3,150 | 15 |
| 1920..... | 58 | 15,994 | 2,849 | 15 |
| 1921 (9 months)..... | 63 | 22,126 | | |

MACHINES, MACHINERY, AND PARTS OF N. S. P. F.

| | Value. | Duty. | Per cent. |
|----------------------|-------------|-----------|-----------|
| 1918..... | \$2,116,935 | \$423,367 | 20 |
| 1919..... | 1,311,115 | 262,201 | 20 |
| 1920..... | 3,033,902 | 605,871 | 20 |
| 1921 (9 months)..... | 3,109,449 | | |

MACHINES, ETC., FOR THE CONSTRUCTION, EQUIPMENT, SUPPLY, AND REPAIR OF VESSELS.

| | Value. | Duty. | Per cent. |
|----------------------|-------------|-------|-----------|
| 1918..... | \$1,010,341 | | |
| 1919..... | 1,208,817 | | |
| 1920..... | 1,097,537 | | |
| 1921 (9 months)..... | 382,615 | | |

MACHINES, ETC., FOR THE UNITED STATES, N. E. S.

| | Value. | Duty. | Per cent. |
|----------------------|-------------|-------|-----------|
| 1918..... | \$3,419,509 | | |
| 1919..... | 500,041 | | |
| 1920..... | | | |
| 1921 (9 months)..... | 23,982 | | |

Exports.—Exports of steam engines were \$2,112,337 in 1913, and \$594,916 in 1915. Exports of steam locomotives were \$6,442,674 in 1913, and \$2,115,866 in 1915. Those of machine tools were \$14,011,359 in 1914, and \$84,835,410 in 1917. Exports of printing presses were \$2,487,277 in 1914. In 1914 the exports of textile machinery aggregated \$1,611,279. There were no exports of embroidery and lace-making machines, etc. Exports have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|--------------|--------------|--------------|---------------------|
| Steam locomotives: | | | | |
| Quantity (number)..... | 1,062 | 959 | 1,711 | 794 |
| Value..... | \$27,064,042 | \$30,275,728 | \$53,629,847 | \$25,449,500 |
| Machine tools..... | \$11,626,360 | \$12,490,600 | \$13,961,243 | \$4,140,439 |
| Textile machinery..... | \$7,296,607 | \$14,986,369 | | |
| Cotton carding and spinning machinery..... | | | \$7,314,511 | \$6,987,331 |
| Cotton looms: | | | | |
| Quantity (number)..... | | | 2,569 | 786 |
| Value..... | | | \$840,788 | \$781,210 |
| Textile machinery, all other..... | | | \$12,764,335 | \$7,590,714 |
| Cream separators: | | | | |
| Quantity (number)..... | 21,822 | 22,490 | 24,915 | 7,342 |
| Value..... | \$841,171 | \$1,035,821 | \$1,105,298 | \$374,417 |
| Printing presses..... | \$1,462,834 | \$3,827,038 | \$9,263,711 | \$6,515,123 |
| All other machinery and parts of..... | \$42,299,666 | \$73,426,736 | \$90,667,650 | \$58,508,728 |

The exports of steam locomotives have been principally to the Far East and Latin America, but some number has been sent to France, and formerly both Spain and Russia were important customers. Machine tools are exported to most of the manufacturing centers of Europe and to Canada and Japan. Textile machinery is exported to China and Japan and also (special types) to Canada and the United Kingdom. Canada, Argentina, France, Australia, and New Zealand are the principal markets for the cream separators exported. In addition to the above classes of machinery, there are a great many different kinds of machinery that figure largely in our export trade, but which are not imported in sufficient quantity to warrant the publication of separate statistics. The destinations of these different classes vary, of course, according to the nature of the machine, but most of the items listed in the following table of exports by calendar year are consigned to Canada, Great Britain, Japan, or France:

Miscellaneous machinery.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-------------|-------------|-------------|---------------------|
| Electrical machinery¹ | | | | |
| Dynamos or generators..... | \$3,363,349 | \$5,799,885 | \$7,796,305 | \$6,105,247 |
| Magnetos, spark plugs, etc..... | 2,749,705 | 3,034,775 | 3,601,419 | 1,129,733 |
| Motors..... | 8,225,197 | 10,635,476 | 13,421,550 | 13,472,631 |
| Rheostats and controllers..... | 288,757 | 514,760 | 707,719 | 886,628 |
| Switches and accessories..... | 2,195,300 | 3,564,772 | 4,438,778 | 3,670,045 |
| Telegraph apparatus, including wireless..... | 378,806 | 830,387 | 713,798 | 893,297 |
| Telephones..... | 2,687,483 | 3,783,398 | 3,898,987 | 4,073,155 |
| Transformers..... | 3,528,673 | 3,787,851 | 4,803,153 | 6,979,976 |
| All other..... | 17,845,641 | 27,827,128 | 32,868,433 | 23,419,052 |
| Machinery, n. e. s.: | | | | |
| Adding and calculating machines..... | 1,974,250 | 3,863,217 | 6,790,407 | 2,325,493 |
| Air-compressing machinery..... | 2,604,755 | 3,761,290 | 5,490,397 | 3,431,129 |
| Brewers' machinery..... | 130,357 | 213,590 | 522,194 | 238,004 |
| Concrete mixers..... | 315,337 | 246,631 | 967,440 | 510,802 |
| Elevators and elevator machinery..... | 2,214,537 | 2,601,543 | 1,517,537 | 1,772,407 |
| Engines and parts of— | | | | |
| Electric locomotives..... | 183,200 | 835,978 | 890,430 | 1,506,877 |
| Internal-combustion engines— | | | | |
| Gas-stationary..... | 478,871 | 692,584 | 817,925 | 268,357 |
| Gasoline..... | 2,790,833 | 4,363,538 | 3,233,032 | 1,283,891 |
| Marine..... | 3,332,194 | 3,671,972 | 5,651,479 | 1,901,406 |
| Stationary..... | 24,401,779 | 26,026,172 | 21,965,937 | 3,314,473 |
| Traction..... | 8,536,113 | 7,324,599 | 8,319,004 | 2,326,813 |
| All other..... | | | 2,270,763 | 1,410,576 |
| Steam engines— | | | | |
| Marine..... | 1,337,349 | 1,228,845 | 819,535 | 370,869 |
| Stationary..... | 1,056,884 | 1,324,247 | 2,881,445 | 950,173 |
| Traction..... | 1,408,977 | 1,096,294 | 808,245 | 105,553 |
| All other engines..... | 5,450,418 | 3,406,891 | 4,431,019 | 1,804,935 |
| Parts of engines— | | | | |
| Boilers..... | 4,415,467 | 6,361,229 | 8,006,288 | 4,320,854 |
| All other..... | 24,420,286 | 26,872,412 | 22,158,874 | 10,222,849 |
| Excavating machinery..... | 1,274,926 | 1,165,763 | 2,042,727 | 2,044,264 |
| Flour and grist mill machinery..... | 1,435,211 | 2,376,802 | 1,886,201 | 1,366,832 |
| Laundry machinery— | | | | |
| Power machines..... | 420,696 | 796,053 | 1,136,770 | 787,213 |
| All other..... | 269,136 | 399,736 | 903,978 | 312,401 |
| Lawn mowers..... | 239,636 | 478,583 | 455,921 | 395,073 |
| Metal-working machinery— | | | | |
| Lathes..... | 9,853,507 | 10,136,877 | 7,575,123 | 2,643,649 |
| Sharpening and grinding machines..... | 6,161,876 | 5,494,060 | 3,945,490 | 1,000,958 |
| All other..... | 23,978,554 | 30,386,405 | 18,830,377 | 9,724,201 |
| Mining machinery— | | | | |
| Oil-well machinery..... | 2,759,286 | 3,613,972 | 6,229,284 | 9,978,887 |
| All other..... | 8,730,338 | 9,265,319 | 8,990,992 | 6,583,540 |
| Paper and pulp mill machinery..... | 1,667,622 | 3,958,873 | 3,048,697 | 2,262,015 |
| Pump and pumping machinery..... | 6,008,010 | 9,067,458 | 13,684,468 | 10,690,224 |
| Refrigerating machinery..... | 1,436,110 | 2,141,110 | 3,820,062 | 1,415,789 |
| Windmills..... | 772,003 | 1,091,543 | 2,256,760 | 1,574,734 |

¹ Includes in addition to machines a few items (e. g., telephones and electrical apparatus) that are strictly not classed as machines but rather as manufactures of metal (par. 393).

Miscellaneous machinery—Continued.

| | 1918. | 1919. | 1920. | 1921 (9 months). |
|---|------------|------------|-----------|---------------------|
| Machinery, n. e. s.—Continued. | | | | |
| Woodworking machinery— | | | | |
| Sawmill..... | 1,154,790 | 1,141,248 | 1,220,028 | 963,948 |
| All other..... | 1,049,506 | 2,808,407 | 3,784,823 | 2,290,279 |
| Cars, automobiles, and other vehicles— | | | | |
| Motor, warehouse and motor-station trucks..... | 349,403 | 492,543 | 317,137 | 329,385 |
| Wheelbarrows, pushcarts, and hand trucks..... | 499,914 | 774,280 | 1,523,217 | 755,901 |
| All other vehicles and parts of..... | 20,432,996 | 33,345,238 | 8,963,724 | 3,096,559 |

Important changes in classification.—The provisions for parts of machine tools, for shuttles for sewing or embroidery machines, and for all other machines or parts thereof, are new. Printing presses, which are specially provided for in paragraph 165 of the act of 1913, and cream separators valued at not exceeding \$75, which are specially provided for in paragraph 441 of that act, are not mentioned in H. R. 7456. Shuttles for sewing machines have been transferred from the free list (parts of sewing machines).

There is doubt as to how far-reaching the term "all other machines or parts thereof, finished or unfinished," is intended to be. Many inquiries have been received in regard to the inclusion of certain articles in the provision, such as printing presses, combination typewriter and adding machine, and cream separators.

Electrical, telegraph, and telephone apparatus, appliances, etc., have also been the subject of numerous inquiries. In the absence of a more specific enumeration such articles will come within paragraph 393 of H. R. 7456 as manufactures wholly or in chief value of metal, unless classable as machines within this paragraph.

PARAGRAPH 373.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 373. Shovels, spades, scoops, and drainage tools, and parts thereof, composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, aluminum, or other metal, whether partly or wholly manufactured, 25 per centum ad valorem.

ACT OF 1909.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or other metal, and whether partly or wholly manufactured, forty-five per centum ad valorem.

ACT OF 1913.

PAR. 167. Articles or wares not specially provided for in this section; * * * if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, * * * and whether partly or wholly manufactured, 20 per centum ad valorem.

PAR. 391. * * * all other agricultural implements of any kind and description, whether specifically mentioned herein or not, whether in whole or in parts, including repair parts [Free].⁴

⁴ Exempt under Par. 1504 if held to be agricultural implements; otherwise possibly dutiable as machines not specially provided for, Par. 372, H. R. 7456.

SHOVELS, SPADES, SCOOPS, ETC.

Production.—Statistics of the Bureau of the Census as to the production of these articles are not available, although the production of shovels, spades, scoops, and hoes was estimated at \$4,714,000 in 1914. The following figures were obtained from the tariff hearings in 1921 before the Committee on Ways and Means. The productive capacity of the 20 plants scattered throughout the country is from 1,000,000 to 1,250,000 dozens per annum, which at the present average market price of shovels would amount to between \$10,000,000 and \$12,000,000.

Imports.—Statistics are not available. Apparently there has been some importation from Canada, as Canadian shovels when polished are admitted free of duty as agricultural implements. (Tariff hearings, W. & M., 1921.)

Exports.—The principal countries of destination of exports of shovels and spades were: In 1918, Chile, Mexico, Argentina, Peru, Cuba; in 1919, Argentina, Brazil, Chile, Mexico; in 1920, Argentina, Mexico, Cuba, and the Philippine Islands. Exports since 1917 by calendar years have been valued as follows: 1918, \$680,591; 1919, \$1,898,101; 1920, \$1,294,291; 1921 (9 months), \$500,080.

Important changes in classification.—A new provision

PARAGRAPH 374.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 374. Aluminum, aluminum scrap, and alloys of any kind in which aluminum is the component material of chief value, in crude form, 5 cents per pound; in plates, sheets, bars, rods, circles, disks, blanks, strips, rectangles, and squares, 9 cents per pound.

ACT OF 1909.

PAR. 172. Aluminum, aluminum scrap, and alloys of any kind in which aluminum is the component material of chief value, in crude form, seven cents per pound; in plates, sheets, bars, and rods, eleven cents per pound; * * *

ACT OF 1913.

PAR. 143. Aluminum, aluminum scrap, and alloys of any kind in which aluminum is the component material of chief value, in crude form, 2 cents per pound; aluminum in plates, sheets, bars, strips, and rods, 3½ cents per pound; * * *

ALUMINUM.

(See Survey C-16.)

Description and uses.—Aluminum is the lightest of the common metals. It is white, strong, very malleable, slightly softer than silver, and can be drawn, punched, rolled, extruded, or spun into almost any form. Highly noncorrodible, it is but slightly affected by the atmosphere or by vegetable acids. One of the important uses of aluminum is as a deoxidizer in steel manufacture; another is in the form of wire for transmission lines and other electrical purposes. Large quantities are consumed in automobile manufacture, partly as sheet

and partly in the form of castings. Aluminum vessels and utensils are used in the household and in breweries, sugar refineries, and chemical works. There is a considerable consumption in the making of novelties. Aluminum foil is used to some extent as a substitute for tin. The metal is used in important alloys, notably, with magnesium, tin, copper, zinc, and nickel.

Production.—All the aluminum now manufactured is made from purified bauxite (see par. 207) in electric furnaces. The production is a matter of companies rather than of nations. The North American output comes from one American company, which developed its process of manufacture, introduced the metal on the market, and has built up an enormous business. Three large financial groups, involving French, British, and German capital, control some 14 producing companies in Europe. There is also a small independent company in Italy and another in Norway. Prior to the war the European producers were well organized and controlled production and prices on the Continent. The outstanding feature of the present situation is the war-time expansion in all producing countries, and especially in Germany.

The successful production of aluminum involves heavy expenditure for plant and requires dependable supplies of raw materials (especially bauxite), adequate transportation facilities, and cheap electric power. The American company has all these essentials, but is at some disadvantage compared with the foreign companies in the cost of assembling its bauxite and coal at East St. Louis for purification and the subsequent transportation of the purified material to the various eastern reduction works, where it is made into metal. In addition to its large holdings of bauxite deposits in Arkansas, the Aluminum Co. of America owns extensive deposits in Guiana. Utilization of these South American ores, which may be refined at Baltimore, should reduce the disadvantage of the domestic producer as regards the supply of raw material. Extensive deposits of high-grade bauxite in southern France afford cheap raw material for most of the European plants, whose operating cost in many works is probably a little less than in the United States.

The war demand for aluminum resulted in an expansion of capacity here, which now exceeds normal demands. Prior to the war the domestic consumption exceeded production. Continental countries, notably France and Great Britain, are equipped to produce in excess of European requirements.

There is a large quantity of secondary metal produced from scrap, amounting in 1917 to about 25 per cent of the total consumption.

Plates, sheets, bars, strips, and rods can be grouped together as semifinished shapes obtained either by rolling or extrusion.

The production of aluminum grew from 60,000 pounds in 1890 to 7,000,000 pounds in 1900, 40,000,000 pounds in 1910, 90,000,000 pounds in 1915, 110,000,000 pounds in 1916, and approximately 130,000,000 pounds in 1920. The value of the product amounted to \$2,000,000 in 1900, about \$30,000,000 in 1915, and approximately \$40,000,000 in 1920. This exceptionally rapid increase in production placed the United States far in the lead of all the aluminum-producing countries. Fully one-half of the world's output is produced in this country.

Imports prior to 1914 were largely from Canada and represented merely interplant relations of the one American large-scale producer. Most of this was ultimately exported with benefit of drawback. There was also some importation of competitive metal from European countries. During the war imports of all classes of aluminum were cut off, except for a small amount of scrap derived from near-by countries and exported, after remelting, with benefit of drawback. Imports of plates, sheets, bars, strips, and rods, chiefly from Germany and England, reached 2,775,804 pounds, valued at \$654,765, in 1914. Those of ingot were 113,113,755 pounds in 1908 and 26,958,354 pounds, valued at \$4,315,233, in 1913. Since the armistice imports of aluminum have increased fairly steadily except for a few months in 1919 and early in 1920 when European requirements temporarily expanded so as to exceed production and leave no surplus for export. Imports of aluminum metal since 1918 have been derived principally from England and France; small quantities come from Switzerland, Norway, and Germany. Germany has furnished the bulk of the more or less highly manufactured forms of aluminum. Total imports from all countries since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|---|----------------|------------|----------|
| ALUMINUM, IN CRUDE FORM, SCRAP, AND ALLOYS OF ANY KIND, ETC. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 1,690,146 | \$532,754 | \$33,780 |
| 1919..... | 13,325,595 | 4,290,749 | 266,525 |
| 1920..... | 85,671,123 | 10,788,414 | 719,422 |
| 1921 (9 months)..... | 26,014,687 | 6,002,674 | |
| ALUMINUM IN BARS, STRIPS, AND RODS. | | | |
| 1918..... | 432 | \$315 | \$15 |
| 1919..... | 44,149 | 21,133 | 1,545 |
| 1920..... | 345,367 | 165,981 | 12,088 |
| 1921 (9 months)..... | 265,036 | 79,549 | |
| ALUMINUM PLATES AND SHEETS. | | | |
| 1918..... | 10 | \$11 | |
| 1919..... | 481,321 | 218,697 | \$16,846 |
| 1920..... | 2,982,160 | 1,229,496 | 104,376 |
| 1921 (9 months)..... | 1,632,425 | 579,300 | |

In addition to the imports listed above a fair amount of aluminum circles are imported from Germany. These are, however, included in the statistics of "All other manufactures of aluminum" as given under paragraph 393.

Exports.—Aluminum in crude or semifinished form was not exported in any considerable quantity prior to 1914. In that year the exports of all kinds of aluminum metal and manufactures were valued at \$1,101,920. The enormous demand and high prices abroad resulted in a large increase in exports during the war. In the fiscal year 1918, 21,207,628 pounds of aluminum "ingot, metal, and alloys," valued at \$8,611,447, were exported. The exports of plates and sheets amounted to 1,633,854 pounds, with a value of \$783,836, and of all other manufactures of aluminum, \$1,804,632. Practically all the ingot metal was sold to the allied Governments.

Later export figures for the calendar years 1918 to 1921 are given in the tables below.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-------------|-------------|-------------|---------------------|
| Aluminum, ingot metal and alloys: | | | | |
| Quantity (pounds)..... | 20,152,798 | 4,458,195 | 7,381,874 | 1,024,346 |
| Value..... | \$7,478,149 | \$1,495,659 | \$2,244,550 | \$293,695 |
| Aluminum, plates and sheets: | | | | |
| Quantity (pounds)..... | 3,982,173 | 562,157 | 2,026,757 | 927,273 |
| Value..... | \$1,500,903 | \$249,227 | \$823,058 | \$423,758 |

The principal countries of destination were as follows: Of ingot metal and alloys—in 1918, France, Italy, Japan; in 1919, Japan, France, Canada, Italy; in 1920, United Kingdom, Japan, Canada, Netherlands. Of plates and sheets—in 1918, Italy, France, Canada; in 1919, Denmark, France, British India, Brazil; in 1920, United Kingdom, British India, Germany, Canada.

Important changes in classification.—Aluminum in circles, disks, blanks, rectangles, and squares has been added.

Suggested changes.—No provision is made for aluminum foil, which is imported in large quantities. This product is thinner than sheets but not so thin as leaf (provided for in par. 379) and is used for wrapping chocolate, etc.

PARAGRAPH 375.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 375. Metallic magnesium and metallic magnesium scrap, \$1 per pound; magnesium alloys, powder, sheets, ribbons, tubing, wire, and all other articles, wares, or manufactures of magnesium, not specially provided for, \$1 per pound on the metallic magnesium content and 20 per centum ad valorem.

ACT OF 1909.

PAR. 172. * * * magnesium, * * * and alloys of which said metals are the component material of chief value, three cents per pound and twenty-five per centum ad valorem.

ACT OF 1913.

PAR. 143. * * * magnesium, * * * and alloys of which said metals are the component material of chief value, 25 per centum ad valorem.

METALLIC MAGNESIUM, METALS AND ALLOYS.

Description and uses.—Magnesium is the lightest of the known metals that withstand atmospheric corrosion. It is silver-white, tough, malleable, and, when heated, ductile. There are three forms on the market: (1) A silvery powder or gray granular substance, (2) narrow ribbon, and (3) round or square sticks. Flashlight powder used in photography comes in the first class, and powdered magnesium, on account of its intense white light, rich in chemical rays,

is much used in various pyrotechnical mixtures and in explosives. Ribbon is used chiefly in chemical laboratories and for the ignition of thermit. Magnesium in stick form is used in alloys, both as a constituent and as a deoxidizer or scavenger (especially for nickel-copper alloys), as a dehydrating agent for oils and coal-tar derivatives, and in various electrolytic processes (as cathode). The growth in the quantity and diversity of the consumption has been very rapid, and is likely to continue with the lessening of production cost. The most important alloys of magnesium are those containing aluminum widely used in airplane and automobile construction. Elektron metal, an alloy containing nearly 95 per cent magnesium and a little zinc, has found a variety of applications in Germany and has been introduced into the United States.

Production of metallic magnesium is a new industry in America. Prior to the war the limited demand was supplied from Germany, the sole producer on a commercial scale. Domestic production by three firms began in 1915, with 87,500 pounds, valued at \$440,000, and sold at an average price of \$5 per pound. The price declined a little in the following year, and production decreased slightly. But in 1917 the quantity increased to 115,813 pounds, and in 1918 to 284,188 pounds, valued at \$615,217. The latter output included considerable magnesium powder, which increased the average value to \$2.16 per pound, whereas magnesium in stick form was sold at from \$1.85 to \$2 per pound.

Imports.—Prior to the war the entire supply of this country came from Germany. Imports since 1918 of metallic magnesium, metals, and alloys have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1919..... | 13,230 | \$13,583 | \$3,396 | 25 |
| 1920..... | 29,375 | 25,055 | 6,264 | 25 |
| 1921 (9 months)..... | 26,041 | 23,158 | | |

Exports.—There are no published statistics of exports of magnesium. Reports of producers to the Geological Survey indicate that there were sold to the Allies in 1918 between 50,000 and 60,000 pounds, which probably constitutes almost the total export of domestic material.

Important changes in classification.—"Magnesium and alloys," bearing an ad valorem rate of duty, were grouped with barium, etc., in paragraph 143 of the act of 1913.

Suggested changes.—Unless barium, calcium, sodium, and potassium and their alloys, provided for in paragraph 143 of the act of 1913, were intentionally omitted they should be added to this paragraph.

PARAGRAPH 376.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 376. Antimony, as regulus or metal, 1½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 173. Antimony, as regulus or metal, one and one-half cents per pound;
* * *

PAR. 144. Antimony, as regulus or metal; * * * 10 per centum ad valorem; * * *

ANTIMONY.

Description and uses.—Metallic antimony unalloyed has few industrial uses, since it is very brittle; but it enters into many valuable alloys, especially with lead and with tin, into such as type metal (par. 389), pewter and Britannia metal, and in bearing metals. Its chief importance is as a hardening agent for lead and in shrapnel bullets. The term regulus, a relic of alchemy, although still used to describe refined antimony metal, is superfluous.

Production.—The chief sources of the domestic antimony supply are China and Japan, but there is a considerable production of antimonial lead in domestic lead smelters. The annual requirements of antimony prior to the war were, roughly, 7,000 tons, about one-third being supplied by the silver-lead smelters, the remainder from imports consisting chiefly of metal. During the war the consumption increased to 20,000 tons, of which slightly more than one-third was derived from antimonial lead and antimony metal smelted in the United States.

The production of antimony metal from domestic ores and antimony metal contained in antimonial lead produced by domestic smelters is as follows: 3,898,000 pounds in 1912, 11,050,000 pounds in 1915, and 6,034,000 pounds in 1917. In 1917 the production of antimony from domestic ores was 517,013 pounds; from antimonial lead, 5,518,000 pounds; and from foreign ores, 4,880,419 pounds, making a total from all sources of 10,915,432 pounds.

China dominates the antimony situation by its large and cheaply mined deposits. The Chinese companies, together with a few Japanese smelters which also treat a portion of the Chinese ore, contribute 60 per cent of the world output.

Imports.—Prior to the war over 60 per cent of our antimony supply came from Great Britain, whereas in 1918-19 it came almost wholly from the Far East. The imports of antimony metal (including also a very little needle antimony) amounted to 13,110,426 pounds, valued at \$736,420 in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-------------|-----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 28,292,934 | \$3,065,619 | \$306,562 | 10 |
| 1919..... | 14,318,793 | 1,021,587 | 102,159 | 10 |
| 1920..... | 19,633,904 | 1,216,376 | 121,638 | 10 |
| 1921 (9 months)..... | 14,994,842 | 593,923 | | |

The principal countries of origin were China, Japan, and Canada.

Exports.—There are no appreciable exports of domestic antimony. Foreign exports, however, have been an important item, especially during the war period, when New York became an important secondary market. The exports in 1916 were 3,018,251 pounds and only 989,477 pounds in 1917.

Important changes in classification.—Antimony, as regulus or metal, has been separated from antimony matte. Antimony matte is not provided for as such in H. R. 7456, but a provision appears in paragraph 1509 for "needle or liquated antimony, but only as to the antimony content."

PARAGRAPH 377.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 377. German silver, or nickel silver, unmanufactured, 20 per centum ad valorem.

ACT OF 1909:

PAR. 174. Argentine, albata, or German silver, unmanufactured, twenty-five per centum ad valorem.

ACT OF 1913:

PAR. 145. Argentine, albata, or German silver, unmanufactured, 15 per centum ad valorem.

GERMAN SILVER.

(See Survey C-19.)

Description and uses.—German silver and nickel silver are names applied to an alloy of nickel, copper, and zinc which is prepared largely as a base metal for electroplating (especially in the better class of silver-plated ware) and as a substitute for silver. Considerable quantities are also used in the form of sheets, wire, and rods where a strong, white, rust-resisting metal is required. Nickel silver exists under a great number of names. The proportions of the constituents vary considerably, but nickel or copper is generally of chief value.

Production.—The United States is the principal producer and consumer of nickel alloy; England and Germany, also important producers, use a large part of the product in silver-plated ware for export. The chief item of cost of this alloy is the raw material, but the price of virgin metals is not a handicap to domestic manufacturers as compared with foreign producers.

No estimates of total production are available, as it is ordinarily prepared from the constituent metals at the plant of the consumer and is therefore not a common commercial product except in manufactured forms, such as sheet, rods, etc.

Imports of unmanufactured German silver consist almost exclusively of scrap from Canada, amounting to \$4,014 in 1916. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$51 | \$8 | 15 |
| 1919..... | 3,074 | 429 | 64 | 15 |
| 1920..... | 200 | 330 | 50 | 15 |
| 1921 (9 months)..... | 2,448 | 527 | | |

Exports in 1914 were valued at \$38,691, increasing in 1917 to \$410,295, of which over 75 per cent went to Canada. Exports for the calendar years 1918 to 1921 were valued as follows: 1918, \$227,439; 1919, \$389,000; 1920, \$589,508; 1921 (9 months), \$395,952. The principal countries of destination in 1918 were Canada, Japan, and Brazil; in 1919 and 1920, Canada, Denmark, and Argentina.

Important changes in classification.—"Argentine" and "albata" have been omitted. They are practically obsolete terms. Nickel silver has been inserted in this paragraph.

PARAGRAPH 378.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 378. Copper in rolls, rods, or sheets, 2½ cents per pound; copper engravers' plates, not ground, and seamless copper tubes and tubing, 7 cents per pound; copper engraver's plates, ground, and brazed copper tubes, 11 cents per pound; brass rods, sheet brass, brass plates, bars, and strips, Muntz or yellow metal sheets, sheathing, bolts, piston rods, and shafting, 4 cents per pound; seamless brass tubes and tubing, 8 cents per pound; brazed brass tubes, brass angles and channels, 12 cents per pound; bronze rods and sheets, 4 cents per pound; bronze tubes, 8 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 176. Copper, * * * called braziers' copper, sheets, rods, pipes, and copper bottoms, two and one-half cents per pound; sheathing or yellow metal of which copper is the component material of chief value, and not composed wholly or in part of iron ungalvanized, two cents per pound.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of * * * metal, and whether partly or wholly manufactured, forty-five per centum ad valorem.

PAR. 147. Copper, * * * called braziers' copper, sheets, rods, strips, pipes, and copper bottoms, sheathing or yellow metal of which copper is the component material of chief value, and not composed wholly or in part of iron ungalvanized, 5 per centum ad valorem.

PAR. 167. Articles or wares not specially provided for in this section; * * * if composed wholly or in chief value of * * * brass * * * and whether partly or wholly manufactured, 20 per centum ad valorem.

COPPER.

(See Survey C-19.)

Description and uses.—The definitions of plates, sheets, and strips of copper are the same as those of similar products of steel (par. 307). Copper rods and copper wire have been noted (par. 316). Copper and yellow metal (brass) sheathing for wooden vessels was once an important outlet for copper, but the increased use of iron in ship-building has reduced this consumption to a negligible fraction of the total consumption of sheet copper and brass. Wire, rods, and rolled plates are the most important forms, since these are used in the electrical industry, which consumes 50 to 60 per cent of all the

copper used. Sheet copper is used in the manufacture of cooking utensils. Copper pipes are used in stills, water heaters, and condensers.

Production.—The United States is the leading producer of copper, and refines large quantities of foreign ore and metal. The total production of new refined copper in 1917 was 2,432,385,290 pounds, more than two-thirds from domestic ore. There are no data as to sheets and plates, but the quantity is doubtless 10 per cent of the total. The total output of copper products in 1914 was \$82,841,246, divided approximately as follows: Wire, \$53,000,000; rods, over \$6,000,000; sheets and tubing, over \$17,000,000; all other manufactured products, about \$5,000,000. The quantity of copper produced at smelters, as compiled by the Geological Survey, aggregated 1,310,972,580 pounds in 1919, compared with 1,150,137,192 pounds in 1914. Primary copper of domestic origin produced at refineries was 1,441,643,000 pounds in 1919, compared with 1,210,423,000 pounds in 1914, while total refined copper, primary and secondary, of both domestic and foreign origin, is reported at 1,863,580,000 pounds for 1919, compared with 1,565,708,000 pounds for 1914; a five-year increase of 297,872,000 pounds, or 19 per cent. The copper products of both smelters and refineries, the gold, silver, and other metallic contents of ore and bullion treated, and the sundry by-products of the respective establishments, were valued, in 1914, at \$444,022,000, and in 1919 at \$632,897,000, an increase of \$188,875,000, or 42.5 per cent.

Imports.—Imports of rolled copper plates, sheets, pipes, and copper bottoms were \$62,176 in 1914 and \$81,446 in 1917. Imports of copper since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

COPPER IN ROLLED PLATES, CALLED BRAZIERS' COPPER, SHEETS, RODS, STRIPS, ETC.

| | Pounds. | | | Per cent. |
|----------------------|---------|-------|-----|-----------|
| 1918..... | 347 | \$143 | \$7 | 5 |
| 1919..... | 1,031 | 713 | 36 | 5 |
| 1920..... | 3,549 | 1,433 | 73 | 5 |
| 1921 (9 months)..... | 33,510 | 5,901 | | |

COPPER PLATES, ROLLED, ETC. SHEETS, ETC. FOR SUPPLIES, CONSTRUCTION AND EQUIPMENT OF VESSELS.

| | | | | |
|-----------|--------|---------|--|--|
| 1918..... | 23,216 | \$7,306 | | |
| 1919..... | 11,552 | 4,462 | | |

COPPER RODS AND STRIPS.

| | | | | |
|----------------------|-------|-------|-----|---|
| 1918..... | 200 | \$126 | \$6 | 5 |
| 1920..... | 2,373 | 939 | 49 | 5 |
| 1921 (9 months)..... | 8,712 | 2,390 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

COPPER PIPES.

| | Pounds. | | | Per cent. |
|----------------------|---------|---------|-------|-----------|
| 1919..... | 10,217 | \$4,618 | \$231 | 5 |
| 1920..... | 4,529 | 1,618 | 81 | 5 |
| 1921 (9 months)..... | 800 | 227 | | |

COPPER PIPES FOR SUPPLIES, CONSTRUCTION, AND EQUIPMENT OF VESSELS.

| | | | | |
|-----------|--------|----------|--|--|
| 1918..... | 64,163 | \$24,112 | | |
| 1919..... | 14,848 | 6,132 | | |

Exports.—Exports for 1913 were: Copper plates and sheets, 61,050,138 pounds, valued at \$10,028,960; copper rods and wire, 41,459,901 pounds, valued at \$7,217,166. Exports of copper sheets, pipes, plates, braziers, and copper bottoms were \$8,753,920 in 1914 and \$32,976,942 in 1917. Exports went to all the manufacturing countries of Europe. Germany was the largest buyer of plates and sheets. The United Kingdom has been the largest buyer of domestic copper wire. Since 1913, however, important markets have been developed in South America and the Far East. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------|-------------|-------------|-------------|------------------|
| Copper plates and sheets: | | | | |
| Quantity (pounds)..... | 19,471,584 | 13,764,425 | 22,799,148 | 4,118,195 |
| Value..... | \$5,677,408 | \$4,090,491 | \$6,685,858 | \$1,090,651 |
| Copper pipes and tubes: | | | | |
| Quantity (pounds)..... | 4,109,220 | 5,993,959 | 4,899,223 | 2,002,628 |
| Value..... | \$1,845,222 | \$2,206,695 | \$1,757,382 | \$599,518 |

Exports of copper rods were not recorded before July 1, 1921. During July, August, and September there were exported 7,322,267 pounds valued at \$976,032.

BRASS AND BRONZE.

Description and use.—Brass and bronze are the most important alloys of copper and zinc. They are made up into a large number of forms, and as sheet, strip, rod, wire, pipe, tubes, or castings they enter into practically every important industry. These alloys are easily machined, spun, and stamped, and resist corrosion. They are therefore suitable for use in many places where it is impossible to use iron or steel. Brass and bronze find a multitude of uses in the trade. They are used for boiler and condenser tubes, for bearing bushings, for railings on passenger ships and war vessels. They are also used in the plumbing trade, in the manufacture of builders' and cabinet hardware, in the manufacture of brass bedsteads, in the brass-spinning industries producing cartridges, ornamental articles, and in an extensive line of electrical fixtures. The consumption of this class of material is increasing yearly.

Production.—In 1914 the capital invested in all branches of the industry amounted to \$95,827,707 and the manufacturing establishments gave employment to 37,627 persons. In that year, out of a total of \$131,503,724 in brass and bronze products, 26 millions was in plates and sheets, 16 millions was in ingots and rods, 6 millions was in wire, 10 millions was in pipe and tubing, and the rest was in other manufactured products. Estimates of production in brass-rolling mills in 1919, furnished the United States Tariff Commission by manufacturers, range between 200,000,000 and 1,000,000,000 pounds. The value of the output was doubtless in the neighborhood of \$250,000,000. The Census Bureau reports that all classes of brass, bronze, and copper products from 992 establishments in 1914 amounted to \$162,199,000, and from 1,119 establishments in 1919 amounted to \$487,707,000.

Imports.—Imports of brass and bronze rolling-mill products were \$598,841 in 1914, \$264,725 in 1916, and \$620,881 in 1920.

Exports.—The value of the exports of brass bars, plates, sheets, etc., averaged \$1,000,000 during the fiscal years 1912 to 1914, inclusive, and the value of the exports of all other manufactures of brass averaged \$4,500,000 a year during the same period. The exports of brass bars, plates, sheets, etc., were \$6,149,183 in 1915 and \$121,368,019 in 1917. The exports of all other manufactures of brass were \$12,819,373 in 1915 and \$259,980,247 in 1917. The exports of manufactures of bronze were \$333,589 in 1915 and \$1,586,553 in 1917. In 1920, Canada, Netherlands, and Brazil and Argentina were the principal countries of destination. During the war period large quantities were shipped to France, Italy, and even England, but with the resumption of European production on a peace basis, this trade largely disappeared. Statistics for the calendar years 1918 to 1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------------|-------------|-------------|-------------|---------------------|
| Brass bars, plates, sheets, etc.: | | | | |
| Quantity (pounds)..... | 30,989,717 | 7,770,671 | 5,810,783 | 2,425,680 |
| Value..... | \$9,532,934 | \$2,310,561 | \$1,671,608 | \$649,724 |
| Brass pipes and fittings..... | \$1,187,336 | \$1,413,875 | \$2,141,217 | \$892,084 |

Principal countries of destination were: In 1918, Italy, France, Canada, United Kingdom; in 1919, Canada, Italy, Denmark, Brazil, France; in 1920, Canada, Netherlands, Argentina, Brazil.

Important changes in classification.—All of the articles in paragraph 147 of the act of 1913 appear in one classification. In H. R. 7456 there are eight groups. Copper strips, pipes, and copper bottoms have been omitted. All of the paragraph beginning with copper engravers' plates, not ground, except sheathing, has been added.

Suggested changes.—Page 71, line 25, of H. R. 7456: Change "engraver's" to "engravers" to agree with usual practice.

Specific provision might be made in this paragraph for nickel silver sheets and strips and rods

PARAGRAPH 379.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 379. Bronze powder, powdered tin, brocades, flitters, and metallics, 16 cents per pound; bronze, or Dutch metal, or aluminum, in leaf, 8 cents per one hundred leaves. The foregoing rate applies to leaf not exceeding in size the equivalent of five and one-half by five and one-half inches; additional duties in the same proportion shall be assessed on leaf exceeding in size said equivalent.

ACT OF 1909.

ACT OF 1913.

PAR. 175. Bronze powder, brocades, flitters, and metallics, twelve cents per pound; bronze, or Dutch-metal or aluminum, in leaf, six cents per one hundred leaves.

PAR. 146. Bronze powder, brocades, flitters, and metallics; bronze, or Dutch-metal or aluminum, in leaf, 25 per centum ad valorem.

BRONZE POWDER, ETC.

Description and uses.—Bronze powder is a pulverized metal varying in color from pale yellow to dark red; the color depends chiefly upon the proportions of the copper and zinc. It is sometimes made from brass clippings, or "schrote," which are hammered for hours to reduce them to a powder. Brocades are of the same quality with the same uses. (G. A. 5113, T. D. 23635; of 1902.) Metallics or metallic flitters consist of small particles of lame, used chiefly for the manufacture of wall paper. Flitters are made by reducing thin sheets of brass to flakes; this material is sprinkled over surfaces to produce a sparkling effect. They differ from bronze powder only in that the latter has been hammered for a much longer period and is, therefore, more finely divided and more expensive. Aluminum bronze powder is a silvery pigment made by powdering aluminum foil; this foil is often substituted for tin foil for wrapping food products, teas, soap, chewing gum, and similar articles. The powder is used in the manufacture of certain explosives. The various bronze powders are used chiefly with a size or in oil, as a pigment in finishing brass beds, gilt frames, radiators, and other articles in imitation of gold or silver. Dutch metal in leaf is produced from Dutch metal, a high-copper brass containing about 80 per cent of copper, by rolling or beating into sheets of the required thinness; it is also used as an imitation of gold leaf.

Production.—Prior to the war about one-half the domestic supply of bronze powders came from five plants, most of which were situated near New York; the remainder was imported. During the war, domestic production increased so as to supply all domestic requirements and leave a small surplus for export. The number of plants increased from five to nine. Whereas, normally, American plants have the advantage as regards cost of raw material, large accumulations of scrap metals have since the war given an added advantage to the German producers, who shipped large quantities of bronze powder to this country in 1920 and 1921 at prices materially lower than American costs of production as reported to the Tariff Commission by the manufacturers. It has been stated that 65 to 70 per

cent of the cost of bronze powder is represented by the cost of producing the schrote or thin brass clippings.

The production of bronze and aluminum leaf in this country is negligible. Germany is the center of the industry which is largely a household occupation. Aluminum leaf was made in the United States prior to 1911, but its manufacture was discontinued before the outbreak of the war and was not revived even when prices increased.

Imports of bronze powder, etc., in 1914 were 1,403,091 pounds, valued at \$406,849. The import of Dutch metal in leaf was 792,578 packs (100 leaves to the pack), valued at \$110,316. The 1914 figures are fairly representative of the prewar importations. The imports of aluminum leaf decreased after 1910 to only \$141 in 1914. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

BRONZE POWDER, BROCADES, FLITTERS, AND METALLICS.

| | Pounds. | | | Per cent. |
|----------------------|---------|----------|---------|-----------|
| 1918..... | 34,412 | \$10,105 | \$4,776 | 25 |
| 1919..... | 16,596 | 24,038 | 6,000 | 25 |
| 1920..... | 511,133 | 220,293 | 57,323 | 25 |
| 1921 (9 months)..... | 545,302 | 185,536 | | |

BRONZE OR DUTCH METAL IN LEAF.

| | 100 leaves. | | | |
|----------------------|-------------|----------|----------|----|
| 1918..... | 313,748 | \$96,914 | \$24,228 | 25 |
| 1919..... | 157,258 | 46,698 | 11,674 | 25 |
| 1920..... | 296,000 | 87,595 | 21,899 | 25 |
| 1921 (9 months)..... | 103,243 | 19,267 | | |

ALUMINUM LEAF.

| | | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | 68,545 | \$15,193 | \$3,798 | 25 |
| 1919..... | 74,665 | 15,382 | 3,846 | 25 |
| 1920..... | 263,289 | 69,233 | 17,308 | 25 |
| 1921 (9 months)..... | 83,785 | 18,741 | | |

Exports.—None recorded.

Important changes in classification.—The act of 1913 provided an ad valorem rate of duty on all these articles, which were grouped together. Powdered tin has been inserted in H. R. 7456, and the paragraph has been divided into two groups with a specific rate of duty for each, and the size of the leaf specified.

PARAGRAPH 380.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 380. Gold leaf, 50 cents per one hundred leaves. The foregoing rate applies to leaf not exceeding in size the equivalent of three and three-eighths by three and three-eighths inches; additional duties in the same proportion shall be assessed on leaf exceeding in size said equivalent.

ACT OF 1909.

PAR. 177. Gold leaf, thirty-five cents per one hundred leaves. The foregoing rate applies to leaf of not exceeding in size the equivalent of three and three-eighths by three and three-eighths inches; additional duties in the same proportion shall be assessed on leaf exceeding in size said equivalent.

ACT OF 1913.

PAR. 148. Gold leaf, 35 per centum ad valorem.

GOLD LEAF.

Description and use.—Gold leaf is obtained by hammering thin sheets of gold between the leaves of a book. Ten or more colors are produced by melting pure gold with various alloying metals. The resulting bullion is cast into bars, which are rolled out into ribbon-like strips; these ribbons are cut into pieces of the requisite size (1 inch square), placed between leaves of vellum, and the whole, bound in leather covers, is beaten with a hammer. The thin sheets are then taken out, cut to a size, interleaved with goldbeater's skin, bound in a goldbeater's mold (par. 1574), and again beaten. There are three such beatings, all by hand. The finished leaf is cut into sheets $3\frac{1}{4}$ inches square, and 25 leaves are placed in a book, which measures $3\frac{1}{4}$ by $3\frac{1}{4}$ inches. Twenty of these books make a pack (500 leaves). The leaf is used for gilding, especially for window signs, decorating, bookbinding, and dental purposes.

Production.—There were 79 establishments producing gold leaf in 1914, about one-half in New York. Certain of these manufactured some silver leaf, also some composition leaf. The total value of the product, gold and silver leaf, was \$2,432,000, and the cost of materials used was \$1,452,000. Manufacturers state that because of high wages they can not beat the gold out thin, and that the cost of making bullion is therefore greater here than in the foreign countries.

Imports of gold leaf were \$32,482 in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------------------|---------|--------|------------------|
| | <i>100 leaves.</i> | | | <i>Per cent.</i> |
| 1918..... | 2,110 | \$1,160 | \$406 | 35 |
| 1919..... | 59 | 43 | 15 | 35 |
| 1920..... | 44,502 | 31,868 | 11,154 | 35 |
| 1921 (9 months)..... | 38,000 | 50,063 | | |

Exports.—No domestic gold leaf is exported, but some foreign leaf is made up into rolls and exported to Canada, with benefit of drawback.

Important changes in classification.—The provision for size of leaf is new.

PARAGRAPH 381.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 381. Silver leaf, 5 cents per one hundred leaves.

ACT OF 1909.

ACT OF 1913.

PAR. 178. Silver leaf, ten cents per one hundred leaves.

PAR. 149. Silver leaf, 30 per centum ad valorem.

SILVER LEAF.

Description and uses.—Silver leaf or foil is made by beating, as in manufacturing gold leaf (par. 380), but is in much less common use. Statistics of domestic production are included in those for gold leaf, as the entire output is from establishments producing gold leaf.

Production.—Silver leaf is now a minor product, as aluminum leaf is used instead.

Imports of silver leaf in 1914 were 6,814 packs, valued at \$4,353, double the quantity for 1913. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------------------|--------|-------|------------------|
| | <i>100 leaves.</i> | | | <i>Per cent.</i> |
| 1919..... | 705 | \$585 | \$179 | 30 |
| 1920..... | 11,525 | 3,681 | 1,179 | 30 |
| 1921 (9 months)..... | 375 | 254 | | |

Exports.—No silver leaf is exported.

Suggested changes.—Page 72, line 20 of H. R. 7456: Should there not be a provision for the size of the leaf as in the case of leaves provided for in paragraphs 379 and 380?

PARAGRAPH 382.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 382. Tinsel wire, lame or lahn, made wholly or in chief value of gold, silver, or other metal, 10 cents per pound and 30 per centum ad valorem; bullions and metal threads made wholly or in chief value of tinsel wire, lame or lahn, 10 cents per pound and 35 per centum ad valorem; ribbons, beltings, toys, and other articles made wholly or in chief value of tinsel wire, lame or lahn, and india rubber, bullions, or metal threads, not specially provided for, 45 per centum ad valorem; woven fabrics, fringes, and tassels, made of any of the foregoing, 55 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 179. Tinsel wire, lame or lahn, made wholly or in chief value of gold, silver, or other metal, five cents per pound; bullions and metal threads, made wholly or in chief value of tinsel wire, lame or lahn, five cents per pound and thirty per centum ad valorem; fabrics, * * * ribbons, beltings, * * * toys, or other articles, made wholly or in chief value of tinsel wire, lame or lahn, bullions, or metal threads, fifteen cents per pound and sixty per centum ad valorem.

PAR. 150. Tinsel wire, lame or lahn, made wholly or in chief value of gold, silver, or other metal, 6 per centum ad valorem; bullions and metal threads, made wholly or in chief value of tinsel wire, lame or lahn, 25 per centum ad valorem; fabrics, ribbons, beltings, toys, or other articles, made wholly or in chief value of tinsel wire, lame or lahn, or of tinsel wire, lame, or lahn, and india rubber, bullions, or metal threads, not specially provided for in this section, 40 per centum ad valorem.

TINSEL WIRE, ETC.

Description and uses.—Tinsel wire, lame or lahn, and bullion: "The testimony discloses the fact that both lame or lahn, and bullions, begin their existence in the form of tinsel wire. This is round wire composed principally of copper or brass, and usually coated with a bright metal, such as gold, silver, bronze, or foil. The article in this form is well known under the name of tinsel wire in trade and commerce and also in tariff nomenclature, and is devoted to various distinctive uses.

"Lame or lahn is produced by drawing the round tinsel wire through metal rollers, whereby it is flattened into various widths. At the same time it is generally subjected to an ornamental corrugating process, or to a coating or coloring process. When thus flattened and corrugated, or coated or colored, the article no longer bears the name of tinsel wire in trade and commerce or in tariff nomenclature, but is known as lame or lahn.

"Bullion is produced by subjecting lame or lahn to a twisting process whereby it is permanently brought to a hollow spiral form. In this form the article no longer bears the name of lame or lahn in trade and commerce or in tariff nomenclature, but passes under the name of bullion only. When imported into this country it is said to come in lengths of a yard or less. When applied to use, it is strengthened by means of a core of cotton or other fibrous thread running lengthwise through its center." (*United States v. Veit*, 8 Ct. Cust. Appls., 290, 292, 293, of 1918.)

Tinsel thread and string are lame or lahn wound around a cotton or silk core. They are used in the manufacture of tinsel fabrics. Tinsel fabrics, products, etc., are articles in which tinsel products, usually lahn or thread, are used to produce a metallic effect in the finished work. The tinsel thread gives a glistening effect and throws the pattern into sharp relief.

Tinsel wire is manufactured into lame or lahn, bullion, threads, and the very flexible electric drop cords. Lame or lahn is wound around a cotton core in the manufacture of tinsel string used to tie fancy bundles, and tinsel thread is used in the manufacture of fabrics and trimmings. It is used direct in the manufacture of Christmas tree ornaments and tinsel decorations for the theatrical profession. Bullions are used in the manufacture of fringes, tassels, and military uniform insignia. Tinsel fabrics and trimmings are used in the manufacture of uniforms and women's wearing apparel, especially in dresses to be worn on the stage.

Production.—There is only a small domestic production of tinsel wire or lame, the consumption being largely supplied by France and Germany. A large proportion of the more finished products is factory made in this country. In Europe much of this work is done in the homes. Prior to the war almost the entire supply of tinsel wire, lames, tinsel threads, and a large part of the toys, ornaments, fabrics, and trimmings were imported. All of these products are now produced in considerable quantities in the United States. There is now one large manufacturer of tinsel wire and two large manufacturers of lames and tinsel thread. The domestic Christmas-tree ornament industry is now capable of supplying the domestic demand for this class of goods.

Imports.—Prior to the war all the tinsel wire and lame, and a large part of the fabrics, toys, and ornaments, made wholly or in part of tinsel, were imported. The imports in 1914 of tinsel wire, lame or lahn were \$146,793; of bullion, metal thread, etc., \$89,448, of fabrics, ornaments, toys, etc., \$657,490. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|-----------|--------|-------|------------------|
| TINSEL WIRE, LAME OR LAHN, MADE WHOLLY OR IN CHIEF VALUE OF GOLD, SILVER OR OTHER METAL. | | | | |

| | Pounds. | | | Per cent. |
|----------------------|---------|----------|---------|-----------|
| 1918..... | | \$97,777 | \$5,867 | 6 |
| 1919..... | 77,636 | 107,186 | 6,431 | 6 |
| 1920..... | 153,854 | 180,897 | 10,854 | 6 |
| 1921 (9 months)..... | 378,154 | 311,486 | | |

BULLIONS AND METAL THREADS, MADE WHOLLY OR IN CHIEF VALUE OF TINSEL WIRE, LAME OR LAHN.

| | | | | |
|----------------------|---------|-----------|----------|----|
| 1918..... | | \$275,204 | \$68,801 | 25 |
| 1919..... | 303,292 | 1,120,396 | 280,099 | 25 |
| 1920..... | 437,639 | 1,176,597 | 294,149 | 25 |
| 1921 (9 months)..... | 263,309 | 557,942 | | |

FABRICS, RIBBONS, BELTING, TOYS, OR OTHER ARTICLES, MADE WHOLLY OR IN CHIEF VALUE OF TINSEL WIRE, LAME OR LAHN, AND INDIA RUBBER, BULLIONS, OR METAL THREADS.

| | Yards. | | | |
|----------------------|-----------|-----------|----------|----|
| 1918..... | | \$155,577 | \$62,231 | 40 |
| 1919..... | 1,138,218 | 900,565 | 363,826 | 40 |
| 1920..... | | 1,276,239 | 510,498 | 40 |
| 1921 (9 months)..... | | 1,293,936 | | |

Exports.—None.

Important changes in classification.—In the act of 1913 there are three groups: first, tinsel wire, lame or lahn, made wholly or in chief value of gold, silver, or other metal; second, bullions and metal threads, made wholly or in chief value of tinsel wire, lame or lahn; and third, fabrics, ribbons, beltings, toys, or other articles, made wholly or in chief value of tinsel wire, lame or lahn, or of tinsel wire, lame, lahn, and india rubber, bullions, or metal threads, not specially provided for. Each group bears an ad valorem rate of duty.

H. R. 7456 places specific and ad valorem rates of duty on each of the first two groups, but retains an ad valorem duty on the third

group. Fabrics are omitted from the third group and classified with the following articles which have been added to the paragraph, all bearing an ad valorem rate of duty; woven fabrics, fringes, and tassels, made of any of the foregoing.

Suggested changes.—Strike out "lahn" because omitted elsewhere in the bill. The act of 1913 provides for articles of tinsel wire or lame, or of tinsel wire, lame and india rubber, bullions or metal threads. Paragraph 382 leaves out articles made wholly or in chief value of tinsel wire or lame.

In this paragraph there is one rate of duty on ribbons, beltings, toys, etc., and another rate on woven fabrics, fringes, and tassels "made of any of the foregoing." It is suggested that these two be combined with one rate of duty, particularly as the cost of manufacture of ribbons and beltings is usually more and not less than that of woven fabrics. In general, the narrower a fabric is made the higher the cost per square yard, and ribbons should, therefore, carry fully as high a rate as woven fabrics. In the act of 1909 (par. 179) specific provision was made for laces, embroideries, braids, galloons, trimmings, and ornaments made wholly or in chief value of tinsel wire, lame or lahn, bullions or metal threads. These enumerations were omitted in the corresponding provision (par. 150) of the act of 1913 and are omitted from paragraph 382 of H. R. 7456. The suggested exclusion of this paragraph from the operation of paragraph 1430 of H. R. 7456 makes advisable specific provision in paragraph 382 for those articles. The absence of the words ornaments or trimmings in paragraph 150 of the act of 1913 led to a decision that trimmings in chief value of lame or bullions, were dutiable as articles composed in chief value of metal (*United States v. Veit*, 8 Ct. Cust. Appls., 290, of 1918).

PARAGRAPH 383.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 383. Quicksilver, 35 cents per pound: *Provided*, That the flasks, bottles, or other vessels in which quicksilver is imported shall be subject to the same rate of duty as they would be subjected to if imported empty.

ACT OF 1909.

PAR. 189. Quicksilver, seven cents per pound. The flasks, bottles, or other vessels in which quicksilver is imported shall be subject to the same rate of duty as they would be subjected to if imported empty.

ACT OF 1913.

PAR. 159. Quicksilver, 10 per centum ad valorem. The flasks, bottles, or other vessels in which quicksilver is imported shall be subject to the same rate of duty as they would be subjected to if imported empty.

QUICKSILVER.

Description and uses.—Quicksilver or mercury, although a metal, is liquid at ordinary temperatures. Practically all the supply comes from sulphide ore, notably cinnabar. The ore is invariably reduced at the mine, therefore is not an article of commerce. In 1917 one-half

of our mercury was used in making blasting caps for high explosives and for drugs and chemicals. It is also extensively used in the hat and fur industry, in thermometers and barometers, in gold and silver amalgamation, and for other purposes.

Production.—Owing to foreign competition, production before the war was decreasing, but war prices again led to an expansion of the industry. In 1905 the United States was the leading producer, with 30,534 flasks of 75 pounds each; this fell to 16,548 flasks in 1914, and rose to 36,159 flasks in 1917. About 66 per cent of the production in 1917 was in California and 33 per cent in Nevada, Oregon, Idaho, Arizona, and Texas. Estimated production for 1921 was 6,339 flasks, of which all but 101 flasks were produced in Texas and California, each State furnishing about one-half of the total. The world's supply in 1913 was about 117,000 flasks, of which Spain produced 31.3 per cent, Italy 25.2 per cent, Austria 20.6 per cent, the United States 17.3 per cent, and other countries 5.6 per cent.

The cost of domestic production before the war was greater than in Spain, Italy, and Austria, because of lower-grade ores and higher labor costs. The domestic ore averages not over 0.5 per cent quicksilver, while that of Spain runs 8 per cent, that of Italy 0.9 per cent, and that of Austria 0.65 per cent.

Imports of quicksilver before 1911 were small, but in 1914 aggregated 444,373 pounds, valued at \$192,609. Later statistics follow.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 503,053 | \$533,408 | \$53,341 | 10 |
| 1919..... | 797,613 | 791,226 | 79,123 | 10 |
| 1920..... | 1,062,647 | 971,510 | 97,151 | 10 |
| 1921 (9 months)..... | 528,003 | 329,145 | | |

Exports.—Prior to 1910 the United States made rather large exports of mercury. This situation was reversed in 1911. Exports dwindled to about 300 flasks, compared with an average of over 4,200 flasks shipped annually during the preceding four years. Soon after the outbreak of the war exports began to increase rapidly. The exports in 1917 of 850,603 pounds were the greatest in the history of the industry. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 232,346 | 683,004 | 116,493 | 16,067 |
| Value..... | \$338,620 | \$817,328 | \$129,993 | \$10,992 |

The principal countries of destination were: In 1919, Japan, Hongkong, Sweden, Canada, Denmark; in 1920, Japan, Canada, British India, Cuba, Peru.

PARAGRAPH 384.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 384. New types, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 191. * * * new types, twenty-five per centum ad valorem.

PAR. 160. * * * types, 15 per centum ad valorem.

TYPES.

Description and use.—Types are slugs of metal containing on one end raised dies of letters, figures, or typographical signs. They are used for setting up type composition for printing; or as a form from which a stereotype or electrotype impression is taken.

Production.—There were 31 establishments engaged in type founding in 1914, with a production valued at \$2,320,000. Domestic output exceeds consumption.

Imports.—Imports of type from all sources are small, and consist mainly of special fonts for foreign-language publications. They are derived principally from Germany, Japan, and China. Imports of new type in 1914 were 50,343 pounds, valued at \$9,866. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 15,600 | \$4,069 | \$610 | 15 |
| 1919..... | 17,657 | 5,749 | 862 | 15 |
| 1920..... | 35,016 | 10,694 | 1,604 | 15 |
| 1921 (9 months)..... | 22,633 | 12,021 | ..... | ..... |

Exports of type amounted to 614,421 pounds, valued at \$219,491, in 1914. Later statistics by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 276,091 | 626,634 | 646,639 | 434,353 |
| Value..... | \$145,428 | \$320,718 | \$341,697 | \$298,430 |

The principal countries of destination were: In 1919, Canada, Mexico, Cuba, United Kingdom, Argentina; in 1920, Canada, Mexico, Cuba, Philippine Islands, and Peru.

Important changes in classification.—"Types" has been changed to "new types," and "type metal" has been transferred to paragraph 389.

PARAGRAPH 385.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 385. Nickel, nickel oxide, alloy of any kind in which nickel is the component material of chief value, in pigs or ingots, or similar forms, 5 cents per pound; in bars, rods, plates, sheets, strips, strands, anodes, or electrodes, 30 per centum ad valorem.

ACT OF 1909.

PAR. 185. Nickel, nickel oxide, alloy of any kind in which nickel is a component material of chief value, in pigs, ingots, bars, rods, or plates, six cents per pound; sheets or strips, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 155. Nickel, nickel oxide, alloy of any kind in which nickel is a component material of chief value, in pigs, ingots, bars, rods, or plates, 10 per centum ad valorem; sheets or strips, 20 per centum ad valorem.

NICKEL.

Description and uses.—The principal use of nickel is in alloys of which nickel steel is the most important, absorbing one-half the output. Nickel is also used in cheap jewelry (particularly watches), in German silver, nickel plating, laboratory appliances, and cooking and table utensils. Nickel oxide is used in Edison storage batteries and in the manufacture of glass. The salts are largely used in electroplating; also in the hydrolysis of fats into solids suitable for soap making, etc. Nickel ingots, bars, rods, and plates are the raw materials from which wire (round, square, and flat) is made. Plates are used also in electroplating. Sheets and strips are the relatively thin forms of nickel. To distinguish sheets from strips arbitrary lines of demarcation have been adopted by the Treasury Department, as follows: Sheet, over 7 inches in width and 0.14 inch or less in thickness; strip, 7 inches and under in width and $\frac{1}{16}$ inch and under in thickness. Thin sheets of nickel are welded on sheet iron and steel, and are said to wear better than electroplated sheets.

Production.—The United States produces no nickel from domestic materials except as a by-product of copper refining. The production from this source in 1918 was 882,000 pounds, valued at \$401,000. This country is, however, the greatest producer of refined nickel in the world, with an output of about 70,000,000 pounds per year by one eastern company which easily dominates the industry through the ownership of the largest Canadian mines and smelters and by its large refining works in New Jersey. In 1918 the company began refining some of its nickel in Canada. Canadian nickel is also refined in Wales, and French company produces nickel from New Caledonian ores and matte. The latter is also employed by a smaller American producer of the metal. The production of nickel in 1914 was 35,098,958 pounds, valued at \$12,284,625, and in 1915 was 56,566,890 pounds, valued at \$22,626,756. The production of nickel oxide in 1914 was 1,692,000 pounds and in 1915 was 2,764,000 pounds. The production of nickel as a by-product in the electrolytic refining of copper was 846,000 pounds in 1914, valued at \$413,000 and 1,644,000 pounds in 1915, valued at \$538,222.

Imports.—In 1914 nickel, nickel oxide, alloy of any kind in which nickel is a component material of chief value, in pigs, ingots, bars,

rods, or plates, was imported to the amount of 109,213 pounds, valued at \$44,146. Imports of sheets and strips amounted to \$6,851 in the fiscal year 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

NICKEL OXIDE.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|---------|---------|-------|-----------|
| 1918..... | 10,902 | \$3,221 | \$322 | 10 |
| 1919..... | 1,078 | 324 | 32 | 10 |
| 1920..... | 216 | 65 | 6 | 10 |
| 1921 (9 months)..... | 22,347 | 6,432 | | |

NICKEL AND ALLOYS OF ANY KIND, ETC., IN PIGS, INGOTS, BARS, RODS, OR PLATES.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|-----------|-----------|---------|-----------|
| 1918..... | 40 | \$8 | \$1 | 10 |
| 1919..... | 7,256,992 | 2,553,030 | 255,303 | 10 |
| 1920..... | 6,905,753 | 2,193,256 | 219,326 | 10 |
| 1921 (9 months)..... | 1,463,503 | 482,381 | | |

NICKEL SHEETS OR STRIPS.

| | Quantity. | Value. | Duty. | Per cent. |
|-----------|-----------|---------|---------|-----------|
| 1918..... | | \$6,881 | \$1,376 | 20 |
| 1919..... | 10,152 | 4,889 | 978 | 20 |

Exports.—Exports in 1914 amounted to 28,895,242 pounds, valued at \$9,403,708. Prior to 1914, exports went chiefly to the Netherlands, France, and the United Kingdom. Exports of nickel, nickel oxide, and matte since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-----------|------------------|
| Quantity (pounds)..... | 17,469,500 | 3,810,656 | 1,215,232 | 425,439 |
| Value..... | \$6,927,041 | \$1,697,544 | \$574,845 | \$103,244 |

The principal countries of destination were, in 1919, France, Japan, United Kingdom, Belgium, Italy; in 1920, Belgium, Japan, Switzerland, France, United Kingdom.

Important changes in classification.—In the act of 1913 (par. 155) the articles mentioned in this paragraph are classified in two groups as follows: First, nickel, nickel oxide, alloy of any kind in which nickel is a component material of chief value, in pigs, ingots, bars, rods, or plates; and second, sheets or strips. In H. R. 7456, bars, rods, and plates have been transferred from the first group into the second group. "Or similar forms" has been added to the first group, and strands, anodes, and electrodes have been added to the second group.

Suggested changes.—Wire is a form of nickel not mentioned here. It has also been suggested that tubes be provided for in this paragraph.

Nickel shot, an important commercial product, might also be mentioned in this paragraph unless it shall be desired to exempt it from duty.

PARAGRAPHS 386.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 386. Tin in bars, blocks or pigs, and grain or granulated and scrap tin, 2 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 695. * * * tin in bars, blocks, pigs, or grain or granulated: * * * [Free].
[See also paragraph 1670, H. R. 7456.]

PAR. 631. * * * tin in bars, blocks, pigs, or grain or granulated, and scrap tin: * * * [Free].
[See also paragraph 1670, H. R. 7456.]

TIN IN BARS, BLOCKS, FIGS, OR GRAIN, OR GRANULATED.

Description and uses.—Tin in bars, blocks, and pigs is commercial tin cast into convenient shapes, and only partially refined. Grain or granulated tin has been tested for its purity at the smelter and is a finer grade. Tin is used chiefly as a protective coating for other metals and in the making of alloys, especially bearing metals and solders. A considerable quantity of pure tin oxide goes into white enamel. By increasing the proportions of lead, aluminum, zinc, antimony, copper, cadmium, and bismuth in alloys of these metals with tin, the latter has been considerably conserved. A complete substitute for tin is not known.

Production.—This is one of the few metals not found in the United States in deposits of sufficient purity and extent to justify a domestic mining industry. Domestic smelters depend upon Bolivian ore and lacking this source of supply would probably be obliged to suspend operations. Ores from all other known deposits of workable size are either inaccessible or are not exported because of prohibitive export taxes or local transportation charges. Less than 100 tons of tin are annually recovered from domestic ore—all of which is from Alaska, whereas the smelter output from imported ores may be taken at about 12,000 tons.

Imports in 1914 of tin in bars, blocks, pigs, or grain or granulated were 100,177,962 pounds, valued at \$39,422,479. Prior to 1915 about one-half were transshipments from England, and only since 1914 have shipments come direct from the Dutch East Indies, with increasing amounts from the Straits Settlements. Later statistics by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|---------------------|
| Quantity (pounds)..... | 142,878,763 | 89,718,525 | 125,590,278 | 34,083,996 |
| Value..... | \$92,259,799 | \$50,908,126 | \$73,440,872 | \$11,175,031 |

These imports came mainly from the Straits Settlements, United Kingdom and Dutch East Indies.

Exports.—Exports of tin in pigs and oxide of tin were 301,213 pounds in 1915; and 798,288 pounds in 1917. Exports of tin in pigs, bars, etc., since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 40,033 | 611,778 | 1,411,151 | 2,125,725 |
| Value..... | \$31,952 | \$416,921 | \$770,375 | \$695,007 |

The principal countries of destination were, in 1919, Russia in Asia, Canada, Mexico, Sweden; in 1920, Canada, Mexico, Cuba, Rumania.

SCRAP TIN.

Description and uses.—Considerable tin is recovered from scrap metals, bronze, solder, pewter, and electrotype metal, and some from old tin cans and containers. Tin plate scrap, now admitted as scrap tin, is specially mentioned in par. 301 of H. R. 7456.

Production.—Practically no clean tin scrap or tinplate clippings are wasted, but it is difficult to collect and transport old tin cans and containers, and with no sale for the residue (black tin plate) the output from this source is greatly curtailed. The tin content of the average tin can and container is about 2 per cent. Detinners formerly recovered from 60 to 70 pounds of tin from a long ton of scrap, but only 40 to 45 pounds are now regained, and from used cans only 29 to 30 pounds. The production of secondary tin was 4,535 tons in 1914 and 7,142 tons in 1918. The production of secondary tin in the form of alloys was 7,912 tons in 1914 and 16,695 tons in 1918. The total value was \$8,887,158 in 1914 and \$41,381,000 in 1918.

Imports in 1914 were 10,778,343 pounds, valued at \$61,490; in 1918, 17,718,044 pounds, valued at \$115,963. These imports, which came mainly from Canada and Mexico, consisted almost wholly of scrap tin-plate (see paragraph 301), and since 1918 have been so designated by the Department of Commerce.

Exports in 1914 were valued at \$75,426; in 1917, at \$140,996. Prior to 1914 scrap tin was exported chiefly to Germany and Belgium; the 1917 exports practically all went to Japan.

Important changes in classification.—These articles were transferred from the Free List of the act of 1913 (par. 631).

PARAGRAPH 387.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 387. Bottle caps of metal, collapsible tubes, and sprinkler tops, if not decorated, colored, waxed, lacquered, enameled, lithographed, electroplated, or embossed in color, 25 per centum ad valorem; if decorated, colored, waxed, lacquered, enameled, lithographed, electroplated, or embossed in color, 40 per centum ad valorem.

ACT OF 1909.

PAR. 196. Bottle caps of metal, if not colored, waxed, lacquered, enameled, lithographed, or embossed in color, one-half of one cent per pound and forty-five per centum ad valorem; if colored, waxed, lacquered, enameled, lithographed, or embossed in color, fifty-five per centum ad valorem.

ACT OF 1913.

PAR. 164. Bottle caps of metal, collapsible tubes, and sprinkler tops, if not decorated, colored, waxed, lacquered, enameled, lithographed, electroplated, or embossed in color, 30 per centum ad valorem; if decorated, colored, waxed, lacquered, enameled, lithographed, electroplated, or embossed in color, 40 per centum ad valorem.

BOTTLE CAPS, COLLAPSIBLE TUBES, ETC.

Description and uses.—Bottle caps may be made of paper or metal. Metal bottle caps may be those familiar on beer and soda-water bottles or the decorative foil caps wound around the cork and tops of wine bottles to keep them air-tight. It is this fine foil cap, made largely of lead, that is referred to here.

Collapsible tubes are the metal containers for tooth paste, photographer's paste, shaving cream, etc., which may be pinched together and rolled up at the bottom to force out the contents at the top.

Sprinkler tops are perforated metal caps or stoppers for bottles from which liquids, such as perfumery and toilet waters, are sprinkled.

Production.—In 1913 four domestic factories, none of them west of Chicago, were manufacturing bottle caps. There were about 100 factories in all Europe—25 each in Germany, France, and Austria. Seven American factories in 1913 manufactured collapsible tubes; two, sprinkler tops; and two others, both collapsible tubes and sprinkler tops. Consumption of bottle caps is estimated to be from 25,000,000 to 50,000,000 caps annually. Production of collapsible tubes was estimated at about \$500,000 in 1913 and in 1920 from \$15,000,000 to \$20,000,000. Production of sprinkler tops was estimated at about \$300,000 in 1913, and at several million dollars in 1920. Automatic machines are used in American bottle-cap factories, but much skilled labor is said to be required in coloring.

Imports.—In 1914, imports of bottle caps, collapsible tubes, and sprinkler tops amounted to \$597,458. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------|--------|-------|------------------|
|----------------|--------|-------|------------------|

BOTTLE CAPS, COLLAPSIBLE TUBES, AND SPRINKLER TOPS; NOT DECORATED, COLORED, ETC.

| | Value. | Duty. | Per cent. |
|----------------------|---------|-------|-----------|
| 1918..... | \$2,666 | \$800 | 30 |
| 1919..... | 254 | 76 | 30 |
| 1920..... | 1,238 | 371 | 30 |
| 1921 (9 months)..... | 1,203 | | |

BOTTLE CAPS, COLLAPSIBLE TUBES, AND SPRINKLER TOPS—DECORATED, COLORED, ETC.

| | Value. | Duty. | Per cent. |
|----------------------|----------|----------|-----------|
| 1918..... | \$26,380 | \$10,538 | 40 |
| 1919..... | 13,992 | 5,597 | 40 |
| 1920..... | 92,996 | 37,198 | 40 |
| 1921 (9 months)..... | 40,057 | | |

Exports.—None recorded.

PARAGRAPH 388.

H. E. 7450.

SENATE AMENDMENTS.

PAR. 388. Lead-bearing ores and mattes of all kinds, 1½ cents per pound on the lead contained therein: *Provided*, That such duty shall not be applied to the lead contained in copper mattes until after two thousand tons of such lead shall have been imported in any one year, to be allocated under rules and regulations to be prescribed by the Secretary of the Treasury: *Provided further*, That on all importations of lead-bearing ores and mattes of all kinds the duties shall be estimated at the port of entry and a bond given in double the amount of such estimated duties for the transportation of the ores or mattes by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores or mattes at such establishments they shall be sampled according to commercial methods under the supervision of Government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a Government assayer, designated by the Secretary of the Treasury, who shall make an assay of the sample by wet assay without deduction and report the result to the proper customs officers, and the import entries shall be liquidated thereon. And the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph.

ACT OF 1909.

PAR. 181. Lead-bearing ore of all kinds, one and one-half cents per pound on the lead contained therein: *Provided*, That on all importations of lead-bearing ores the duties shall be estimated at the port of entry, and a bond given in double the amount of such estimated duties for the transportation of the ores by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores at such establishments they shall be sampled according to commercial methods under the supervision of government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a government assayer, designated by the Secretary of the Treasury, who shall make a proper assay of the sample and

ACT OF 1913.

PAR. 152. Lead-bearing ores of all kinds containing more than 3 per centum of lead, ¾ cent per pound on the lead contained therein: *Provided*, That on all importations of lead-bearing ores the duties shall be estimated at the port of entry, and a bond given in double the amount of such estimated duties for the transportation of the ores by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores at such establishments they shall be sampled according to commercial methods under the supervision of Government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a Government assayer, designated by the Secretary of the Treasury,

ACT OF 1909. ACT OF 1913.

report the result to the proper customs officers, and the import entries shall be liquidated thereon, except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law. And the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph.

who shall make a proper assay of the sample and report the result to the proper customs officers, and the import entries shall be liquidated thereon, except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law. And the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph.

LEAD-BEARING ORES AND MATTES.

(See Survey C-21.)

Description and uses.—The typical lead ore is complex. Most mines produce lead with silver, zinc, and various other metals. Besides supplying metallic lead, the ores are used as carriers in the smelting process for the recovery of gold and silver. Lead sulphate and similar lead pigments are made to an increasing extent directly from the ore. Mattes are mixtures of artificial sulphides produced in smelting. Lead-bearing mattes invariably contain iron and sulphur and generally copper, silver, gold, and other metals in such amount as to exceed the value of the lead contained.

Production.—The United States is the leading producer of lead ore. Australia, Spain, Germany, and Mexico are next in order named. These five countries produce fully 80 per cent of the world's output.

The United States is also the largest consumer of lead metal. Before the war, consumption practically equaled the production. In addition, however, American smelting and refining works produce refined lead derived from foreign (chiefly Mexican) ore and base bullion for export, the output of this lead amounting to about 25 per cent of the domestic business. By virtue of the provision for bonded smelting, this traffic, although frequently carried on with the smelting of domestic ores, is entirely distinct, as far as the tariff is concerned.

Since 1870 production of lead has increased steadily. The output from domestic ores in short tons was, in 1880, 97,825; in 1890, 143,630; in 1900, 270,824; in 1910, 395,313; in 1918, 539,905; and in 1920, 424,433. The capacity of domestic furnaces for smelting lead ore was rated in 1918 at 5,521,000 tons.

Imports and exports.—The lead content of ore imported, 1910 to 1918, inclusive, averaged over 38,000,000 pounds annually. Less than 12½ per cent was imported for consumption by payment of duty, and more than one-half of this amount was exported with benefit of drawback. The average net consumption, therefore, amounted annually to only slightly more than 2,225,000 pounds of lead. Thus in this nine-year period less than 6 per cent of the total lead content of imported ore was actually used in the United States. The total net revenue in the nine-year period was only \$187,766.29, and the average yearly revenue was less than \$21,000.

Practically no lead ore of either domestic or foreign origin is exported from the United States. The lead imported in the form of ore for treatment in bonded works for export does not compete with the

product of domestic mines, except in foreign markets. Until the war, however, practically no lead of domestic origin was exported. The large exports of domestic lead during the war period were a result of war conditions, the curtailment of European supplies from Australia and Spain, and the unprecedented demand.

Broadly speaking, the only countries that compete with domestic output in the domestic ore market are Mexico, Canada, and Chile. Except locally, serious competition comes only from Mexico, but this is becoming less of a factor since the development of smelters in Mexico nearer to the sources of supply. Mexican lead ore, however, is a potential factor. It is of high grade, generally rich in silver, and, except for the duty, can be obtained cheaper than domestic ore. Mexican lead deposits are controlled almost entirely by American companies, chief among which are the American Smelting & Refining Co. and the American Metal Co. Mexico is the only country having large known deposits of lead that is not producing to practically its full economic limit, and which can, therefore, largely increase production.

Imports of lead ore containing more than 3 per cent of lead (lead content) have been, since 1917, as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 6,064,902 | \$344,080 | \$45,476 | ..... |
| 1919..... | 4,196,823 | 196,363 | 30,901 | 15.69 |
| 1920..... | 13,700,499 | 908,619 | 102,754 | 11.81 |
| 1921 (9 months)..... | 5,471,833 | 254,762 | ..... | ..... |

These imports came mainly from Canada and Mexico.

Important changes in classification.—The act of 1913 provides for lead-bearing ores of all kinds containing more than 3 per centum of lead. H. R. 7456 provides for lead-bearing ores of all kinds, and includes "mattes" in the paragraph and also in the proviso. The proviso omits the following words: "except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law" after the words: "and the import entries shall be liquidated thereon." The following is a new provision: "*Provided*, That such duty shall not be applied to the lead contained in copper mattes until after 2,000 tons of such lead shall have been imported in any one year, to be allocated under rules and regulations to be prescribed by the Secretary of the Treasury."

The provision for wet assay without deduction is new. This change will be considered in connection with Title III, Section 315.

PARAGRAPH 389.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 389. Lead bullion or base bullion, lead in pigs and bars, lead dross, reclaimed lead, scrap lead, antimonial lead, antimonial scrap lead, type metal, Babbitt metal, solder, all alloys or combinations of lead not specially provided for, 2½ cents per pound on the lead contained therein; lead in sheets, pipe, shot, glazier's lead, and lead wire, lead in any article or material not specially provided for, 2½ cents per pound.

ACT OF 1909.

PAR. 182. Lead dross, lead bullion or base bullion, lead in pigs and bars, lead in any form not specially provided for in this section, old refuse lead run into blocks and bars, and old scrap lead fit only to be remanufactured; all the foregoing, two and one-eighth cents per pound; lead in sheets, pipe, shot, glaziers' lead and lead wire, two and three-eighths cents per pound.

PAR. 191. Type metal, one and one-half cents per pound on the lead contained therein; * * *

PAR. 649. Pewter and britannia metal, old, and fit only to be remanufactured [Free].

PAR. 702. Types, old, and fit only to be remanufactured [Free].

ACT OF 1913.

PAR. 153. Lead dross, lead bullion or base bullion, lead in pigs and bars, lead in any form not specially provided for in this section, old refuse lead run into blocks and bars, and old scrap lead fit only to be remanufactured: lead in sheets, pipe, shot, glaziers' lead, and lead wire: all the foregoing, 25 per centum ad valorem, on the lead contained therein.

PAR. 160. Type metal, * * * 15 per centum ad valorem.

PAR. 572. Pewter and britannia metal, old, and fit only to be remanufactured [Free].

PAR. 637. Type, stereotype metal, electrotype metal, linotype composition, all of the foregoing, old and fit only to be remanufactured [Free].

LEAD.

(See Survey C-21.)

Description and uses.—The chief consumption of lead is in the form of white lead for paint. Large quantities are used in pipe and sheet, and in shot and bullets; lesser quantities in bearing metals, solders, and other white-metal alloys.

The market grades are (1) desilverized, (2) "soft," and (3) antimonial lead. Lead bullion or base bullion is metallic lead containing gold and silver, differing from market lead in that it must be desilverized or refined. Lead pigs and bars—usually about 3 feet long and weighing from 80 to 110 pounds—includes all merchantable forms of pig lead whether virgin (produced direct from ore) or of secondary origin, and whether soft, desilverized, or base bullion. Lead dross, made in recovering the metal from its ores, is valueless except as a source of lead and the minor amounts of other metals which it may contain. The chief source of antimonial lead (provided for in the act of 1913 as "type metal") is from the refining of lead bullion; as the name implies, it is lead alloyed with a certain amount of antimony. Type metal is an alloy of lead and antimony with small amounts of tin and is used for the manufacture of type. Babbitt metal is representative of a large group of bearing metals

containing lead and antimony to which may be added copper, zinc, or other metallic substances. Solder, an alloy of tin and lead, is used for joining metals together.

Production.—The United States is the largest producer and consumer of lead. Since 1875 it has been practically independent of foreign supplies, with a domestic production very nearly equal to consumption. Although large amounts appear in the import statistics, little foreign lead is ultimately absorbed in the United States, as most of the ore and base bullion imported is treated in bonded works without payment of duty, and the larger part of the imports upon which duty is paid is eventually reexported, generally with benefit of drawback. For instance, we carry on a large smelting and refining business in bond, treating by far the greater part of the Mexican output. In 1918 more than 550,000 tons of lead were obtained from domestic ore, and 109,159 tons from foreign ore, the total output being 659,888 tons, valued at more than \$97,000,000. The 1917 output was 635,669 tons, worth about \$112,000,000. The value of the products of the lead smelting and refining industry, including the gold, silver, and copper contents of the ores and bullion treated, was \$171,579,000 in 1914 and \$192,655,000 in 1919, an increase of \$21,076,000, or 12.3 per cent. The value of products of smelting only was \$64,695,000 in 1914 and \$70,973,000 in 1919. The value of products of refining was \$107,884,000 in 1914 and \$121,862,000 in 1919. Primary lead smelted or refined was valued at \$563,810 in 1914, as compared with \$485,112 in 1919. Utah is the leading State in the industry.

Smelting and refining are centralized in a few strong companies, almost one-half the output of refined metal being controlled by one large producer. The independent producing companies are highly integrated, have ample capital, and substantial ore supplies.

The production of antimonial lead from domestic ore was 19,371 tons in 1915 and 10,777 tons in 1918. Production from foreign ores for the same years was 3,853 tons and 7,793 tons, respectively. The production of alloys of lead in 1914 was valued at \$19,179,976.

Imports.—Of the various forms in which lead is imported, the most important is base bullion. In the fiscal year 1918 the maximum importation of pigs, bars, etc., was over 19,000,000 pounds, which compares with 150,000,000 pounds of lead in base bullion. In 1913 and 1914 only a few hundred thousand pounds were imported, showing an enormous fluctuation in the imports of both classes of the metal. This was due largely to political conditions in Mexico, the only important country of origin of both classes of imports. The imports from all other countries are small and, excepting those from Canada, sporadic. Mexican lead is refined in bond and shipped chiefly to Great Britain.

Practically the entire imports of antimonial lead or type metal are produced in bonded smelting works from the refining of imported lead base bullion, mainly from Mexico. The type metal is withdrawn for consumption, as provided for in Section IV, paragraph N, subsection 1, of the act of 1913. Imports have fluctuated widely; the maximum was in 1907, nearly 12,000 tons of antimonial lead, valued at more than \$1,300,000. There were no imports in 1916, and 105 pounds, valued at \$20, in 1918. The imports of type metal fit only to be remanufactured were 329,825 pounds, valued at \$20,822, in

1913, and 16,964 pounds, valued at \$1,621, in 1918. The imports of sheets, pipes, shot, glaziers' lead, lead wire, and other manufactures were \$63,512 in 1915 and \$13,841 in 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

LEAD BULLION OR BASE BULLION (LEAD CONTENT).¹

| | Pounds. | \$180,070 | \$45,017 | Per cent. |
|----------------------|------------|-----------|----------|-----------|
| 1918..... | 3,559,071 | 1,130,937 | 282,794 | 25 |
| 1919..... | 31,796,693 | 3,340,600 | 835,150 | 25 |
| 1920..... | 66,818,820 | 1,531,701 | | |
| 1921 (9 months)..... | 50,923,348 | | | |

LEAD IN PIGS AND BARS, LEAD IN ANY FORM N. S. P. F., OLD REFUSE LEAD RUN INTO BLOCKS AND BARS, AND OLD SCRAP LEAD FIT ONLY TO BE REMANUFACTURED (LEAD CONTENT).¹

| | | \$56,694 | \$13,994 | |
|----------------------|------------|-----------|----------|----|
| 1918..... | 1,139,950 | 415,094 | 103,773 | 25 |
| 1919..... | 10,174,115 | 3,887,921 | 971,956 | |
| 1920..... | 68,901,959 | 1,815,055 | | |
| 1921 (9 months)..... | 56,555,873 | | | |

LEAD SHEETS (LEAD CONTENT).¹

| | | \$449 | \$112 | |
|----------------------|-------|-------|-------|----|
| 1919..... | 5,995 | 27 | 7 | 25 |
| 1920..... | 189 | 30 | | 25 |
| 1921 (9 months)..... | 300 | | | |

LEAD PIPE (LEAD CONTENT).¹

| | | \$624 | \$156 | |
|-----------|--------|-------|-------|----|
| 1918..... | 6,892 | 149 | 37 | 25 |
| 1919..... | 1,875 | 5,456 | 1,364 | 25 |
| 1920..... | 81,207 | | | |

LEAD SHOT, GLAZIER'S LEAD, AND LEAD WIRE (LEAD CONTENT).¹

| | | \$30 | \$7 | |
|----------------------|-----|------|-----|----|
| 1919..... | 148 | 25 | | 25 |
| 1921 (9 months)..... | 822 | | | |

TYPE METAL (LEAD CONTENT).¹

| | | \$35,938 | \$5,391 | |
|----------------------|------------|-----------|---------|----|
| 1918..... | 513,166 | 816,642 | 122,496 | 15 |
| 1919..... | 11,000,498 | 1,349,495 | 202,424 | 15 |
| 1920..... | 25,761,543 | 1,108,217 | | 15 |
| 1921 (9 months)..... | 39,208,543 | | | |

PEWTER AND BRITANNIA METAL, OLD AND FIT ONLY TO BE REMANUFACTURED.¹

| | | \$10,729 | | |
|----------------------|--------|----------|--|--|
| 1918..... | 26,129 | 2,401 | | |
| 1919..... | 13,607 | 1,640 | | |
| 1920..... | 3,995 | 362 | | |
| 1921 (9 months)..... | 2,904 | | | |

TYPE, STEREOTYPE AND ELECTROTYPE METAL, AND LINOTYPE COMPOSITION, OLD AND FIT ONLY TO BE REMANUFACTURED.¹

| | | \$8 | | |
|----------------------|--------|--------|--|--|
| 1918..... | 100 | 1,068 | | |
| 1919..... | 10,968 | 1,194 | | |
| 1920..... | 11,212 | 66,600 | | |
| 1921 (9 months)..... | 32,279 | | | |

¹ These imports came principally from Mexico, Canada, and France.
² Canada and Mexico furnished the greater part of these imports.

Exports.—For 10 years prior to 1914 there are no records of the export of domestic pig lead. However, domestic smelters were treating and exporting a considerable tonnage of foreign lead. A large amount of domestic lead was exported during the war period. In the fiscal year 1918, more than 107,000 tons of pig lead (from both foreign and domestic ore), valued at \$17,400,000, were exported, the maximum of domestic lead being 96,500 tons in 1915.

No appreciable quantity of antimonial lead or type metal is exported. The exports of Babbitt metal were 1,010,651 pounds, valued at \$181,958 in 1914. Later exports for the calendar years 1918 to 1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|--|-------------|-------------|-------------|--------------------|
| Lead pigs, bars, etc., produced from domestic ore: | | | | |
| Quantity (pounds)..... | 83,662,322 | 21,019,605 | 5,459,713 | 976,321 |
| Value..... | \$5,839,381 | \$1,471,256 | \$462,223 | \$63,340 |
| Lead pigs, bars, etc., produced from foreign ore: | | | | |
| Quantity (pounds)..... | 108,568,854 | 81,016,588 | 33,683,553 | 28,371,806 |
| Value..... | \$7,605,403 | \$4,479,723 | \$2,486,576 | \$1,292,649 |
| Babbitt metal: | | | | |
| Quantity (pounds)..... | 2,240,193 | 2,188,164 | 2,371,906 | 631,961 |
| Value..... | \$350,332 | \$718,223 | \$907,476 | \$160,968 |

The principal countries of destination in 1920 were Brazil, Japan, Canada, the United Kingdom, Cuba, the Netherlands, Argentina, Mexico, and the Philippine Islands.

Important changes in classification.—Antimonial lead, antimonial scrap lead, type metal, Babbitt metal, and solder have been included in this paragraph. Type metal is transferred from a separate paragraph in the act of 1913 (par. 160). The rate of duty has been changed from ad valorem to specific.

Pewter and Britannia metal, old and fit only to be remanufactured (par. 572), and type, stereotype metal, electrotype metal, linotype composition, old and fit only to be remanufactured (par. 637), are transferred from the free list of the act of 1913.

The provision for "lead in any article or material not specially provided for" is new.

Conflicting provisions.—The added provision "lead in any article or material not specially provided for" conflicts with the provision in paragraph 393 for manufactures wholly or in chief value of lead, not specially provided for.

Suggested changes.—No provision is made for duties on alloys used with lead in any of the articles provided for in this paragraph. One-half of solder is ordinarily tin.

There is doubt whether the 2½ cents per pound is to be imposed on the lead or on the total weight of the sheets and pipe and articles thereafter enumerated. The main bracket specifically imposes duty on lead in pigs, etc., on the lead content. If the intention is to impose duty on the lead content of lead in sheets, etc., it is suggested that the words "on the lead contained therein" be inserted after the word "pound" in line 6, page 75. If, on the other hand, the intention is to impose duty on the gross weight, it is suggested that the words "on the gross weight of the sheets or other articles or materials" be inserted after the word "pound" in line 6, page 75.

PARAGRAPH 390.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 390. Zinc-bearing ore of all kinds, containing less than 10 per centum of zinc, shall be admitted free of duty; containing 10 per centum or more of zinc and less than 20 per centum, one-half of 1 cent per pound on the zinc contained therein; containing 20 per centum or more of zinc and less than 25 per centum, 1 cent per pound on the zinc contained therein; containing 25 per centum of zinc, or more, 1½ cents per pound on the zinc contained therein: *Provided*, That on all importations of zinc-bearing ores the duties shall be estimated at the port of entry, and a bond given in double the amount of such estimated duties for the transportation of the ores by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores at such establishments they shall be sampled according to commercial methods under the supervision of Government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a Government assayer, designated by the Secretary of the Treasury, who shall make an assay of the sample by wet assay without deduction and report the result to the proper customs officers, and the import entries shall be liquidated thereon. And the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph.

ACT OF 1909.

PAR. 198. Zinc-bearing ore of all kinds, including calamine, containing less than ten per centum of zinc, shall be admitted free of duty; containing ten per centum or more of zinc and less than twenty per centum, one-fourth of one cent per pound on the zinc contained therein; containing twenty per centum or more of zinc and less than twenty-five per centum, one-half of one cent per pound on the zinc contained therein; containing twenty-five per centum of zinc, or more, one cent per pound on the zinc contained therein: *Provided*, That on all importations of zinc-bearing ores the duties shall be estimated at the port of entry, and a bond given in double the amount of such estimated duties for the transportation of the ores by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of

ACT OF 1913.

PAR. 162. Zinc-bearing ores of all kinds, including calamine, 10 per centum ad valorem upon the zinc contained therein: *Provided*, That on all importations of zinc-bearing ores the duties shall be estimated at the port of entry, and a bond given in double the amount of such estimated duties for the transportation of the ores by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores at such establishments they shall be sampled according to commercial methods under the supervision of Government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a Government assayer, designated by the Secretary of the Treasury, who shall make a proper assay of the sample and report the result to the proper custom officers, and the import entries

ACT OF 1909.

the ores at such establishments they shall be sampled according to commercial methods under the supervision of government officers, who shall be stationed at such establishments, and who shall submit the samples thus obtained to a government assayer, designated by the Secretary of the Treasury, who shall make a proper assay of the sample, and report the result to the proper customs officers, and the import entries shall be liquidated thereon, except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law. And the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph.

ACT OF 1913.

shall be liquidated thereon, except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law. And the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph.

ZINC-BEARING ORES.

(See Survey C-17.)

Description and uses.—Zinc ores separate into the following classes: (1) Calamine or carbonate ore and concentrates, approximately 40 per cent zinc with small amounts of other metallic elements; (2) blende or sulphide ores and concentrates, approximately 60 per cent zinc with small amounts of other metallic elements; (3) sulphide ores and concentrates, Rocky Mountain products averaging between 38 and 50 per cent zinc with relatively high content of iron and sulphur; (4) complex sulphide ores containing up to 35 per cent zinc, but averaging about 20 to 25 per cent of zinc associated with other metals besides iron, and including lead or copper. Unusual varieties of zinc minerals are found in important quantities only at Franklin Furnace, N. J., a deposit unique in the character of its ores which are used in the production of zinc oxide and of zinc metal of exceptional purity. It is operated by one company and is not a factor in the general consideration of the industry.

Ores of the first two classes rarely have any precious-metal value; class 3 usually contains some precious metal; while class 4 almost invariably carries precious metal. The first three classes are smelted for the production of spelter; the fourth class is a middling product usually sold to concentrating plants for further mechanical separation. More recently a market has begun to develop for such ores in making electrolytic zinc and for igneous concentration. In the Missouri ore schedule only two classes of ore are distinguished. Blende is sold on the basis of a 60 per cent zinc content, calamine on a basis of 40 per cent. The chief use of zinc ores is in the manufacture of spelter (zinc metal), but an increasingly large amount is used domestically for the direct manufacture of zinc oxide and other pigments and zinc dust. A large tonnage of sulphuric acid is derived as a by-product in the making of spelter from blende.

Production.—The United States is the largest producer of zinc ore, as well as of metal, other countries producing in the following order in 1917: Germany, Australia, Mexico, Canada, Italy, Japan, Spain, Siberia, and India. The greater part of the zinc resources as well as reduction works of Germany are transferred to the new State of Poland. Domestic proportion of the world's output has increased

from about 20 per cent in the early nineties to about 60 per cent during the war. The output of domestic zinc mines in 1917 was 710,972 short tons—eight times the annual output of 25 years ago, increasing by over 50 per cent since 1914. It was estimated at 627,100 short tons in 1918.

Zinc mining as well as smelting has been peculiarly free from large combinations of capital, and with the exception of perhaps a half dozen exceptionally large producers, most of the zinc mines are operated independently. Zinc production was reported from 23 States in 1917. Over 80 per cent of the total output, however, came from six districts, namely: (1) Missouri, Kansas, and Oklahoma; (2) New Jersey; (3) Montana; (4) Wisconsin; (5) Colorado; and (6) Idaho. The first is the largest producing region in the world, in recent years yielding about one-seventh of the total output.

Since the location of zinc-reduction works is determined by availability of fuel and labor supply rather than by proximity to ore deposits, zinc ore and concentrates are transported long distances. The ore from North American mines must be transported largely by rail, the ores of other countries by water, thus Australian concentrates normally go to European works for treatment. Geographical position constrains Mexico and Canada—until very recently the only countries shipping us ore—to market their ores in the United States. Except for South America, whose resources are not yet gauged, they alone are likely to compete actively in our zinc-ore markets. Few of the Canadian mines possesses advantages over those located adjacently in the United States, costs of labor and supplies being nearly the same. The Canadian mines are not much richer and are a little farther away from smelting centers. In Mexico, however, there are large deposits of high-grade zinc ore which eventually may provide enormous supplies at extremely low cost. Despite the high freight rates, the low cost of production makes it possible to deliver the ore at Mississippi Valley smelteries for less than much of the output from our mines, even of that section.

Imports.—Mexico is the most important exporter of ore to the United States. The quantity greatly increased until the disturbances in 1911. The most important factor aside from market conditions is the Mexican situation, which involves large potential tonnage. The average annual customs on the zinc contents of all ore during 1910–1918 was \$146,136.72, deducting the drawbacks. The average annual net consumption of foreign ore (zinc content) during this nine-year period was 16,698 short tons, the average general import being 44,742 tons. In the fiscal year 1918 the total was 24,809 short tons of which 18,426 tons came from Mexico and 5,173 tons from Canada. The general imports were 7,242 tons in 1914, and 127,433 tons in 1916. Later imports of zinc ore, including calamine (zinc contents) have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 17,001,228 | \$291,449 | \$29,145 | 10 |
| 1919..... | 5,956,491 | 119,540 | 11,954 | 10 |
| 1920..... | 13,942,878 | 198,156 | 19,816 | 10 |
| 1921 (9 months)..... | 18,512,603 | 246,634 | | |

The imports came mainly from Mexico and Canada.

Exports.—All the domestic ore exported is high-grade willemite from New Jersey, used for high-grade spelter in Europe. From 1910 to 1915 exports of zinc ore ranged from 15,000 to 20,000 tons; in 1915 they declined to some 3,000 tons, and in the fiscal year 1917 to 71 tons, but increased in 1918 to 1,203 tons.

Important changes in classification.—"Calamine" has been omitted from this paragraph as unnecessary and the following words have been omitted from the proviso: "except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law." The duty is ad valorem in the act of 1913. H. R. 7456 provides a graduated scale of specific rates depending upon the per centum of zinc contained in the ores, zinc ores containing less than 10 per cent of zinc to be admitted free of duty.

The provision for wet assay without deduction is new.

Suggested changes.—It has been represented to the Tariff Commission that a provision might be inserted in this paragraph for zinc-bearing ore containing 40 per cent or more of zinc, since the zinc in excess of such percentage is more valuable per pound than ore containing a smaller percentage of zinc.

PARAGRAPH 391.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 391. Zinc in blocks or pigs and zinc dust, 1½ cents per pound; in sheets, 1½ cents per pound; in sheets coated or plated with nickel or other metal, or solutions, 1½ cents per pound; old and worn-out, fit only to be remanufactured, 1 cent per pound: *Provided*, That for a period of two years beginning on the day following the enactment of this Act the rates of duty shall be as follows: On zinc in blocks, pigs, or slabs, and old and worn-out zinc fit only to be remanufactured, 2 cents per pound; zinc in sheets, plates, strips, or coils, plated with nickel or other base metals, or in fabricated form, and zinc dust, 2½ cents per pound.

ACT OF 1909.

PAR. 194. Zinc in blocks or pigs and zinc dust, one and three-eighths cents per pound; in sheets, one and five-eighths cents per pound; in sheets coated or plated with nickel or other metal, or solutions, one and three-fourths cents per pound; old and worn-out, fit only to be remanufactured, one cent per pound.

ACT OF 1913.

PAR. 163. Zinc in blocks, pigs, or sheets, and zinc dust; and old and worn-out zinc fit only to be remanufactured, 15 per centum ad valorem.

PAR. 109. * * * metal sheets * * * coated with nickel or other metals by dipping, printing, stenciling, or other process, 15 per centum ad valorem.

ZINC IN BLOCKS, PIGS, AND SHEETS.

(See Survey C-27.)

Description and uses.—The zinc of commerce, more or less impure, cast from molten metal into slabs, blocks, plates, or ingots, etc., is called spelter. The chief uses of zinc are for galvanizing, brass making, and sheet rolling. Sheet zinc is used in large amounts for dry

batteries in automobile ignition, telephones, etc., and is of growing importance as a building material. In most structural uses zinc sheet may be replaced by the cheaper zinc-coated (galvanized) iron sheet; but where resistance to the atmosphere is the important requirement, pure zinc is claimed to be ultimately cheaper. An important amount of spelter is consumed in the desilverization (refining) of silver-lead bullion. Zinc in the form of shavings (from sheets) or as zinc dust is used for the precipitation of gold and silver in the cyanide process. A certain amount is used in the making of zinc white (French process oxide) and other pigments, although these are more often in this country prepared directly from the ore. The salts of zinc are also made from the metal, although generally from metallurgical by-products and scrap.

Production.—The United States is the world's largest producer and consumer of zinc, its prewar output (300,000 tons) being about one-third of the total. The supply is derived almost exclusively from domestic sources, and, except during the war, exports have been small, although the bonded smelting privilege is extended to zinc ores and large supplies of cheap raw materials are available in Mexico. The American industry is highly competitive. Over 75 per cent of the zinc smelting is by nine companies, four of which control 48.7 per cent of the total. There is a large excess of smelting facilities in the United States, but they are not favorably situated for conducting a bonded-smelting business on foreign ores, and because of the higher cost of domestic ore—due in part to railroad freights—little export business in the metal produced from this ore is probable. The European smelteries, located at or near seaboard, have an advantage as regards cost of ore delivered at their plants, although the ore is derived in large part from distant regions, notably Australia. The spelter they produce is the main feature in the world trade.

Domestic production of spelter reached its maximum in 1917, when the total was 669,573 tons. At the average price for the year this output approximated \$119,184,000. Production decreased to 517,927 tons in 1918. The total capacity is about 864,000 short tons per year. Approximately 40 per cent of the output is in the vicinity of the Joplin district, centering in southwest Missouri and extending into Oklahoma, Kansas, and Arkansas. Illinois ranks next, with from 25 to 35 per cent of the output. Large individual plants are located in Pennsylvania, Colorado, Montana, and other States.

The Federal census shows that the production of spelter in 1909 amounted to \$34,206,000, in 1914 to \$53,538,000, and in 1919 to \$103,103,000, which is an increase of \$49,565,000, or 92.6 per cent over 1914. The production of zinc sheets and strips was 90,425,811 pounds in 1915 and 117,252,951 pounds in 1917. Primary zinc produced at the smelters, as reported by the Geological Survey, increased from 353,049 tons in 1914 to 465,743 tons in 1919, an increase of 31.9 per cent. Illinois is the leading producing State with Oklahoma a close second.

Imports of zinc have averaged less than 1 per cent of the domestic production since about 1900. The imports of 1912 (10,860 short tons) were exceptional, due to a generally prosperous state of the domestic zinc industry, high prices, increasing consumption, and a slight lag in

production. Imports before the war were chiefly from Germany; smaller amounts came from Belgium, but shipments from both were sporadic. The large imports in 1921 came in mostly in March and April from England, Belgium, and Germany (via Holland). Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--------------------------------|----------------|---------|-------|------------------|
| ZINC IN BLOCKS OR PIGS. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 22,760 | \$2,867 | \$435 | 15 |
| 1919..... | 64,397 | 2,284 | 343 | 15 |
| 1920..... | 101 | 17 | 3 | 15 |
| 1921 (9 months)..... | 13,064,016 | 552,256 | | |
| ZINC SHEETS. | | | | |
| 1918..... | 142 | \$29 | \$4 | 15 |
| 1919..... | 2,072 | 249 | 37 | 15 |
| 1920..... | 7,572 | 614 | 92 | 15 |
| 1921 (9 months)..... | 13,057,221 | 477,617 | | |

Exports were not large prior to the war. They went to Canada, with occasionally large shipments, representing excess production, to Great Britain. Exports approximated 5,000 tons per year for the five years immediately preceding the war, the maximum being 9,730 tons in 1912. The maximum exportation of spelter produced from domestic ore was 183,656 short tons in the fiscal year 1917; as well as 54,209 tons from foreign ore smelted in bond. England has been one of the best customers for American spelter and sheets. France, Italy, and even Belgium have bought spelter since 1917, and since 1918 Japan has also absorbed some quantity, while Canada has been in the market from time to time. Zinc sheets are shipped to all the above countries and also to South Africa and Latin America. Exports for the calendar years 1918 to 1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|--------------|--------------|--------------|---------------------|
| Zinc, cast in pigs, slabs, etc., produced from domestic ore: | | | | |
| Quantity (pounds)..... | 132,736,529 | 219,491,983 | 148,091,422 | 2,257,486 |
| Value..... | \$12,460,622 | \$17,524,153 | \$12,498,144 | \$131,026 |
| Zinc, cast in pigs, slabs, etc., produced from foreign ore: | | | | |
| Quantity (pounds)..... | 40,045,871 | 24,338,265 | 56,262,876 | 1,289,008 |
| Value..... | \$3,554,608 | \$1,929,437 | \$4,331,529 | \$45,000 |
| Zinc, rolled in sheets, strips, etc.: | | | | |
| Quantity (pounds)..... | 27,750,910 | 39,524,516 | 23,704,197 | 2,605,694 |
| Value..... | \$4,506,756 | \$5,212,002 | \$2,812,693 | \$322,900 |

Important changes in classification, etc.—See General Notes on Paragraph, page 549.

ZINC DUST.

Description and uses.—Zinc dust consists of metallic zinc in the form of very fine, almost impalpable, powder. The most important type is ordinary furnace blue powder, a by-product of the retort smelting of zinc ores. Furnace blue powder contains 80 to 90 per cent; "standard" fumed dust, 92 to 94 per cent; while "atomized" averages 98 to 99 per cent. The last two are made from spelter.

The important use of zinc dust is for sherardizing, a process of coating other metals with zinc. Large quantities are used in the dye industries and in the cyanide process for the extraction of gold and silver from ores. Zinc dust has a variety of minor uses through its extraordinary chemical activity as a reducing agent.

Production began in 1910, amounting to only 69 tons. The output increased steadily to over 1,000 tons in 1914. In 1918 it was 6,995 tons. Twelve companies make zinc dust, always as a by-product. Most manufacturers make only blue powder. A New Jersey zinc company makes a fumed product from spelter. There are only four producers of atomized zinc. With the exception of one plant in Colorado, the whole output comes from the Eastern or Middle Western States.

Most European zinc smelters sell zinc dust as a by-product. Germany and Belgium were the chief producers before the war, with smaller amounts produced in France, England and other zinc-smelting countries. Germany was the dominant exporter to the world market as well as to the United States. The domestic industry is fairly established and its future rests on the same basis as does that of spelter.

Imports.—Before 1909 the domestic supply was imported chiefly from Germany. Even in 1913, 85 per cent of the supply was imported. Imports (all in the form of blue powder) were 2,808 tons in 1913. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|----------------|---------|-------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 31,155 | \$3,552 | \$533 | 15 |
| 1919..... | 103,562 | 5,763 | 863 | 15 |
| 1920..... | 33,364 | 6,207 | 931 | 15 |

The principal countries of origin were: In 1918, Japan; in 1919, United Kingdom, Canada; in 1920, United Kingdom.

Exports.—No exports reported.

Important changes in classification, etc.—See General Notes on Paragraph, page 549.

OLD AND WORN-OUT ZINC FIT ONLY TO BE REMANUFACTURED.

Production and uses.—Large quantities of secondary spelter are recovered from old metal and drosses. The output of secondary zinc, including that recovered in the form of brass, was 116,200 tons in 1917, equaling 17.3 per cent of the domestic output of primary spelter. Part of this secondary metal is recovered by smelters which mix these secondary materials with low-grade ore. There are two such smelters in New Jersey, two in New York, and one each in Pennsylvania and California. The largest recoveries of secondary zinc metal now are in the form of resmelted brass. Zinc drosses and skimmings (derived chiefly from galvanizing works) are important articles of commerce. They are not all used for spelter, but large quantities are consumed in the production of zinc chloride and other salts and lithopone.

Imports.—Except in abnormal years, receipts of old zinc fit only to be remanufactured and derived from various nonproducing countries exceeded the imports of virgin metal. From 1914 to 1921 old zinc was almost the only zinc metal imported. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|---------|-------|
| | <i>Pounds.</i> | | |
| 1918..... | 47,792 | \$2,056 | \$201 |
| 1919..... | 74,785 | 2,216 | 297 |
| 1920..... | 28,954 | 1,065 | 157 |
| 1921 (9 months)..... | 11,121 | 341 | ..... |

Japan, Canada, and Cuba were the principal countries of origin.

Exports.—No exports have been reported.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Zinc sheets, which were classified with zinc in blocks, pigs, and zinc dust in the act of 1913, have been given a separate classification. Sheets coated or plated with nickel or other metal, or solutions, has been added to the paragraph. A provision has been made that for two years after the enactment of the act, zinc in blocks, pigs, or slabs, and old and worn-out zinc shall bear a duty of 2 cents per pound; and zinc in sheets, plates, strips, or coils, plated with nickel or other base metals, or in fabricated form, and zinc dust shall bear a duty of 2½ cents per pound.

The provision in paragraph 109 of the act of 1913, "metal sheets decorated in colors," has been omitted.

Suggested changes.—No provision is made for zinc in slabs after two years, and also none for zinc in plates, strips, or coils if the provision for them should be held to be a part of the proviso. Consideration might also be given to the relative differences in rates of duties. If these materials are not intended to be a part of the proviso, such intention should be made clear. The part of the proviso beginning with line 14, page 76, might be made to read "the rates of duty on zinc in blocks, pigs, or slabs, and old, worn-out zinc fit only to be remanufactured, shall pay 2 cents per pound" (then the semicolon). In any event, the provisions beginning with the word "Provided" in line 12, and ending with the word "pound" in line 18, might be reconstructed to conform more closely to the language of the purview contained in lines 8 to 12. Special reference may be made to the words "coated or plated" in lines 9 and 10 as against the word "plated" only in line 17, in connection with sheets and the words "metal or other solutions" in line 10, and "base metals, or in fabricated form," in lines 17 and 18.

There is doubt whether the proviso continues to the end of the paragraph. If it does, no provision is made therein for slabs, plates, strips, or coils, imported after two years from the enactment of H. R. 7456. If, on the other hand, the proviso ends with the semicolon after "2 cents per pound" in line 16, page 76, there are two provisions carrying different rates of duty on zinc dust and zinc in sheets plated with nickel or other base metal.

Zinc in sheets, not coated or plated, will be subject to a duty of 1½ cents per pound, as against 2 cents per pound on zinc in blocks, pigs, or slabs, and old worn-out zinc fit only to be remanufactured, for a period of two years following the enactment of H. R. 7456.

PARAGRAPH 392.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 392. Print rollers and print blocks used in printing, stamping, or cutting designs for wall or crêpe paper, linoleum, oilcloth, or other material, not specially provided for, composed wholly or in chief value of iron, steel, copper, brass, or any other metal, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or other metal, and whether partly or wholly manufactured, forty-five per centum ad valorem.

PAR. 167. Articles or wares not specially provided for in this section; if composed wholly or in part of platinum, gold, or silver, and articles or wares plated with gold or silver, and whether partly or wholly manufactured, 50 per centum ad valorem; if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, but not plated with gold or silver, and whether partly or wholly manufactured, 20 per centum ad valorem.

PRINT ROLLERS AND PRINT BLOCKS.

Description and uses.—Print rollers and print blocks have the pattern carved or engraved on blocks—generally of wood—with the patterns outlined in copper or brass ribbon, and the solid surface filled with felt. They are used in printing, stamping or cutting designs for wall or crêpe paper, linoleum, oilcloth, or other material. In block printing each color dries before the next is applied, while in roller printing all the colors follow one another immediately. The best wall papers are printed from blocks manipulated by hand. The cheaper wall papers are printed by machinery.

Production.—None recorded separately.

Imports.—None recorded.

Exports.—None recorded.

Important changes in classification.—New paragraph.

PARAGRAPH 393.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 393. Articles or wares not specially provided for, if composed wholly or in chief value of platinum, gold, or silver, and articles or wares plated with platinum, gold, or silver, or colored with gold lacquer, whether partly or wholly manufactured, 45 per centum ad valorem; if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, but not plated with platinum, gold, or silver, or colored with gold lacquer, whether partly or wholly manufactured, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or other metal, and whether partly or wholly manufactured; forty-five per centum ad valorem.

PAR. 135. * * * *Provided further*, That articles manufactured wholly or in chief value of any wire or wires provided for in this paragraph shall pay the maximum rate of duty imposed in this section upon any wire used in the manufacture of such articles and in addition thereto one cent per pound: *And provided further*, That no article made from or composed of wire shall pay a less rate of duty than forty per centum ad valorem; * * *.

PAR. 144. * * * finished hinges or hinge blanks, whether of iron or steel, one and one-eighth cents per pound.

PAR. 551. * * * quoits, and curling-stone handles [Free].

PAR. 653. Platinum * * * in * * * sheets, wire, * * * [Free].

PAR. 104. * * * sashes, frames, * * * of iron or steel, * * * 10 per centum ad valorem.

PAR. 114. * * * articles manufactured wholly or in chief value of any wire or wires provided for in this section; all the foregoing 15 per centum ad valorem; * * *.

PAR. 167. Articles or wares not specially provided for in this section; if composed wholly or in part of platinum, gold, or silver, and articles or wares plated with gold or silver, and whether partly or wholly manufactured, 50 per centum ad valorem; if composed wholly or in chief value of iron, steel, lead, copper, brass, nickel, pewter, zinc, aluminum, or other metal, but not plated with gold or silver, and whether partly or wholly manufactured, 20 per centum ad valorem.

PAR. 470. * * * quoits, and curling-stone handles [Free].

PAR. 578. Platinum * * * in * * * sheets, wire, * * * [Free].

PAR. 612. * * * engraved steel * * * dies and rolls, suitable for use in engraving or printing bonds, stock certificates or other securities [Free].

FINISHED OR PARTLY FINISHED ARTICLES MADE OF METAL NOT SPECIALLY PROVIDED FOR.

(See Surveys C-29; C-30; and C-31.)

Paragraph 393 embraces all finished and partly finished articles manufactured wholly or in chief value of metal and not specially provided for in the other paragraphs of Schedule 3 of Title.

Production.—The United States is a large producer of most of the articles included in this paragraph. Thus there were recorded in the census of 1914 values of such products as follows: Stoves and ranges, \$55,108,000; gas and oil stoves, \$21,449,000; steel springs, car and carriage, not made in steelworks or rolling mills, \$11,595,000; products of boiler shops, \$27,140,000; brass and bronze products, \$123,580,000; silverware, \$19,786,000; and silver-plated ware, \$18,484,000.

England, Germany, France, and Japan are important producers of iron and steel manufactures; France, Germany, and Japan, of bronze; and France and England, of articles made of gold and silver.

Imports for the fiscal year 1918 were valued at over \$6,000,000, the most important item being airplanes (metal chief value), \$423,980; other manufactures of iron and steel n. s. p. f., \$1,741,205; manufactures of brass n. e. s., \$241,293; manufactures of bronze n. s. p. f., \$196,660; manufactures of nickel n. e. s., \$116,858; metals and metal composition n. s. p. f., \$752,950; and manufactures of silver n. e. s., including metals plated with silver, \$200,997

Most of the manufactures of aluminum under this provision have come from Canada and the United Kingdom, but since 1920, Germany has been the main source of supply while increased quantities have also been imported from Switzerland. The statistics for brass as

given below also include some brass manufactures that are now specifically provided for in paragraph 378 although most of the imports in the spring of 1921 consisted of art metal goods and miscellaneous articles such as oil cups. Canada, the United Kingdom, and France furnished the greater part of these products. Imports of bronze manufactures, n. s. p. f., are derived principally from Japan, France, and Germany and consist mainly of statuary and art metal goods. The copper manufactures in this group are diverse in character and in 1921 were imported from France, Switzerland, Italy, Canada, China, and the Netherlands. Both the gold and silver manufactures n. s. p. f. (including a variety of tableware, ornaments, etc., but not jewelry) come mainly from France and England. The lead manufactures imported are almost wholly of English origin whereas manufactures of tin (and tin-plate) are imported from England and Germany in about equal proportions with small amounts from France. Nickel manufactures include various nickel-plated wares imported from Germany, France, and Switzerland. The small imports of railway cars and of carriages n. s. p. f. have in recent years been derived wholly from Canada. The largest item in the group is that for other manufactures of iron and steel, which comprises a heterogeneous variety of tools, locks, lighting fixtures, and miscellaneous articles of iron or steel and derived from every country of the earth.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

ALUMINUM—ALL OTHER MANUFACTURES OF.

| | | | | Per cent. |
|----------------------|--|---------|--------|-----------|
| 1918..... | | \$4,610 | \$928 | 20 |
| 1919..... | | 20,779 | 4,156 | 20 |
| 1920..... | | 401,637 | 80,307 | 20 |
| 1921 (9 months)..... | | 488,587 | | |

BRASS—ALL OTHER MANUFACTURES OF.

| | | | | |
|----------------------|--|-----------|----------|--|
| 1918..... | | \$236,025 | \$47,200 | |
| 1919..... | | 252,978 | 50,495 | |
| 1920..... | | 322,492 | 64,488 | |
| 1921 (9 months)..... | | 356,132 | | |

BRASS—MANUFACTURES OF, N. S. P. F., FOR SUPPLIES, REPAIRS, CONSTRUCTION, AND EQUIPMENT OF VESSELS.

| | | | | |
|----------------------|--|----------|--|--|
| 1918..... | | \$99,905 | | |
| 1919..... | | 187,344 | | |
| 1920..... | | 45,187 | | |
| 1921 (9 months)..... | | 9,374 | | |

BRASS—MANUFACTURES OF, N. S. P. F.—FOR THE UNITED STATES, N. E. S.

| | | | | |
|----------------------|--|-----------|--|--|
| 1919..... | | \$117,147 | | |
| 1921 (9 months)..... | | 123,237 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

BRONZE—MANUFACTURES OF, N. S. P. F.

| | | | | Per cent. |
|----------------------|--|-----------|----------|-----------|
| 1918..... | | \$122,472 | \$24,494 | 20 |
| 1919..... | | 167,866 | 33,573 | 20 |
| 1920..... | | 295,511 | 59,000 | 20 |
| 1921 (9 months)..... | | 126,483 | | |

CARS—PASSENGER AND FREIGHT, AND PARTS THEREOF.

| | | | | |
|----------------------|--|----------|---------|----|
| 1918..... | | \$12,152 | \$2,430 | 20 |
| 1919..... | | 3,478 | 696 | 20 |
| 1920..... | | 800 | 174 | 20 |
| 1921 (9 months)..... | | 5,440 | | |

CARRIAGES, OTHER VEHICLES, N. E. S., AND PARTS THEREOF—METAL CHIEF VALUE.

| | | | | |
|-----------|--|---------|-------|----|
| 1918..... | | \$3,830 | \$768 | 20 |
| 1919..... | | 7,936 | 1,587 | 20 |
| 1920..... | | 11,686 | 2,337 | 20 |

COPPER—ALL OTHER MANUFACTURES OF, N. S. P. F.

| | | | | |
|----------------------|--|----------|----------|----|
| 1918..... | | \$53,198 | \$10,638 | 20 |
| 1919..... | | 61,355 | 12,271 | 20 |
| 1920..... | | 232,366 | 46,473 | 20 |
| 1921 (9 months)..... | | 43,676 | | |

COPPER—ALL OTHER MANUFACTURES OF, N. S. P. F.—FOR SUPPLIES, CONSTRUCTION, AND EQUIPMENT OF VESSELS.

| | | | | |
|----------------------|--|----------|--|--|
| 1918..... | | \$54,141 | | |
| 1919..... | | 156,311 | | |
| 1920..... | | 2,728 | | |
| 1921 (9 months)..... | | 294 | | |

GOLD—ALL OTHER MANUFACTURES OF, OR PLATED WITH.

| | Pounds. | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | | \$19,069 | \$9,534 | 50 |
| 1919..... | 8,225 | 30,840 | 15,424 | 50 |
| 1920..... | | 74,993 | 37,496 | 50 |
| 1921 (9 months)..... | | 50,332 | | |

SILVER—ALL OTHER MANUFACTURES OF, OR PLATED WITH.

| | | | | |
|----------------------|--------|-----------|----------|----|
| 1918..... | | \$110,805 | \$55,394 | |
| 1919..... | 56,781 | 222,319 | 111,159 | 50 |
| 1920..... | | 605,128 | 302,560 | 50 |
| 1921 (9 months)..... | | 351,551 | | |

IRON AND STEEL—MANUFACTURES OF, N. S. P. F.

| | | | | |
|----------------------|--|-------------|-----------|--|
| 1918..... | | \$2,515,664 | \$503,082 | |
| 1919..... | | 1,934,738 | 386,912 | |
| 1920..... | | 3,250,863 | 650,003 | |
| 1921 (9 months)..... | | 2,103,224 | | |

IRON AND STEEL—MANUFACTURES OF, N. S. P. F.—FOR SUPPLIES, REPAIRS, CONSTRUCTION, AND EQUIPMENT OF VESSELS.

| | | | | |
|----------------------|--|-------------|--|--|
| 1918..... | | \$4,060,255 | | |
| 1919..... | | 1,276,116 | | |
| 1920..... | | 377,417 | | |
| 1921 (9 months)..... | | 70,413 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|-----------|--------------|-------|------------------|
| IRON AND STEEL—MANUFACTURES OF, N. S. P. F.—FOR THE UNITED STATES, N. E. S. | | | | |
| 1918..... | | \$30,613,678 | | <i>Per cent.</i> |
| 1919..... | | 14,137,995 | | |
| 1920..... | | 326,529 | | |
| 1921 (9 months)..... | | 8,641 | | |

LEAD—ALL OTHER MANUFACTURES OF.

| | Pounds. | | | |
|----------------------|---------|----------|---------|----|
| 1918..... | | \$76,723 | \$7,313 | 20 |
| 1919..... | 69,833 | 17,187 | 3,437 | 20 |
| 1920..... | | 21,328 | 4,266 | 20 |
| 1921 (9 months)..... | | 8,468 | | |

METALS AND METAL COMPOSITIONS—MANUFACTURES OF, N. S. P. F.

| | | | | |
|----------------------|--|-----------|-----------|--|
| 1918..... | | \$693,214 | \$138,569 | |
| 1919..... | | 938,121 | 187,615 | |
| 1920..... | | 3,272,714 | 654,530 | |
| 1921 (9 months)..... | | 2,968,961 | | |

METALS, ETC.—MANUFACTURES OF, N. S. P. F.—FOR SUPPLIES, CONSTRUCTION, EQUIPMENT, AND REPAIR OF VESSELS.

| | | | | |
|----------------------|--|-----------|--|--|
| 1918..... | | \$254,220 | | |
| 1919..... | | 468,604 | | |
| 1920..... | | 76,845 | | |
| 1921 (9 months)..... | | 223,611 | | |

METALS, ETC.—MANUFACTURES OF, N. S. P. F.—FOR THE UNITED STATES, N. E. S.

| | | | | |
|----------------------|--|-----------|--|--|
| 1918..... | | \$732,061 | | |
| 1919..... | | 102,654 | | |
| 1921 (9 months)..... | | 3,018 | | |

NICKEL—ALL OTHER MANUFACTURES OF.

| | Pounds. | | | |
|----------------------|---------|-----------|----------|----|
| 1918..... | | \$108,362 | \$21,672 | 20 |
| 1919..... | 87,527 | 85,562 | 17,112 | 20 |
| 1920..... | | 200,464 | 40,093 | 20 |
| 1921 (9 months)..... | | 90,654 | | |

PEWTER—MANUFACTURES OF, N. S. P. F.

| | | | | |
|----------------------|-----|-------|------|----|
| 1918..... | | \$317 | \$63 | 20 |
| 1919..... | 980 | 981 | 196 | 20 |
| 1920..... | 721 | 587 | 117 | 20 |
| 1921 (9 months)..... | 669 | 367 | | |

PLATINUM WIRE.

| | | | | |
|----------------------|---|---------|-------|----|
| 1918..... | | \$2,747 | \$412 | 15 |
| 1919..... | | 11,720 | 1,758 | 15 |
| 1920..... | 8 | 8,433 | 815 | 15 |
| 1921 (9 months)..... | 2 | 2,968 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

PLATINUM—ALL OTHER MANUFACTURES OF.

| | | | | Per cent. |
|----------------------|--|---------|---------|-----------|
| 1918..... | | \$5,847 | \$2,923 | 50 |
| 1919..... | | 2,821 | 1,411 | 50 |
| 1920..... | | 10,278 | 5,139 | 50 |
| 1921 (9 months)..... | | 4,777 | | |

TIN FOIL.

| | | | | |
|----------------------|--|-------|-------|----|
| 1918..... | | \$45 | \$0 | 20 |
| 1919..... | | 47 | 0 | 20 |
| 1920..... | | 6,121 | 1,224 | 20 |
| 1921 (9 months)..... | | 3,713 | | |

TIN—ALL OTHER MANUFACTURES OF.

| | | | | |
|----------------------|--|----------|---------|----|
| 1918..... | | \$10,513 | \$2,103 | 20 |
| 1919..... | | 26,873 | 5,375 | 20 |
| 1920..... | | 86,784 | 17,357 | 20 |
| 1921 (9 months)..... | | 67,283 | | |

ZINC—ALL OTHER MANUFACTURES OF.

| | | | | |
|----------------------|--|-------|------|----|
| 1918..... | | \$331 | \$66 | 20 |
| 1919..... | | 1,258 | 252 | 20 |
| 1920..... | | 1,746 | 349 | 20 |
| 1921 (9 months)..... | | 7,703 | | |

Exports coming within the scope of this paragraph vastly exceed imports. Brass manufactures exported in the fiscal year 1918 were more than \$56,000,000; manufactures of gold and silver, other than jewelry, \$565,406; and of platinum, \$33,557. These figures do not correspond with the tariff classifications, and some do not wholly apply to the articles described. They are given to illustrate the large exportation of products included in this paragraph.

Exports for the calendar years 1918 to 1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|--------------|--------------|--------------|---------------------|
| Aluminum—all other manufactures of..... | \$1,890,336 | \$2,145,430 | \$2,563,164 | \$1,906,363 |
| Arc lamps..... | 14,139 | 16,836 | 25,098 | 9,153 |
| Brass—all other manufactures of..... | \$17,071,694 | \$9,438,554 | \$10,541,116 | \$4,974,209 |
| Bronze—manufactures of, n. s. p. f..... | \$1,267,032 | \$1,808,066 | \$1,390,141 | \$832,286 |
| Cars for steam railways, passenger: | | | | |
| Quantity (number)..... | 96 | 104 | 123 | 125 |
| Value..... | \$883,607 | \$1,006,540 | \$1,171,674 | \$1,016,704 |
| Cars for steam railways, freight and other: | | | | |
| Quantity (number)..... | 8,050 | 27,317 | 21,651 | 6,415 |
| Value..... | \$11,522,608 | \$57,473,824 | \$37,189,684 | \$10,370,877 |
| Cars for other railways: | | | | |
| Quantity (number)..... | 2,621 | 2,913 | 6,465 | 5,041 |
| Value..... | \$1,192,403 | \$1,668,672 | \$3,606,012 | \$5,090,149 |
| Cars for railways—parts of, except car wheels and axles..... | | | \$13,189,911 | \$9,047,510 |
| Carriages: | | | | |
| Quantity (number)..... | 1,100 | 1,352 | 1,123 | 500 |
| Value..... | \$56,255 | \$112,505 | \$154,154 | \$57,356 |
| Copper—all other manufactures of, n. s. p. f..... | \$5,286,143 | \$4,557,812 | \$6,040,069 | \$3,654,646 |
| Hardware, builders': | | | | |
| Hinges and other..... | 2,091,812 | 3,268,435 | 4,870,974 | 1,840,190 |
| Locks..... | 2,191,702 | 4,145,325 | 6,367,214 | 1,927,279 |
| Other..... | 2,304,408 | 4,267,126 | 6,216,636 | 3,006,350 |

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|--------------|--------------|--------------|---------------------|
| Interior-wiring supplies, including fixtures..... | \$1,428,615 | \$2,319,498 | \$3,386,068 | \$1,594,163 |
| Iron and steel—all other manufactures of..... | \$41,160,907 | \$48,035,213 | \$55,672,396 | \$29,642,889 |
| Lead—manufactures of..... | \$1,824,126 | \$2,155,392 | \$3,586,251 | \$1,084,374 |
| Metals and metal compositions—all other man- ufactures of..... | \$3,645,838 | \$3,400,949 | \$4,314,897 | \$1,822,040 |
| Nickel—manufactures of..... | \$2,162,692 | \$2,412,287 | \$1,875,991 | \$256,606 |
| Radiators and house-heating boilers..... | 518,800 | 779,259 | 1,337,032 | 438,591 |
| Safes..... | 401,294 | 738,289 | 1,429,535 | 866,665 |
| Scales and balances..... | 1,359,142 | 2,278,921 | 3,242,459 | 2,311,661 |
| Shells and projectiles, empty..... | 22,112,293 | 3,228,454 | 75,344 | 4,976 |
| Stoves and ranges..... | 1,708,724 | 2,609,715 | 5,937,301 | 2,476,599 |
| Tinware..... | \$530,671 | \$883,447 | \$877,179 | \$302,267 |
| Tin plates—all other manufactures of..... | \$2,467,481 | \$3,644,268 | \$4,735,138 | \$1,878,193 |
| Tools, n. e. s.: | | | | |
| Augers, bits, and drills..... | 2,545,074 | 4,402,030 | 4,425,507 | 2,303,369 |
| Axes..... | 1,006,848 | 1,613,862 | 1,478,935 | 1,187,790 |
| All other..... | 9,140,700 | 14,382,767 | 16,945,326 | 7,318,722 |
| Zinc—all other manufactures of..... | \$722,671 | \$538,133 | \$1,057,676 | \$335,120 |

Important changes in classification.—The following words have been inserted: "platinum" after the words "and articles or wares plated with"; "or colored with gold lacquer" after the words "gold, or silver" and in the third and seventh lines; and "platinum" after the words "but not plated with."

PARAGRAPH 394.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 394. No allowance or reduction of duties for partial loss or damage in consequence of rust or of discoloration shall be made upon any description of iron or steel, or upon any article wholly or partly manufactured of iron or steel, or upon any manufacture of iron or steel.

ACT OF 1909.

PAR. 138. No allowance or reduction of duties for partial loss or damage in consequence of rust or of discoloration shall be made upon any description of iron or steel, or upon any article wholly or partly manufactured of iron or steel, or upon any manufacture of iron or steel.

ACT OF 1913.

PAR. 116. No allowance or reduction of duties for partial loss or damage in consequence of rust or of discoloration shall be made upon any description of iron or steel, or upon any article wholly or partly manufactured of iron or steel, or upon any manufacture of iron or steel.

SCHEDULE 4.—WOOD AND MANUFACTURES OF.

PARAGRAPH 401.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 401. Timber, hewn, sided or squared otherwise than by sawing (not less than eight inches square) and round timber used for spars or in building wharves, one-half of 1 cent per cubic foot.

ACT OF 1909.

ACT OF 1913.

SCHEDULE D.—WOOD AND MANUFACTURES OF.

SCHEDULE D.—WOOD AND MANUFACTURES OF.

PAR. 200. Timber, hewn, sided or squared otherwise than by sawing (not less than eight inches square) and round timber used for spars or in building wharves, one-half of one cent per cubic foot.

PAR. 647. Wood: * * * timber * * * hewn or sawed, sided or squared; * * * [Free].

PAR. 648. Woods: * * * red cedar (*Juniperus virginiana*) timber, hewn, sided, squared, or round; * * * [Free].

PAR. 713. Woods: * * * red cedar (*Juniperus Virginiana*) timber, hewn, sided, squared, or round; * * * [Free].

TIMBER.

Description and uses.—Hewn timber is timber squared and dressed with the axe or adz. It was formerly much used in the construction of the walls, posts, and floor beams of buildings, and is still occasionally so used. Archaic houses are still seen with solid walls of hewn timbers piled one above the other and with clay stuffed between the joints to keep out the cold, wind, and rain. The chief use at the present time is for railroad ties. Logs are also often roughly dressed with the axe to fit them for ocean transportation.

Production.—No figures available.

Imports of hewn timber not segregated from imports of sawed timber.

Exports for the calendar years 1918–1921 are shown in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (M feet)..... | 6,086 | 8,499 | 10,394 | 2,055 |
| Value..... | \$203,648 | \$414,513 | \$439,734 | \$149,361 |

Important changes in classification.—The act of 1913 placed “timber, round, unmanufactured, hewn or sawed, sided or squared” on the free list. In H. R. 7456 “timber, hewn, sided or squared other-

wise than by sawing (not less than 8 inches square)" is made dutiable, thus returning to the classification of the act of 1909. Specific provision was not made in either the act of 1909 nor in H. R. 7456 for sawed timber nor for timber less than 8 inches square.

Suggested changes.—Explicit provision might be made for sawed timber and for all timber less than 8 inches square. If it is desired to make these items dutiable, a provision might be added to paragraph 401. If it is desired to place them on the free list, they could be specifically mentioned in paragraph 1683.

ROUND TIMBER USED FOR SPARS OR IN BUILDING WHARVES.

Description and uses.—Use and description indicated in the title.

Production.—No data available.

Imports.—Not segregated.

Exports.—Not segregated.

Important changes in classification.—This item is not specifically provided for in the act of 1913. Such timber is exempt from duty under the provision in paragraph 647 "for logs, timber, round, unmanufactured." The classification in H. R. 7456 is a return to the classification of the act of 1909.

PARAGRAPH 402.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 402. Logs of fir, spruce, cedar, or Western hemlock, \$1 per one thousand feet board measure: *Provided*, That any such class of logs cut from any particular class of lands shall be exempt from such duty if imported from any country, dependency, province, or other subdivision of government which has, at no time during the twelve months immediately preceding their importation into the United States, maintained any embargo, prohibition, or other restriction (whether by law, order, regulation, contractual relation or otherwise, directly or indirectly) upon the exportation of such class of logs from such country, dependency, province, or other subdivision of government, if cut from such class of lands.

ACT OF 1909.

ACT OF 1913.

PAR. 712. Wood: Logs and round unmanufactured timber, including pulp woods, * * * not specially provided for in this section [Free].

PAR. 647. Wood: Logs, * * * round, unmanufactured, * * * pulp woods, * * * [Free].

LOGS OF FIR, SPRUCE, CEDAR, WESTERN HEMLOCK, ETC.

Description and uses.—The woods enumerated in paragraph 402 are softwoods furnishing lumber for general building construction; especially is this statement true of the Douglas fir. Aside from general construction work, spruce is by far the most important of the

pulp woods, hemlock is also an important pulp wood, and cedar, because of its high power of resistance to decay, is especially adapted to use as shingles and telegraph, telephone, trolley, and electric-light poles. The red cedar is also used for manufacturing chests for storing clothing, its pungent odor affording a protection against moths.

Production.—Douglas fir (the most important commercially of the firs), western hemlock, and western red cedar are woods found chiefly in Washington, Oregon, and some other parts of the inland empire. Spruce is widely distributed throughout the whole northern portion of the United States. There are also other species of cedar having a wide distribution. On the whole, however, the paragraph relates to woods of concern to the Pacific Northwest. The following table¹ shows in board feet for the year 1918 the total cut of each of the woods mentioned in paragraph 402 and also in board feet and in percentages the cut in the States of Washington and Oregon.

| Species. | Total cut (board feet). | Cut in Washington and Oregon. | |
|----------------------|----------------------------|----------------------------------|-------------|
| | | Board feet. | Percentage. |
| Douglas fir..... | 5,819,141,000 | 5,476,911,000 | 94.1 |
| Spruce..... | 980,561,000 | 491,654,000 | 50.1 |
| Cedar..... | 230,476,000 | 148,176,000 | 64.3 |
| Western hemlock..... | 348,117,000 | 343,852,000 | 98.8 |
| Total..... | 7,378,295,000 | 6,460,593,000 | 87.6 |

Imports of logs of fir, spruce, cedar, and western hemlock are not segregated from the imports of other logs. The distribution of these species in Canada, however, is somewhat similar to that of the United States. Douglas fir, western hemlock, and western red cedar grow for the most part in British Columbia, and hence importations of logs of these species would presumably compete with logs of the same species in Washington and Oregon. Spruce, however, and other varieties of cedar grow also between the Rockies and the Atlantic seaboard and are imported into States all along the northeast boundary. Especially are large quantities of spruce logs imported as pulp wood, many of the pulp and paper mills in the Northeast being dependent in whole or in part upon such importations for their supply of raw material.

Exports of fir for the calendar years 1918–1921 are shown in the following table. Export of logs of the other species specified are not segregated.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (M feet)..... | 8,216 | 4,924 | 14,986 | 9,405 |
| Value..... | \$128,627 | \$114,939 | \$454,760 | \$209,443 |

¹ Figures from Bulletin No. 845, United States Department of Agriculture, Production of lumber, lath, and shingles in 1918.

Important changes in classification.—Logs of spruce, one of the most important of the pulp woods, are provided for in paragraph 402 of H. R. 7456, with logs of fir, cedar, and western hemlock in a new provision.

Pulp woods, specifically exempted in paragraph 647 of the act of 1913, are made conditionally free of duty in this paragraph.

PARAGRAPH 403.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 403. Briar root or briar wood, ivy, or laurel root, and similar wood unmanufactured, or not further advanced than cut into blocks suitable for the articles into which they are intended to be converted, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 202. Briar root or briar wood, ivy or laurel root, and similar wood unmanufactured, or not further advanced than cut into blocks suitable for the articles into which they are intended to be converted, fifteen per centum ad valorem.

PAR. 168. Briar root or briar wood, ivy or laurel root, and similar wood unmanufactured, or not further advanced than cut into blocks suitable for the articles into which they are intended to be converted, 10 per centum ad valorem.

BRIER ROOT.

(See Survey N-26.)

Description, uses, and production.—Brier root or brierwood, used in making tobacco-smoking pipes, is the root of the white or tree heath (*Erica arborea*) of southern Europe. Ivy root is the American laurel which grows in the southern United States. The brier root is exclusively an imported wood. Attempts have been made to use the ivy or laurel root, growing chiefly in North Carolina, as a substitute. It has not proved satisfactory.

Imports in 1914 were valued at \$241,493. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|------------------|
| 1918..... | \$825,095 | \$92,569 | Per cent. 10 |
| 1919..... | 1,156,371 | 115,637 | 10 |
| 1920..... | 982,852 | 98,285 | 10 |
| 1921 (9 months)..... | 106,655 | | |

Exports.—None.

Suggested changes.—Page 78, line 6, of H. R. 7456: Omit the comma after "ivy," as ivy is the same thing as "laurel root."

PARAGRAPH 404.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 404. Cedar commercially known as Spanish cedar, *lignum-vitæ*, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, Japanese white oak, and Japanese maple, in the log, 10 per centum ad valorem; in the form of sawed boards, planks, deals, and all other forms not further manufactured than sawed, 15 per centum ad valorem; veneers of wood and wood unmanufactured, not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

PAR. 203. Sawed boards, planks, deals, and all forms of sawed cedar, *lignum-vitæ*, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all other cabinet woods not further manufactured than sawed, fifteen per centum ad valorem; veneers of wood, and wood unmanufactured, not specially provided for in this section, twenty per centum ad valorem.

PAR. 718. Woods: Cedar, *lignum-vitæ*, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all forms of cabinet woods, in the log, rough, or hewn only, * * * [Free].

ACT OF 1913.

PAR. 169. Cedar commercially known as Spanish cedar, *lignum-vitæ*, lancewood, ebony, box, granadilla, mahogany, rosewood, and satinwood; all the foregoing when sawed into boards, planks, deals, or other forms, and not specially provided for in this section, and all cabinet woods not further manufactured than sawed, 10 per centum ad valorem; veneers of wood, 15 per centum ad valorem.

PAR. 648. Woods: Cedar, including Spanish cedar, *lignum-vitæ*, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all forms of cabinet woods, in the log, rough, or hewn only, * * * [Free].

CABINET WOODS.

(See Survey D-1.)

Description, uses, and production.—Cedar, commercially known as Spanish cedar, is not, strictly, a cedar (*Cedrus*), but the *Cedrela odorata*, a large tree growing in Mexico, Cuba, and the West Indies. The trunk may attain a diameter of 5 feet. It bears panicles of pale yellow flowers and a fruit somewhat like pecan nuts, and suggests the walnut rather than the cedar. The wood, however, resembles cedar. It is brownish red, soft, fragrant, porous, and durable. The Cuban supply is rapidly vanishing, and Mexico is now the chief source. It is imported in logs, fitches, and bolts, and used for cigar boxes, boats, and to some extent for cabinet-work. Its porous structure assists the cigar to season and its odor improves the flavor.

Lignum-vitæ is wood derived from the *Guaiacum officinale*, a slow-growing tree of Jamaica, Trinidad, St. Lucia, and the West Indies. The heartwood is of a dark greenish brown; the sapwood, yellow. It is remarkable for its hardness, toughness, and heaviness. Each layer of fibers crosses the preceding diagonally, obscuring the annual rings. It weighs 76 pounds to the cubic foot—heavier than water (62.5)—and is imported in billets about 3 feet long and 1 foot in diameter, chiefly from Cuba, Jamaica, and Santo Domingo. It is used in making sheaves for pulleys, rulers, pestles, tenpin balls, ship

blocks, and various articles of turnery, and, in the Bahamas, for door hinges.

Lancewood is from two small, slim West Indian trees (*Bocagea virgata* and *Bocagea lancifolia*) growing about 30 feet high and 1 foot in diameter, and from several other trees. It is remarkable for its strength and elasticity, and is used for carriage poles and shafts, fishing rods, and bows. It is imported chiefly from Cuba, Guiana, and Brazil, principally in the form of poles, frequently 20 feet long and 6 to 8 inches in diameter.

"Ebony" applies commercially to several hard, black woods. The best ebony is derived from the *Diospyros ebenum*, a large tree of India, Ceylon, and other tropical countries. Logs from 10 to 15 feet in length and with the heartwood 2 feet in diameter are common in this species. Bastard ebony (*Jacaranda ovalifolia*) comes from Brazil. "Ebonies" come also from Mauritius, Egypt, Zanzibar, Madagascar, and Jamaica. A fairly good quality is obtained from the American species (*Diospyros virginiana* and *Diospyros texana*). It is used for inlaid work, veneers, and the black keys of pianos.

Box is a small tree (*Buxus sempervirens*) growing wild in the south of Europe and parts of Asia, attaining a height of 20 feet. The wood is heavy (68½ pounds per cubic foot when dry), of a pale-yellow color, remarkably hard and strong, and of a fine, regular, compact texture susceptible of a beautiful polish. It is apt to split in drying, hence is seasoned in dark cellars for from three to five years. Wood for delicate ware is soaked in clear, fresh water, boiled, wiped, and buried in sand or bran. It is valued by the turner and carver for flutes, flageolets, mathematical instruments, etc., and for wood engraving. It is imported from Spain, Portugal, Circassia, Georgia, and elsewhere. An inferior variety, the Minorca or Balearic box (*Buxus balearica*), is imported in large quantities from Minorca, Sardinia, Corsica, and Turkey. The root is also used.

Granadilla wood (not the vine, granadilla, bearing fruit) is derived from a large tree, 80 feet high and 2 feet in diameter, in British Honduras. The name is also applied to the wood of the Jamaican or West Indian ebony tree (*Brya ebenus*) and to woods of uncertain origin from northern South America. It is a hard, dark-red wood with a beautiful fine grain, easy to work, and is used for furniture, house decorations, and especially for flutes.

Mahogany is the name given to the wood of a considerable number of trees, the most highly esteemed being the *Swietenia mahogani*, a large tree of the family Meliaceæ, which attains a height of from 60 to 100 feet and a diameter of 6 feet or more. It flourishes in Cuba, Jamaica, the West Indies, Central America, and sparingly in southern Florida. It grows either on rich, moist soils, or on rocky land. In the former case the wood is coarse grained and inferior; in the latter case it is a rich, reddish brown, varying widely in its shades and markings, and susceptible of high polish. It is used extensively in cabinetmaking, both solid and as a veneer. The name is also applied to woods resembling "true" mahogany—e. g., African mahogany (*Khaya senegalensis*), having a tinge of pink, in contrast with the American variety; the padouk (*Pterocarpus indicus*) of India and Burma; the Cedrela Toona of India; some species of Eucalyptus in Australia; and the "mountain" and "valley" mahogany of the western United States. Importations come chiefly from England (in

transit), and from Mexico, Cuba, British Honduras, and British West Africa.

Rosewood comes from various trees, such as the Brazilian Mimosa, several species of Dalbergia, and woods found in Jamaica, Africa, Burma, Malabar, and Australia. The principal supplies are from Brazil, the Canary Islands, East Indies, and Africa. Rosewood, when sawed or cut, yields the odor of roses, and varies in color from a reddish brown to purple or almost black, often beautifully marked. Because of its oily character it is difficult to fix with glue. It is second only to mahogany as an imported furniture wood, and is used as a veneer for pianoforte cases, table tops, and expensive furniture. Light, artistic drawing-room furniture and musical instruments are made of the solid wood.

Satinwood is the name given a wood of white color and fine grain, susceptible of a high polish. The best variety is derived from a tree (*Parinarium guianensis*) of the West Indies. It is also derived from the East Indian tree *Chloroxylon swietenia*, and from the *Zanthoxylum cribosum*, growing in Florida, Santo Domingo, Porto Rico, and the Bermudas. Satinwood is much used by cabinetmakers and for marquetry.

Imports.—The cabinet and other woods mentioned in paragraph 404 are virtually all foreign woods imported largely from Central and South America, from Japan, and from the West Indies. They are imported both in the log and as sawed lumber. Imports in the log for the fiscal years 1914 and 1918 are shown by the following table:

| Species. | 1914 | | 1918 | |
|-------------------------------------|----------------|-------------|----------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>M feet.</i> | | <i>M feet.</i> | |
| Box..... | | \$49, 446 | | \$24, 317 |
| Cedar, including Spanish cedar..... | 17, 144 | 977, 746 | 12, 431 | 842, 968 |
| Ebony..... | | 86, 786 | | 8, 812 |
| Granadilla..... | | 206 | | |
| Lignum-vitæ..... | | 72, 632 | | 171, 844 |
| Mahogany..... | 70, 112 | 4, 919, 368 | 50, 303 | 3, 736, 668 |
| Rosewood..... | | 73, 551 | | 53, 716 |
| Satinwood..... | | 10, 345 | | 596 |
| Walnut..... | 2, 626 | 342, 940 | 408 | 28, 295 |
| All other..... | | 539, 780 | | 193, 686 |
| Total..... | | 7, 112, 800 | | 5, 080, 922 |

When imported as sawed lumber they are not segregated by species. Total importations of boards, planks, deals, and other forms of sawed and cabinet woods from all sources are shown in the following table:

| | 1914 | | 1916 | | 1918 | |
|---|----------------|--------------|----------------|--------------|----------------|--------------|
| | Quantity. | Value per M. | Quantity. | Value per M. | Quantity. | Value per M. |
| | <i>M feet.</i> | | <i>M feet.</i> | | <i>M feet.</i> | |
| Cuba..... | 1, 570 | \$48. 20 | 5, 732 | \$34. 20 | 1, 857 | \$44. 00 |
| Japan..... | 1, 423 | 31. 20 | 10, 545 | 36. 20 | 164 | 57. 10 |
| Central America (including Mexico)..... | 649 | 37. 10 | 1, 529 | 55. 50 | 2, 004 | 79. 75 |
| All other..... | 664 | 56. 30 | 185 | 71. 90 | 140 | 93. 80 |
| Total (or average)..... | 4, 306 | 42. 10 | 17, 991 | 37. 60 | 4, 165 | 63. 30 |

Observe: (1) The large proportion of the trade with Cuba, Japan, and Central America; (2) the great increase from 1914 to 1916 and the falling off in 1918; and (3) the increase in imports from Japan in 1916 and the falling off in 1918.

Later statistics of the imports of the woods mentioned in paragraph 404, both in the log and as sawed lumber, follow:

Cabinet woods in the log, rough or heven only.

| Calendar years. | Quantity. | Value. | Unit value. |
|--|----------------|-------------|-------------|
| BOX. | | | |
| | <i>M feet.</i> | | |
| 1918..... | | \$30,410 | |
| 1919..... | 978 | 55,325 | \$56.57 |
| 1920..... | 1,200 | 84,489 | 65.50 |
| 1921 (9 months)..... | 821 | 63,925 | 78.93 |
| CEDAR, INCLUDING SPANISH CEDAR. | | | |
| 1918..... | 9,844 | \$685,213 | \$69.61 |
| 1919..... | 8,611 | 695,769 | 68.97 |
| 1920..... | 8,254 | 729,754 | 88.48 |
| 1921 (9 months)..... | 5,616 | 387,113 | 68.93 |
| EBONY. | | | |
| 1918..... | | \$9,397 | |
| 1919..... | 432 | 71,838 | \$166.34 |
| 1920..... | 1,115 | 180,648 | 117.09 |
| 1921 (9 months)..... | 61 | 14,963 | 245.30 |
| LANCEWOOD. | | | |
| 1919..... | | \$94 | |
| 1920..... | 11 | 922 | \$83.82 |
| LIGNUM-VITÆ. | | | |
| 1918..... | | \$282,672 | |
| 1919..... | 1,725 | 178,632 | \$103.55 |
| 1920..... | 2,166 | 145,769 | 67.32 |
| 1921 (9 months)..... | 694 | 42,933 | 61.86 |
| MAHOGANY. | | | |
| 1918..... | 42,631 | \$5,848,378 | \$90.26 |
| 1919..... | 43,588 | 4,049,842 | 92.91 |
| 1920..... | 52,602 | 7,191,758 | 136.75 |
| 1921 (9 months)..... | 32,987 | 3,528,969 | 106.92 |
| ROSEWOOD. | | | |
| 1918..... | | \$47,939 | |
| 1919..... | 489 | 39,052 | \$79.86 |
| 1920..... | 1,265 | 133,643 | 105.63 |
| 1921 (9 months)..... | 539 | 51,752 | 96.02 |
| SATINWOOD. | | | |
| 1918..... | | \$387 | |
| 1919..... | 163 | 5,735 | \$34.14 |
| 1920..... | 81 | 8,431 | 104.09 |
| 1921 (9 months)..... | 28 | 2,828 | 101.00 |

Cabinet woods in the log, rough or hewn only—Continued.

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|--------|-------------|
| WALNUT. | | | |
| 1918..... | 30 | 38,255 | \$108.53 |
| 1919..... | 207 | 33,003 | 159.46 |
| 1920..... | 438 | 80,551 | 204.46 |
| 1921 (9 months)..... | 382 | 71,560 | 184.72 |

CABINET WOODS, N. S. P. F.

| | | | |
|----------------------|-------|-----------|---------|
| 1918..... | | \$347,354 | |
| 1919..... | 3,600 | 322,043 | \$89.45 |
| 1920..... | 7,635 | 737,134 | 96.52 |
| 1921 (9 months)..... | 3,020 | 316,657 | 104.85 |

TOTAL CABINET WOODS IN THE LOG, ETC.

| | | | |
|----------------------|--|-------------|--|
| 1918..... | | \$5,252,005 | |
| 1919..... | | 5,349,333 | |
| 1920..... | | 9,251,909 | |
| 1921 (9 months)..... | | 4,478,720 | |

*Boards, planks, deals, and other sawed Spanish cedar; lignum-vita, lance-wood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all other cabinet woods not further manufactured than sawed.*¹

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|----------------------|----------------|-----------|-------------|----------|
| | <i>M feet.</i> | | | |
| 1918..... | 3,108 | \$211,578 | \$68.07 | \$17,602 |
| 1919..... | 3,795 | 266,520 | 68.12 | 15,651 |
| 1920..... | 12,513 | 1,116,645 | 89.24 | 99,179 |
| 1921 (9 months)..... | 6,509 | 662,281 | 100.00 | ..... |

¹ Of these imports, a considerable part came in free of duty from the Philippines—about 20 per cent in 1920

Exports.—None recorded.

Important changes in classification.—This paragraph is in part a transfer from the free list (par. 648) of the 1913 act. The words "rough, or hewn only" are omitted after the word "log." Red cedar (*Juniperus virginiana*), mentioned in the previous acts, is not mentioned in H. R. 7456; on the other hand, Japanese white oak and Japanese maple, not mentioned in the previous acts, are added to the list in H. R. 7456. The term "cabinet woods," comprehending woods of that nature not specially provided for, is omitted.

VENEERS OF WOOD.

(See Survey D-1.)

Description and uses.—A veneer is a thin sheet of wood, often a valuable cabinet wood, used for gluing to the surface of an inferior wood to improve the appearance of the exterior. Veneers are also used for manufacturing ply wood. Two or more layers of veneer are glued together, the grain of each layer running crosswise to the grain of the layer to which it is glued, thus increasing the strength and preventing warping and splitting. Ply wood is much used in

the manufacture of furniture and boxes. Veneers of cheap woods are used in the manufacture of baskets. There are three methods of making veneers, (1) by a peripheral slicing, (2) by longitudinal slicing, (3) by sawing.

Production.—The census shows, for 1909, 637 establishments engaged in the manufacture of veneers, consuming 435,981,000 board feet of lumber for this purpose, and for 1919, 362 establishments consuming 637,520,000 board feet of lumber. These figures include veneers of both imported and domestic woods. Of the domestic woods one of the most important is red gum—30 per cent of the total in 1909 and 41 per cent in 1919. The industry is widespread. Among the most important States may be mentioned in order of rank—Arkansas, Delaware, Wisconsin, Florida, Alabama, Mississippi, Tennessee, New York, North Carolina, Illinois, Indiana, Kentucky, Missouri, Georgia, Washington, Michigan, Maine, Louisiana, and South Carolina.

Imports of veneers of wood declined during the war from \$23,981 in 1914 to \$8,567 in 1916 and to \$5,669 in 1918 (fiscal year). Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------|
| 1918..... | \$17,118 | \$2,668 | Per cent. 15 |
| 1919..... | 18,526 | 2,779 | 15 |
| 1920..... | 48,800 | 5,844 | 15 |
| 1921 (9 months)..... | 34,544 | | |

Exports.—Not segregated.

WOOD UNMANUFACTURED NOT SPECIALLY PROVIDED FOR.

Description, uses, and production.—No data.

Imports are shown in the following table:

| Calendar year. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------|---------|------------------------|
| 1918..... | \$14,424 | \$1,314 | Per cent. 9.112 |
| 1919..... | 34,443 | 1,282 | 9.527 |
| 1920..... | 106,783 | 10,614 | 9.754 |
| 1921 (9 months)..... | 43,435 | | |

Important changes in classification.—The provision for “wood unmanufactured, not specially provided for,” is new.

Spanish cedar, *lignum-vitæ*, etc., further manufactured than sawed, are not specifically provided for. Spanish cedar, *lignum-vitæ*, etc., further manufactured, than sawed, would be covered by a provision for “wood manufactured, not specially provided for,” which might be inserted before “and manufactures of wood” in paragraph 414.

Suggested changes.—Page 78, line 16 of H. R. 7456: Insert a comma after “veneers of wood” and omit the comma after “unmanufactured.”

PARAGRAPH 405.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 405. Paving posts, railroad ties, and telephone, trolley electric-light, and telegraph poles of cedar or other woods, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 204. Paving posts, railroad ties, and telephone, trolley, electric light, and telegraph poles of cedar or other woods, ten per centum ad valorem.

PAR. 170. Paving posts, railroad ties, and telephone, trolley, electric-light, and telegraph poles of cedar or other woods, 10 per centum ad valorem.

PAVING POSTS.

Description, uses, and production.—No data available.
Imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1920..... | 17,357 | \$4,142 | \$0.24 | \$414 | 10 |
| 1921 (9 months)..... | 1,791 | 1,606 | .95 | | |

Exports.—Not segregated.

Suggested changes.—It is suggested that "paving posts" may be omitted from separate enumeration and assessed for duty as "posts" under paragraph 406. There will be no change in the rate of duty—10 per centum.

POLES.

(See Survey D-2.)

Description and uses.—The most important wood used for posts and poles—about two-thirds of the total—is cedar, including northern white, western red, and southern white. Other woods used are chestnut, oak, pine, cypress, Douglas fir, tamarack, redwood, osage orange, spruce, juniper, hemlock, and locust. Cedar is preferred because of its resistance to decay in the ground. Poles are from 20 to 60 feet and upward in length. Top diameters, always specified, vary from 4 to 6 inches in 20 to 30 foot lengths, and from 6 to 10 inches in lengths of 40 feet and over. Steel and concrete poles and steel towers compete to some extent. Underground conduits for wires and trolley systems also serve as substitutes.

Western red cedar grows in mixed stands with the Douglas fir in Montana, Idaho, and the Pacific Northwest. Northern Idaho produces more poles than any other region of equal extent. Northern white cedar is found distributed over New England and the Lake States, and furnishes the major portion of cedar poles. Southern white cedar is found along the Atlantic coast. Cypress, with high resistance to decay, is found abundantly in the Gulf States, especially Louisiana and Florida. Competition is active between the regions mentioned. Shipments of western red-cedar poles compete with the northern white-cedar poles of New England and the Lake States in

the middle western and eastern markets. In Tennessee, Kentucky, Virginia, and Pennsylvania western red cedar competes with the locally produced chestnut and pine poles, even finding its way to the Southeastern States to compete with the eastern red cedar, cypress, and pine.

The only foreign competition of consequence is with Canada. In British Columbia western red cedar grows in pure stands, making the logging of cedar poles less dependent upon conditions in the Douglas-fir trade. The extent of this competition is affected by the policy of the Provinces of Canada imposing restrictions upon the exportation of logs. Intermittently these restrictions are practically abolished in British Columbia, thus subjecting the logging interest to more active competition, but tending to the advantage of shingle manufacturers and others using cedar logs.

Production.—An estimate made by the Forest Service places the number of poles annually produced at 4,250,000, consuming 55,000,000 board feet of hardwood and 200,000,000 board feet of softwood timber. Poles are quoted per linear foot, according to the length and top diameter. In May, 1921, prices of western red-cedar poles in the Nelson market ran from 4½ cents per linear foot for a pole 10 to 20 feet long and 5 inches in diameter at the top to 12 cents per linear foot for a pole 55 to 60 feet long and 8 inches in diameter at the top. Assuming for an average pole a length of 30 feet and a top diameter of 7 inches and a price of 8½ cents per linear foot, the total value of the poles produced would be \$10,625,000.

Imports of paving posts, railroad ties, and telephone, trolley, electric-light, and telegraph poles (not separately enumerated) in 1914 were valued at \$409,449; in 1916, at \$145,799; in 1918 (fiscal year), at \$347,910. Virtually all came from Canada. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

PAVING POSTS, RAILROAD TIES, AND TELEPHONE, TROLLEY, ELECTRIC LIGHT, AND TELEGRAPH POLES.

| | Number. | Value. | Unit value. | Duty. | Per cent. |
|-----------|---------|-----------|-------------|----------|-----------|
| 1918..... | | \$173,000 | | \$27,166 | |

POLES, TELEPHONE, TROLLEY, ELECTRIC LIGHT, AND TELEGRAPH.

| | Number. | Value. | Unit value. | Duty. | Per cent. |
|----------------------|---------|-----------|-------------|----------|-----------|
| 1919..... | 69,537 | \$182,412 | \$2.62 | \$18,241 | 10 |
| 1920..... | 158,255 | 500,300 | 3.16 | 50,000 | 10 |
| 1921 (9 months)..... | 129,693 | 499,363 | 3.85 | | |

Exports are not segregated from logs and round or hewn timber.

RAILROAD TIES.

(See Survey D-2.)

Description and use.—Railroad ties are the pieces of timber laid in the ground crosswise to the rails and attached to them by spikes. They are made either of hewn or sawed timber, the former being

much the more generally employed. They are either treated or untreated with preservative before being used. If untreated, comparatively few woods possess sufficient resistance to wear and decay, but by far the best is white oak. Other woods used are locust, osage orange, cypress, chestnut, and the heartwood of long-leaf pine.

When treated by being inclosed in large steel cylinders and subjected, under heavy pressure, to solutions of zinc chloride or creosote until thoroughly impregnated, the list may be greatly extended and will include the black and red oaks, beech, birch, maple, elm, gum, ash, hickory, sassafras, hackberry, poplar, cottonwood, sycamore, loblolly, short-leaf pine, Douglas fir, tamarack, hemlock, and white cypress. Thus preservatives make possible the utilization of much inferior timber, release the more valuable woods, and greatly extend the average life of ties. Untreated ties last on an average for 7 or 8 years; treated ties, from 20 to 30 years.

Whether treated or untreated, oak still holds first place, about one-half the ties being of this wood. Oak, southern pine, Douglas fir, cedar, chestnut, and cypress compose about 85 per cent of the total.

Railroad ties are the only wood products of first-class commercial importance for which there are no satisfactory substitutes. Concrete, steel, and leather waste have been tried, only to be abandoned. Some of the patent steel ties are satisfactory, but the expense is prohibitive.

Production can only be estimated. An estimate (1915) based on consumption, after making allowance for imports and exports, places the number at 126,000,000, with a value of \$63,000,000. A recent estimate made by the Forest Service (year not stated) places the number of hewn ties at 87,500,000 ties, consuming 2,100,000,000 board feet of hardwood and 525,000,000 board feet of softwood. The quantity of timber consumed for railroad ties exceeds that for any single use except lumber. The proportion of treated ties increased from 17 per cent in 1909 to 38 per cent in 1915. As the life of treated ties is much longer than that of the untreated ties, this movement is in the interest of the conservation of one of our most valuable hardwoods—white oak. The economy of treated ties is evidenced by the steady falling off in the total demand—148,231,000 in 1910, 126,000,000 in 1915, 87,500,000 according to the recent estimate by the Forest Service.*

Imports of railroad ties were not segregated from paving posts and telephone, trolley, electric-light, and telegraph poles until 1919. For the years 1919, 1920, and 1921 they are shown in the following table:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1919..... | 462,368 | \$355,257 | \$0.77 | \$35,526 | 10 |
| 1920..... | 1,284,026 | 1,183,857 | .92 | 118,589 | 10 |
| 1921 (9 months)..... | 732,593 | 695,924 | .95 | ..... | ..... |

* The Forest Service estimate, however, does not include sawed ties.

Exports of railroad ties in 1914 were 5,123,004, valued at \$2,564,543. The most important country of destination was Canada—3,492,928. Other countries of importance were Mexico, Peru, and Honduras. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|------------------|
| Quantity (number)..... | 2,681,823 | 4,699,902 | 4,246,238 | 2,794,471 |
| Value..... | \$3,306,171 | \$4,178,525 | \$5,565,604 | \$3,917,868 |

Suggested changes.—A judicial decision (*Mitchell Co. v. United States*, 10 Ct. Cust. Appls., 104 of 1920) makes advisable insertion of the words “finished or unfinished” after “woods.”

PARAGRAPH 406.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 406. Hubs for wheels, posts, heading bolts, stave bolts, last blocks, wagon blocks, car blocks, heading blocks, and all like blocks or sticks, roughhewn, sawed or bored, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 206. Hubs for wheels, posts, heading bolts, stave bolts, last blocks, wagon blocks, oarblocks, heading blocks, and all like blocks or sticks, roughhewn, sawed or bored, twenty per centum ad valorem.

PAR. 647. Wood: * * * fence posts, * * * hubs for wheels, posts, heading bolts, stave bolts, last blocks, wagon blocks oar blocks, heading blocks, and all like blocks or sticks, rough hewn, sawed, or bored; * * * not specially provided for in this section [Free].

PAR. 665. Fence posts of wood [Free].

HUBS FOR WHEELS, POSTS, ETC.

(See Survey FL-87.)

Description and uses.—The items in paragraph 406 are rough, unshaped bolts or blocks of a size and kind of wood suitable for the purposes enumerated.

Production.—No data available.

Imports are shown in the following table:

| Calendar year. | Quantity. | Value. | Unit value. |
|-------------------------|--------------------|----------|-------------|
| FENCE POSTS. | | | |
| 1914 ¹ | Number. 433,207 | \$32,601 | \$0.08 |
| 1918..... | 880,119 | 85,933 | .10 |
| 1919..... | 1,435,252 | 137,475 | .10 |
| 1920..... | 1,546,744 | 201,755 | .13 |
| 1921 (9 months)..... | 823,295 | 89,790 | .10 |

¹ Fiscal year.

HUBS FOR WHEELS, POSTS, HEADING BOLTS, ETC.

| | | | |
|-------------------------|-----------|----------|--------|
| 1914 ¹ | | \$16,549 | |
| 1918..... | | 136,816 | |
| 1919..... | 1,381,190 | 144,768 | \$0.10 |
| 1920..... | | 147,827 | |
| 1921 (9 months)..... | | 93,999 | |

¹ Fiscal year. Dutiable from July 1, to Oct. 3, 1913. Duty collected, \$636.

Exports.—Not separately enumerated.

Important changes in classification.—Fence posts, specifically enumerated in the act of 1913, are not mentioned in H. R. 7456 and would probably come within the general term "posts." All of the items mentioned in paragraph 406, H. R. 7456, are on the free list, paragraph 647, of the act of 1913.

Suggested changes.—In the acts of 1909 (par. 206) and 1913 (par. 647) the provision is for *oar* blocks rather than *car* blocks.

PARAGRAPH 407.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 407. Pickets, palings, hoops, and staves of wood of all kinds, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 208. Pickets, palings and staves of wood, of all kinds, ten per centum ad valorem.

PAR. 215. * * * manufactures of wood * * * not specially provided for in this section, thirty-five per centum ad valorem.

PAR. 176. * * * manufactures of wood * * * not specially provided for in this section, 15 per centum ad valorem.

PAR. 647. Wood: * * * pickets, palings, staves, * * * [Free].

PICKETS, PALINGS, HOOPS, AND STAVES.

(For staves see also Survey D-2 and par. 409, p. 574.)

Description and uses.—Pickets and palings are the upright pieces used in making wood fences and for other purposes. Hoops and staves are used in making barrels, hogsheads, casks, etc.

Production.—A recent estimate by the Forest Service places the annual production of tight staves at 286,000,000 staves, of tight heading at 21,000,000 sets; of slack staves at 1,010,000,000 staves; of slack heading at 61,000,000 sets; of hoops at 333,000,000 hoops. Data as to pickets and palings not available.

Imports in 1914 and in recent years are shown in the following table:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|-----------------------------|-------------------|----------|-------------|--------|
| PICKETS AND PALINGS: | | | | |
| | <i>Thousands.</i> | | | |
| 1914 ¹ | 15,634 | \$78,390 | \$5.01 | \$7.84 |
| 1914 ¹ | 23,539 | 110,239 | 4.67 | |
| 1918..... | 34,077 | 273,921 | 8.04 | |
| 1919..... | 41,214 | 342,976 | 8.32 | |
| 1920..... | 52,645 | 586,644 | 11.14 | |
| 1921 (9 months)..... | 21,783 | 231,867 | 10.64 | |
| WOOD STAVES. | | | | |
| | <i>Number.</i> | | | |
| 1914 ¹ | | \$16,039 | | \$1.60 |
| 1914 ¹ | | 34,894 | | |
| 1918..... | | 115,183 | | |
| 1919..... | 4,905,574 | 40,093 | \$0.01 | |
| 1920..... | 8,127,095 | 110,750 | 0.01 | |
| 1921 (9 months)..... | 1,857,000 | 20,410 | 0.01 | |

¹ Fiscal year.

Exports of staves in 1914 were 77,150,535, valued at \$5,852,230. Exports of pickets and palings are not enumerated. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|--------------|--------------|---------------------|
| Quantity (number)..... | 53,373,526 | 81,667,792 | 82,583,710 | 27,646,177 |
| Value..... | \$3,605,332 | \$13,160,377 | \$15,408,334 | \$3,078,531 |

Important changes in classification.—The items mentioned in this paragraph, except hoops, are on the free list, paragraph 647 of the act of 1913.

PARAGRAPH 408.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 408. Shingles, 50 cents per thousand.

ACT OF 1909.

ACT OF 1913.

PAR. 209. Shingles, fifty cents per thousand.

PAR. 647. Wood: * * * shingles,
* * * [Free].

SHINGLES.

(See Survey FL-37.)

Production.—Shingles are among the important wood products and have given rise to considerable tariff controversy. They are produced from several kinds of wood and in nearly all the States, but over 70 per cent of the output is of western red cedar in the State of Washington alone. In 1912 the total output was 12,087,685,000; of these 9,500,908,000 were of cedar (western red and white) and 1,311,750,000 were of cypress, two woods particularly suitable because of their resistance to decay. Other woods in order of importance (amounts in millions of shingles) were: Yellow pine, 578 (i. e., 578,000,000 shingles); redwood, 447; white pine, 69; chestnut, 45; western pine, 30; hemlock, 29; and spruce, 8. In 1911 the States producing over 100,000,000 shingles were (amounts in millions) Washington, 7,745 (i. e., 7,745,000,000 shingles); Louisiana, 800; Maine, 559; Michigan, 510; California, 404; Oregon, 392; Wisconsin, 324; Georgia, 256; Florida, 167; North Carolina, 161; Alabama, 148; and Arkansas, 146. It will be seen that the industry centers in the Pacific Northwest, the South, the Lake States, and the State of Maine. The four States, Washington, Louisiana, Maine, and Michigan, each typical of these regions, produce about 80 per cent of the total output. In recent years the production has declined. The year of maximum production was 1909 (14,907,371 thousand). In 1919 the production had fallen to 9,453,000 thousand. In Washington alone production has fallen from 8,879,000 thousand in 1909 to 6,133,000 thousand in 1919. Production in British Columbia is increasing (725,000 thousand in 1908; 2,412,000 thousand in 1919).

In the United States the red cedar grows in mixed stands with the Douglas fir. As the cutting of Douglas fir is the preponderant logging interest, cedar bolts and logs are somewhat of the nature of a by-product. The supply of raw material for the shingle mills therefore depends upon conditions in the fir trade. Other factors are the proportion of cedar in the timber being logged and the proportion of cedar logs used for other purposes than shingles. When there is a curtailment of output on the part of loggers, because of the low price of fir, cedar logs become scarce. It also sometimes happens that there is a strong demand for cedar logs for siding or other purposes. In either case the shingle manufacturers have difficulty in obtaining raw material, and at times have been compelled to shut down. A considerable proportion of the shingles are made from bolts derived from dead stumps left in cut-over land. This is especially true in the "straight shingle mills" (mills producing shingles only). Logs are more extensively used in the "combination mills" (mills producing other products as well as shingles).

Imports were 895,038 thousand, valued at \$2,190,170 in 1914 and 1,878,465 thousand, valued at \$5,453,951 in 1918 (fiscal year), virtually all from Canada. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|------------------------------------|------------------|-------------|-------------|
| | <i>Thousand.</i> | | |
| 1918..... | 1,797,610 | \$5,626,932 | \$3.10 |
| 1919..... | 1,987,480 | 8,720,032 | 4.39 |
| 1920..... | 1,963,537 | 11,260,189 | 5.73 |
| 1921 (9 months) ¹ | 1,708 | 7,453 | 4.28 |
| Do. ² | 1,524,995 | 4,274,568 | 2.68 |

¹ White pine.

² All other.

Exports in 1914 were 46,964 thousand shingles valued at \$112,463. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------|----------|----------|-----------|---------------------|
| Quantity (thousand)..... | 19,892 | 16,143 | 34,237 | 16,985 |
| Value..... | \$95,892 | \$89,480 | \$196,638 | \$103,548 |

Competitive conditions.—There is active competition between shingle producers in Washington and British Columbia. Costs of production are about the same, American producers having an advantage in some respects and Canadian producers in others. In both regions there is great difference in the costs of production among individual mills.

Important changes in classification.—Shingles have been transferred from the free list, paragraph 647, of the act of 1913.

PARAGRAPH 409.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 409. Casks, barrels, and hogsheads (empty), sugar-box shooks, and packing boxes (empty), and packing-box shooks, of wood, not specially provided for, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 210. Casks, barrels, and hogsheads (empty), sugar-box shooks, and packing-boxes (empty), and packing-box shooks, of wood, not specially provided for in this section, thirty per centum ad valorem.

PAR. 171. Casks, barrels, and hogsheads (empty), sugar-box shooks, and packing boxes (empty), and packing-box shooks, of wood, not specially provided for in this section, 15 per centum ad valorem.

CASKS, BARRELS, AND HOGSHEADS.

(See Survey D-2.)

Description and uses.—Casks, barrels, and hogsheads are classified as tight or slack cooperage, according as they are designed to hold liquids or solids. Semitight cooperage for butter, lard, paste, paint, mincemeat, etc., is also recognized. For tight cooperage, especially for alcoholic liquids, white oak was until recently almost the only wood used for staves. With the growing scarcity of white oak, coopers have tried other woods, as cypress, red oak, and gum. As late as 1911, however, white oak constituted over 60 per cent of the total. For slack cooperage there is a much wider choice, red gum, pine, beech, elm, chestnut, spruce, ash, maple, and oak being in the lead. The wood used depends much upon the purpose of the container; e. g., the wood for butter tubs must be free from odor or taste, and for flour and sugar must be superior to that for fruit, vegetables, or cement. For headings the preferred woods are bass, gum, pine, and elm; and for hoops 86 per cent are of elm, other woods used being birch, red oak, maple, ash, and hickory. Substitutes are becoming increasingly important. Crude petroleum was formerly transported in wooden barrels. Use is now made of the pipe line, steel tank car, tin case, steel barrels, etc. For tight cooperage an annual release thereby of 5,700,000 barrels is estimated. In slack cooperage, cotton and jute sacks replace barrels for flour and sugar. Carton packages are also gaining favor. The total annual substitution is estimated at 35,000,000 barrels.

Production in 1914 follows: Establishments, 1,259; wage earners, 17,128; capital, \$36,690,031; wages, \$9,160,583 (\$468 per capita); value of products, \$50,017,320; value added by manufacture, \$17,073,637. Tight cooperage appears to have increased from 1905 to 1911, the output of staves rising from 240,000,000 to 360,000,000. Allowing 21 staves to the barrel, this gives 17,133,000 barrels in 1911. Output has declined since 1911. Slack cooperage increased until 1909, and then decreased, the number of staves in 1911 being 1,328,968,000, which, allowing 15 staves to the barrel, accounts for 88,597,800 barrels. In the manufacture of casks, barrels, and hogsheads the leading States are New York, Illinois, Virginia, Ohio, and Pennsylvania; but

for the manufacture of cooperage stock (staves, hoops, and heading) the States producing the timber lead--i. e., staves for tight cooperage, Arkansas, Tennessee, New Hampshire, West Virginia, Mississippi; staves for slack cooperage, Arkansas, Missouri, Pennsylvania, Virginia; for headings, Arkansas, Michigan, Pennsylvania, Wisconsin; for hoops, Ohio, Indiana, Michigan. The different parts of a barrel are assembled from widely separated regions.

In recent years there has been a decline in the output, both of tight and slack cooperage. The decline in tight cooperage is doubtless chiefly due to prohibition. The decline in slack cooperage is probably chiefly due to the substitution of other forms of containers. The following tables, showing this decline, are from the preliminary comparative reports of the census.

TIGHT COOPERAGE.

Number of establishments in 1919, 449; in 1909, 538.

Production.

| Kind. | 1919 | | 1909 | |
|--------------------------|------------------|-----------------|------------------|-----------------|
| | Staves (pieces). | Heading (sets). | Staves (pieces). | Heading (sets). |
| Aggregate..... | 353,825,000 | 24,274,000 | 379,231,000 | 20,691,000 |
| Sawed, total..... | 348,812,000 | 24,265,000 | 341,259,000 | 19,736,000 |
| Oil and tierce..... | 208,778,000 | 13,034,000 | 158,457,000 | 8,172,000 |
| Spirit and wine..... | 20,211,000 | 1,218,000 | 38,933,000 | 2,208,000 |
| Bourbon..... | 5,040,000 | 107,000 | 11,991,000 | 1,290,000 |
| Half-barrel and keg..... | 68,788,000 | 6,142,000 | 19,358,000 | 1,690,000 |
| Pork..... | 10,246,000 | 300,000 | 13,457,040 | 393,000 |
| All other..... | 88,753,000 | 2,567,000 | 99,065,000 | 4,993,000 |
| Bucked and split..... | 1,193,000 | ..... | 15,104,000 | ..... |
| Hewed..... | 3,269,000 | ..... | 6,321,000 | ..... |
| Beer and ale..... | 551,000 | 9,000 | 16,547,000 | 955,000 |

SLACK COOPERAGE.

Number of establishments, 1919, 744; 1909, 1,506.

Production.

| Kind. | 1919 | 1909 |
|--------------------------------|---------------|---------------|
| Staves (number of pieces)..... | 1,121,324,000 | 2,029,598,000 |
| Heading (number of sets)..... | 87,581,000 | 140,234,000 |
| Hoops (number of pieces)..... | 141,571,000 | 373,793,000 |

Imports in the fiscal years 1914 and 1918 were as follows:

| | 1914 | 1918 |
|--|---------|----------|
| Barrels, casks, and hogsheads (empty)..... | \$2,180 | \$41,220 |
| Barrels, casks, and hogsheads, containing mineral water..... | 135 | 4 |
| Barrels or boxes of foreign manufacture, containing fruit..... | 485,976 | 375,222 |
| Barrels or boxes of growth and manufacture of United States, containing fruit..... | 2,778 | ..... |

Importations of barrels, casks, and hogsheads, as such (unused), are insignificant. Those imported as containers of fruit may be used again, and so add to the supply. It is impossible to say just how important this trade is, as the barrels are not segregated from the boxes. Imports of staves are increasing. Later statistics follow:

Barrels, casks, and hogsheads, empty.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$62,314 | | \$7,847 | 15.00 |
| 1919..... | 11,776 | 6,290 | \$0.53 | 941 | 14.96 |
| 1920..... | 36,758 | 39,165 | 1.06 | 5,847 | 14.93 |
| 1921 (9 months)..... | 2,765 | 5,407 | 1.95 | | |

Exports for the fiscal years 1914 and 1918 were as follows:

| | 1914 | 1918 |
|-----------------------------------|-----------|-----------|
| Hogsheads and barrels, empty..... | \$914,493 | \$471,280 |
| Cooperage and shooks..... | (1) | 3,278,180 |
| Heading..... | 332,662 | 440,525 |

¹ Not segregated.

Exports greatly exceed imports, indicating that in cooperage production the United States has a comparative advantage. The export trade in barrels is widely distributed, going to Argentina, Mexico, the East and West Indies, Canada, and Cuba. Exports of staves and headings much exceed the value of completed barrels. This trade also is widely distributed, going to France, the United Kingdom, West Indies, Spain, Italy, Netherlands, Germany (before the war), and Canada. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------------|-------------|-------------|-------------|---------------------|
| HOGSHEADS AND BARRELS, EMPTY. | | | | |
| Value..... | \$633,102 | \$821,841 | \$1,925,790 | \$521,446 |
| COOPERAGE SHOOKS. | | | | |
| Quantity (number)..... | 1,542,150 | 2,856,771 | 1,746,903 | 305,715 |
| Value..... | \$4,427,935 | \$8,489,009 | \$6,916,140 | \$1,616,194 |

SUGAR-BOX SHOOKS, PACKING BOXES, PACKING-BOX SHOOKS.

(See Survey D-2.)

Description and uses.—The term “shook” applies to a bundle of staves ready for assembling into cooperage or of boards shaped and ready for nailing into boxes, the object being convenience in ship-

ment. Substitutes for wooden boxes and shooks are the fiber container and veneer package or box. It is estimated that the fiber box in 1914 removed the need of approximately 1,070,000,000 feet (board measure) of wood for wooden containers, and the veneer box replaced 750,000,000 feet suitable for box shooks.

Production in 1914 was as follows: Establishments making wooden packing boxes, 1,174; wage earners, 38,548; capital, \$66,693,856; wages, \$18,206,067 (\$432 per capita); value of products, \$86,566,807; value added by manufacture, \$33,727,160. States of most importance, producing together about 56 per cent of the output, were Illinois, New York, Massachusetts, Wisconsin, Pennsylvania, New Hampshire, New Jersey, and Virginia.

Imports of sugar-box shooks, empty packing boxes, and packing-box shooks in 1914 were valued at \$36,165; in 1918 (fiscal year), at \$49,145. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$111,047 | | \$16,655 | 15.00 |
| 1919..... | 488,603 | 184,636 | \$0.38 | 27,695 | 15.00 |
| 1920..... | 1,038,409 | 203,087 | .19 | 30,388 | 14.97 |
| 1921 (9 months)..... | 89,072 | 47,446 | .53 | | |

Exports of box shooks in 1914 numbered 1,270,477, and in 1918 (fiscal year) were 2,511,223, shipped mainly to Cuba, Mexico, United Kingdom, Canada, and Argentina. Records of exports of containers carrying merchandise, were they available, should be added to these figures. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| BOX SHOOKS. | | | | |
| Value..... | \$2,737,865 | \$2,820,541 | \$4,248,761 | \$2,136,102 |
| ALL OTHER SHOOKS. | | | | |
| Quantity (number)..... | 363,426 | 479,535 | 179,603 | 122,904 |
| Value..... | \$758,359 | \$545,707 | \$158,940 | \$75,975 |

PARAGRAPH 410.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 410. Boxes, barrels, and other articles containing oranges, lemons, limes, grapefruit, shaddock or pomeles. 20 per centum ad valorem: *Provided*, That the thin wood, so called, comprising the sides, tops, and bottoms of orange and lemon boxes of the growth and manufacture of the United States, exported as orange and lemon box shooks, may be reimported in completed form, filled with oranges

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SENATE AMENDMENTS.

and lemons, by the payment of duty at one-half the rate imposed on similar boxes of entirely foreign growth and manufacture; but proof of the identity of such shooks shall be made under regulations to be prescribed by the Secretary of the Treasury.

ACT OF 1909.

PAR. 211. Boxes, barrels, or other articles containing oranges, lemons, limes, grapefruit, shaddocks or pomeles, thirty per centum ad valorem: *Provided*, That the thin wood, so called, comprising the sides, tops and bottoms of orange and lemon boxes of the growth and manufacture of the United States, exported as orange and lemon box shooks, may be reimported in completed form, filled with oranges and lemons, by the payment of duty at one-half the rate imposed on similar boxes of entirely foreign growth and manufacture; but proof of the identity of such shooks shall be made under regulations to be prescribed by the Secretary of the Treasury.

ACT OF 1913.

PAR. 172. Boxes, barrels, or other articles containing oranges, lemons, limes, grapefruit, shaddocks, or pomeles, 15 per centum ad valorem: *Provided*, That the thin wood, so called, comprising the sides, tops and bottoms of fruit boxes of the growth and manufacture of the United States, exported as fruit box shooks, may be reimported in completed form, filled with fruit, without the payment of duty; but proof of the identity of such shooks shall be made under regulations to be prescribed by the Secretary of the Treasury.

BOXES, BARRELS, ETC., CONTAINING CERTAIN FRUITS.

(See Survey D-2.)

Production.—Previous to 1909 a considerable business had developed, especially in Maine, of manufacturing wood fruit-box shooks (sides, tops, and bottoms) and exporting them in a knocked-down condition. They were assembled by foreign fruit merchants, the ends and the middle piece added, and then filled with fruit. Estimates of the manufacturers placed the business at about 3,000,000 bundles, which were valued at \$150,000. This business has greatly declined in recent years.

Imports, "when of the growth and manufacture of the United States," in 1907 were valued at \$109,088; in 1909, at \$64,323; in 1913, at \$15,815; in 1914, at \$2,778. "When of foreign growth and manufacture," in 1907, \$204,160; in 1909, \$247,819; in 1913, \$348,620; in 1914, \$535,974. Later statistics follow:

Barrels or boxes containing oranges, lemons, limes, grapefruit, shaddocks or pomeles of foreign growth or manufacture.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|------------------------|
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$374,826 | | \$55,916 | 14.92 |
| 1919..... | 1,144,217 | 522,196 | \$0.46 | 77,367 | 14.82 |
| 1920..... | 1,632,805 | 508,149 | .31 | 75,415 | 14.85 |
| 1921 (9 months)..... | 135,379 | 240,863 | .33 | | |

In the years 1918-1921 there were no imports of the specified fruits in boxes or barrels of domestic manufacture.

Exports.—No data.

Suggested changes.—Page 79, line 9, of H. R. 7456: Insert “or” between “limes” and “grapefruit,” strike out “shaddocks or pome-los,” and make one word of “grape fruit” to agree with paragraph 743 of schedule 7.

Should not thin wood of boxes for limes and grapefruit be included if it is desirable to continue the proviso at all?

This paragraph requires wood for orange and lemon boxes to be grown in the United States as well as that the boxes shall be manufactured in the United States, whereas paragraph 1514 does not require that articles to be exempt from duty shall be both of the growth and manufacture of the United States.

PARAGRAPH 411.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 411. Reeds wrought or manufactured from rattans or reeds, whether round, flat, split, oval, or in whatever form, cane wrought or manufactured from rattan, cane webbing, and split or partially manufactured rattan, not specially provided for in this section, 20 per centum ad valorem. For the purpose of assessing duties, hand-made reeds or cane shall be held to be comparable in value to machine-cut reeds or cane of corresponding size. Furniture made with frames wholly or in part of wood, rattan, reed, bamboo, or malacca, and covered wholly or in part with rattan, reed, grass, or fiber of any kind, 50 per centum ad valorem; split bamboo, 2 cents per pound; osier or willow, including chip of and split willow, prepared for basket maker's use, 25 per centum ad valorem; all articles not specially provided for, wholly or partly manufactured of rattan, bamboo, osier, or willow, 40 per centum ad valorem.

ACT OF 1909.

PAR. 212. Chair cane or reeds wrought or manufactured from rattans or reeds, ten per centum ad valorem; osier or willow, including chip of and split willow, prepared for basket makers' use, twenty-five per centum ad valorem; manufactures of osier or willow and willow furniture, forty-five per centum ad valorem.

PAR. 215. House or cabinet furniture wholly or in chief value of wood, wholly or partly finished, and manufactures of wood * * * not specially provided for in this section, thirty-five per centum ad valorem.

PAR. 713. Woods: * * * rattan, reeds manufactured, * * * in the rough or not further advanced than cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, fishing rods, or walking canes [Free].

ACT OF 1913.

PAR. 173. Chair cane or reeds wrought or manufactured from rattans or reeds, 10 per centum ad valorem; osier or willow, including chip of and split willow, prepared for basket makers' use, 10 per centum ad valorem; manufactures of osier or willow and willow furniture, 25 per centum ad valorem.

PAR. 176. House or cabinet furniture wholly or in chief value of wood, wholly or partly finished, and manufactures of wood * * * not specially provided for in this section, 15 per centum ad valorem.

PAR. 648. Woods: * * * rattan, reeds unmanufactured, * * * in the rough, or not further advanced than cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, fishing rods, or walking canes [Free].

RATTAN, WILLOW, AND MANUFACTURES OF.

(See Survey D-8.)

Description and uses.—Rattan and willow may often be used for similar purposes.

Rattan is the trade name for the long, slender, trailing stems of plants of the genus *Calamus* of the family *Palmaceæ*. These stems vary from the size of a goose quill to more than 3 inches in diameter. They sometimes grow to a length of over 200 feet, climbing the loftiest trees by means of recurved spines beneath the leaf stalks. The smaller sizes are called "rattans" in commerce; the larger, Malacca canes. The rattan flourishes in southern Asia and adjacent islands, some species in Australia and Africa. Its fibers are extraordinarily tough and strong. The surface of the stem is of a tawny yellow or brownish color, covered with a flinty deposit of silica capable of resisting acid, making it valuable for covering containers of sulphuric acid. When split into strips, it is used for caning chairs, couches, etc.

The inner fibrous tissue, known as "reed," is of a dull-gray or reddish white color. It may be split into strips of great tensile strength and elasticity, when it is used in basketry and braided work. Rattan is gathered from the forests by natives, cut into lengths of 12 or 16 feet, seasoned, doubled, and tied in bundles in lots of 100 canes, the unit of commerce. It finds domestic use in the manufacture of baskets for fruit dealers, gardeners, florists, hucksters, potters, and grocers; also for clothes and coal baskets, cars for balloons, rustic chairs, latticework, doormats, brooms, and whips. When impregnated with caoutchouc, it is a substitute for whalebone in corsets. The larger canes are used for walking sticks, whip, and umbrella handles, and light furniture.

There are some 200 species of willow, several of which, suitable for making baskets and furniture, are known as "basket willow." It is cultivated in this country to a considerable extent, especially near Liverpool, N. Y., whence comes about 90 per cent of the willow clothes baskets. The withes are reaped in the autumn and, for basket or furniture work, may be either "sap peeled" or "steam peeled." The former, of a beautiful, pure white color, are preferred for fine wares, white steam-peeled withes, of a dull reddish color, are cheaper and involve less hand labor. As the greater part of the American product is steam peeled, hand-peeled willow is imported in considerable quantities, though domestic rods of as good quality could be produced by equal care in peeling and sorting.

Production in 1914.—*Rattan and willow furniture:* Factories, 85; persons engaged in industry, 2,559 (2,262 laborers); capital, \$3,371,218; wages, \$1,281,141 (\$566 average per capita); value of products, \$5,022,089; value added by manufacture, \$3,008,310. *Baskets and rattan and willow ware:* Factories, 419; persons engaged in industry, 5,302 (4,574 laborers); capital, \$4,590,515; wages, \$1,922,965 (\$421 average per capita); value of products, \$6,578,468; value added by manufacture, \$3,579,183.

About one-third of the output is from New York. Other important States are Michigan, Indiana, Ohio, California, and Pennsylvania. Of the \$6,578,468 given as the value of "baskets and rattan and

willow ware," it is estimated that approximately \$3,000,000 is for "splint" baskets and \$1,500,000 for baskets of rattan and willow; the rest, for small wares. The factories are few, the manufacture of rattan and willow baskets being a "household industry," often carried on by "putting out" on contract the material to be made into baskets. Machinery is little used; a jackknife and a scroll saw to fashion the wooden bottom are about all required. Because of the hand labor necessary and the general high wages, manufacturers find it difficult to compete with foreign makers. Before the war importations came chiefly from Germany, and in the United States the industry is largely carried on by families of German or other European descent. In the case of small fancy baskets, raffia, sweet grass, and some other substances may be regarded as substitutes for rattan and willow; at the other extreme, the cheap splint basket is a substitute. Each of these types, however, has its own field. As between willow and rattan, willow serves well when great strength is not required, as for the clothes basket. For coal baskets, the tough fiber of the rattan is preferable. Rattan and willow furniture compete with each other and with furniture of other materials.

Imports for the fiscal years 1914 and 1918 were as follows:

| | 1914 | 1918 |
|--|-------------|-------------|
| Rattan and reeds (unmanufactured)..... | \$1,210,390 | \$1,781,239 |
| Chair canes or reeds wrought from rattan or reeds..... | 450,813 | 202,585 |
| Oster or willow: | | |
| Prepared for basket makers' use..... | 95,434 | 144,629 |
| Manufactures of, except furniture..... | 25,821 | 10,836 |
| Willow furniture..... | 26,061 | 2,844 |

Rattan and reeds are imported unmanufactured from the East Indies and split, cut, and prepared by factories, chiefly in Massachusetts, New Jersey, and New York, for the manufacture of baskets, furniture, and for other wares in Massachusetts, New York, Chicago, etc. The split and otherwise prepared cane is also imported, and comes in competition with the product of factories splitting and preparing the cane in the United States. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|-------------|----------|------------------|
| RATTAN AND REEDS, UNMANUFACTURED. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$1,398,465 | | |
| 1919..... | 872,371 | | |
| 1920..... | 2,466,617 | | |
| 1921 (9 months)..... | 887,617 | | |
| CHAIR CANE OR REED, WROUGHT OR MANUFACTURED FROM RATTAN OR REEDS. | | | |
| 1918..... | \$24,268 | \$24,382 | 10 |
| 1919..... | 269,265 | 26,921 | 10 |
| 1920..... | 1,166,538 | 116,651 | 10 |
| 1921 (9 months)..... | 431,021 | | |

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|----------|---------|------------------|
| OSIER AND WILLOW PREPARED FOR BASKET-MAKERS' USE. | | | |
| 1918..... | \$72,123 | \$7,203 | 10 |
| 1919..... | 304,696 | 30,470 | 10 |
| 1920..... | 284,611 | 28,451 | 10 |
| 1921 (9 months)..... | 105,639 | | |

| WILLOW FURNITURE. | | | |
|--------------------------|---------|-------|----|
| 1918..... | \$1,813 | \$392 | 25 |
| 1919..... | 3,040 | 521 | 25 |
| 1920..... | 28,114 | 6,771 | 25 |
| 1921 (9 months)..... | 52,276 | | |

| MANUFACTURES OF OSIER AND WILLOW, EXCEPT WILLOW FURNITURE. | | | |
|---|---------|---------|----|
| 1918..... | \$9,459 | \$2,365 | 25 |
| 1919..... | 13,845 | 3,461 | 25 |
| 1920..... | 30,067 | 7,258 | 25 |
| 1921 (9 months)..... | 38,428 | | |

Exports of items mentioned in paragraph 411 are not segregated.

Important changes in classification.—This is partly a rephrasing of paragraphs 173 and 648 of the act of 1913, and partly new. The new provisions concern cane webbing, the basis of duties, furniture, and split bamboo.

Conflicting provisions.—The omission from H. R. 7456 of the specific provision in paragraph 173 of the act of 1913 for willow furniture raises a doubt whether such furniture will come within paragraph 411 as a manufacture of willow or within paragraph 414 as house or cabinet furniture.

Suggested changes.—Page 79, line 20, of H. R. 7456: Strike out the "s" from "rattans."

Page 79, line 24: Strike out "in this section" to agree with practice throughout the title.

Page 79, line 24, and page 80, lines 1-3, of H. R. 7456: The meaning of this sentence is not clear. Ad valorem duties are assessed upon the value of the imported articles themselves as returned by the appraising officers.

Page 80, line 8, of H. R. 7456: Change "basket maker's" to "basket makers'."

PARAGRAPH 412.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 412. Toothpicks of wood or other vegetable substance, 25 per centum ad valorem; butchers' and packers' skewers of wood, 25 cents per thousand.

ACT OF 1909.

PAR. 213. Toothpicks of wood or other vegetable substance, two cents per one thousand and fifteen per centum ad valorem; butchers' and packers' skewers of wood, forty cents per thousand.

ACT OF 1913.

PAR. 174. Toothpicks of wood or other vegetable substance, 25 per centum ad valorem; butchers' and packers' skewers of wood, 10 cents per thousand.

TOOTHPICKS AND SKEWERS.

(See Survey D-3.)

Description and uses.—Toothpicks of the most familiar form have a square or rectangular cross-section. The imported toothpicks, often made of orange wood, have a circular cross-section and are of a higher grade. Skewers are used for holding meat together.

Production.—Both wood toothpicks and skewers are manufactured in large quantities by comparatively few establishments making use of highly specialized machinery. The birthplace of the wood-toothpick industry is Dixfield, Me., and Maine is still the most important producing State. There are also factories in Massachusetts, Vermont, New York, and some other States. The lumber annually consumed is estimated at 10,850,000 feet, of which 51.4 per cent is basswood, 32.9 per cent is paper birch, 11.1 per cent sugar maple, and 4.6 per cent yellow poplar. The annual production is estimated at 54,000,000,000.

The principal skewer factories are located in Maine, Massachusetts, New York, and Tennessee. The best woods are hickory and oak, though other woods are used.

Imports of toothpicks were valued at \$4,551 in 1914, and at \$3,421 in 1918; of skewers, at \$20 in 1914 and \$992 in 1918 (fiscal year). Toothpicks come chiefly from Japan, Portugal, and Italy. Many of the imported toothpicks are of orangewood, of a circular cross-section, polished, and of a higher grade than the American product. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

WOOD TOOTHPICKS.

| | Thousand. | | | | Per cent. |
|----------------------|-----------|---------|--|-------|-----------|
| 1918..... | | \$1,832 | | \$458 | 25.00 |
| 1919..... | | 277 | | 57 | 25.00 |
| 1920..... | | 2,091 | | 523 | 25.00 |
| 1921 (9 months)..... | | 177 | | | |

BUTCHERS' AND PACKERS' SKEWERS.

| | | | | | |
|----------------------|-----|-------|--------|------|-------|
| 1918..... | 755 | \$519 | \$0.69 | \$75 | 14.55 |
| 1919..... | 50 | 33 | .66 | 5 | 15.15 |
| 1920..... | 584 | 682 | 1.17 | 58 | 8.56 |
| 1921 (9 months)..... | 228 | 181 | .79 | | |

Exports not segregated.

Suggested changes.—Page 80, line 13, of H. R. 7456: Change "and" to "or" between "butchers'" and "packers'."

PARAGRAPH 413.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 413. Porch and window blinds, baskets, curtains, shades, or screens of bamboo, wood, straw, or compositions of wood, not specially provided for, 25 per centum ad valorem; if stained, dyed, painted, printed, polished, grained, or creosoted, 30 per centum ad valorem.

ACT OF 1909.

PAR. 214. Porch and window blinds, baskets, curtains, shades, or screens of bamboo, wood, straw, or compositions of wood, not specially provided for in this section, thirty-five per centum ad valorem; if stained, dyed, painted, printed, polished, grained, or creosoted, forty per centum ad valorem.

ACT OF 1913.

PAR. 175. Blinds, curtains, shades, or screens any of the foregoing in chief value of bamboo, wood, straw, or compositions of wood, not specially provided for in this section, 20 per centum ad valorem; if stained, dyed, painted, printed, polished, grained, or creosoted, and baskets in chief value of like material, 25 per centum ad valorem.

BLINDS, CURTAINS, SHADES, AND SCREENS.

(See Survey D-4.)

Description and uses.—Blinds, curtains, shades, and screens are made here in large quantities and in many forms. The paragraph includes the well-known wooden blinds with rigid slats; Persian blinds with movable slats which rotate to control the light and view; Venetian blinds, or flexible inside window screens, that may be raised or lowered, having horizontal slats, fastened on a webbing, that may be turned to admit or exclude light; wooden frames supporting screens of muslin, paper, etc., usually movable, so that they may be placed before a window, a fire, or an object which it is desired to conceal; porch screens constructed of parallel lengths of bamboo hung with small spaces between them, permitting a limited view from the porch, but not from the street; and other forms made from bamboo, wood, or straw, excluding view and light.

Production.—Figures are not available for blinds, curtains, shades, and screens. Of varied types, and produced in connection with numerous other articles, their segregation would be difficult. Observation, however, indicates that the annual production is very large and an element of much importance in the woodworking industries.

Imports of porch and window blinds, curtains, shades, or screens of bamboo, wood, straw, or compositions of wood in 1914 were valued at \$543,500, and in 1918 at \$29,320. Later statistics follow:

PLAIN.

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|---------|---------------------|
| 1918..... | \$5,747 | \$1,146 | <i>Per cent.</i> 20 |
| 1919..... | 10,108 | 2,022 | 20 |
| 1920..... | 23,282 | 4,653 | 20 |
| 1921 (9 months)..... | 10,936 | | |

STAINED, DYED, PAINTED, PRINTED, POLISHED, GRAINED, OR CREOSOTED.

| Calendar year. | Value. | Duty. | Ad valorem rate |
|----------------------|---------|---------|-----------------|
| | | | Per cent. |
| 1918..... | \$7,931 | \$1,955 | 25 |
| 1919..... | 21,559 | 5,388 | 25 |
| 1920..... | 46,800 | 11,700 | 25 |
| 1921 (9 months)..... | 22,667 | | |

Exports for these items are not segregated.

Important changes in classification.—The wording of paragraph 175, act of 1913, is “blinds, curtains, shades, or screens, any of the foregoing in chief value of bamboo, wood, straw, or compositions of wood.” H. R. 7456, reverting to the wording of the act of 1909, reads “porch and window blinds, * * * curtains, shades, or screens of bamboo,” etc. The phrase “in chief value” has been omitted.

Suggested changes.—The words “wholly or in chief value” might be inserted after the word “screens” in line 16, page 80, H. R. 7456, to make the provision more specific.

BASKETS.

(See Survey D-4.)

Description and uses.—Baskets are made in many forms and for divers purposes, including wood baskets, coal baskets, market baskets, clothes baskets, and ladies' work baskets. Various materials are used—willow, rattan, and “splints” of ash, maple, oak, beech, birch, etc. They are classified in the trade as (1) fancy baskets, such as silk-lined sewing baskets, jewel cases, and baby bassinets; (2) “staple” baskets of willow or rattan; and (3) “splint” baskets made of a thin wood veneer and used as containers for fruit or as cheap market baskets.

Production.—In the census for 1914, baskets and rattan and willow ware are united in a single classification. The total output is placed at \$6,578,468, of which it is estimated about \$3,000,000 represents splint baskets, \$1,500,000 baskets of rattan and willow, and the remainder other articles of rattan or willow ware. Preliminary figures of the census of 1919 place the value of the combined output of “baskets and rattan and willow ware” at \$11,831,000.

Splint baskets are made, as a rule, by small factories, using ash, maple, oak, beech, birch, and gum. The pieces are prepared and fitted and made ready to be nailed together near the wood supply, and to save freight are sent in “knocked down” form to shops near the retail market. Splint baskets are a peculiarly American product, with little or no foreign competition. Canada is the only source from which they might be imported, and it is doubtful if manufacturers there possess any advantages over domestic makers.

The making of willow and rattan baskets is largely a handicraft or household industry, few establishments properly being termed factories. Some of the work is done by “putting out” material on contract, or in little shops in the rear of stores where sold; very little machinery is used. Willows equal to those imported are grown in

America, but are usually not so thoroughly dried or so carefully sorted, and are steam peeled, which gives a brown color after a brief time. French willows are sap peeled, a process which is laborious but causes them to remain a brilliant white. The American manufacturer is therefore compelled to import the raw material for the better grades of baskets. Much handwork is required in weaving, and it is difficult to obtain American labor at wages permitting competition with foreign production.

Imports of baskets of bamboo, wood, straw, or compositions of wood were valued at \$853,409 in 1914 and at \$479,803 in 1918 (fiscal year). Germany was the chief manufacturing country. During the war Japan began to take the place of Germany. Imports come also from France, Belgium, Austria, England, and China. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|----------------|-----------|--------|-------------|-------|
|----------------|-----------|--------|-------------|-------|

BASKETS, BAMBOO.¹

| | Number. | | | |
|----------------------|-----------|-----------|--------|----------|
| 1918..... | | \$261,994 | | \$63,671 |
| 1919..... | 1,855,104 | 187,372 | \$0.10 | 45,840 |
| 1920..... | 4,550,373 | 729,478 | .16 | 180,644 |
| 1921 (9 months)..... | 3,959,779 | 622,887 | .10 | |

BASKETS, STRAW.

| | | | | |
|----------------------|---------|----------|--------|---------|
| 1919..... | 159,756 | \$28,885 | \$0.18 | \$7,035 |
| 1920..... | 900,995 | 129,674 | .14 | 32,113 |
| 1921 (9 months)..... | 658,575 | 94,221 | .14 | |

BASKETS, WOOD AND COMPOSITIONS OF WOOD.

| | | | | |
|----------------------|-----------|-----------|--------|----------|
| 1919..... | 1,479,524 | \$375,282 | \$0.25 | \$91,343 |
| 1920..... | 8,029,788 | 1,378,203 | .17 | 340,294 |
| 1921 (9 months)..... | 4,142,028 | 761,946 | .18 | |

¹ Figures for 1918 include "baskets of bamboo, wood, straw, and compositions of wood."

Important changes in classification.—Baskets are included in both parts of the paragraph.

Suggested changes.—Page 80, lines 15–17, of H. R. 7456: Baskets of palm leaf have been held in the absence of a specific provision therefor classable as manufactures of palm leaf. As palm leaf is of the same class as bamboo, wood, and straw, would it not be well to add palm leaf to the enumeration of materials of which the articles in this paragraph may be made?

This provision placing a different rate of duty on merchandise when stained, dyed, etc., makes it very difficult of administration, especially in the case of baskets. Baskets are received in a large variety of designs and sizes and in order to ascertain whether dutiable under the first or last part of the paragraph an examination of every number is necessary.

One rate for baskets, blinds, etc., whether plain or stained, dyed, painted, etc., would facilitate the examination and appraisalment of this class of merchandise.

Page 80, line 16, of H. R. 7456: Change "or" to "and" between "shades" and "screens" and insert a comma after "screens."

PARAGRAPH 414.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 414. House or cabinet furniture wholly or in chief value of wood, wholly or partly finished, and manufactures of wood or bark, or of which wood or bark is the component material of chief value, not specially provided for in this section, 25 per centum ad valorem.

ACT OF 1909.

PAR. 215. House or cabinet furniture wholly or in chief value of wood, wholly or partly finished, and manufactures of wood or bark, or of which wood or bark is the component material of chief value, not specially provided for in this section, thirty-five per centum ad valorem.

PAR. 603. Kindling wood [Free].

PAR. 712. Wood: * * * hop poles, * * * ship planking; all the foregoing not specially provided for in this section [Free].

ACT OF 1913.

PAR. 176. House or cabinet furniture wholly or in chief value of wood, wholly or partly finished, and manufactures of wood or bark, or of which wood or bark is the component material of chief value, not specially provided for in this section, 15 per centum ad valorem.

PAR. 647. Wood: * * * kindling wood, * * * hop poles, hoop poles, * * * ship planking, broom handles, sawdust, and wood flour; all the foregoing not specially provided for in this section [Free].

HOUSE OR CABINET FURNITURE.

(See Survey D-4.)

Description and uses.—The term "furniture" includes a considerable number of familiar articles of household or office use, as chairs, tables, lounges, bedsteads, dressers, etc. It is classified by use as bedroom furniture, kitchen furniture, dining-room furniture, drawing-room furniture. It is also classified by styles, as Old Colonial, Chippendale, Morris, and Mission.

Production.—The furniture industry takes high rank among domestic manufactures. The following table, giving figures for 1914, segregates material and certain kinds of articles, such as metal, rattan, and willow, to show the relative importance of these "substitutes." Store and office fixtures and refrigerators are included, though not always classified as furniture.

| Items. | Wood other than rattan and willow. | Rattan and willow. | Metal. | Store and office fixtures. | Refrigerators. | Total. |
|--------------------------|------------------------------------|--------------------|--------------|----------------------------|----------------|---------------|
| Establishments..... | 2,251 | 85 | 173 | 3 | 134 | 3,326 |
| Persons in industry..... | 108,143 | 2,559 | 14,980 | 19,045 | 6,481 | 152,108 |
| Wage earners..... | 96,417 | 2,282 | 12,560 | 16,642 | 5,617 | 133,498 |
| Amount paid in wages.. | \$31,674,815 | \$1,281,141 | \$7,955,682 | \$10,904,278 | \$3,572,334 | \$75,388,250 |
| Average annual wage... | \$536 | \$567 | \$633 | \$655 | \$636 | \$565 |
| Capital..... | \$196,819,858 | \$3,371,218 | \$35,231,002 | \$32,462,705 | \$14,511,158 | \$282,395,941 |
| Value of products..... | \$187,926,556 | \$5,022,089 | \$34,439,087 | \$38,318,031 | \$15,051,794 | \$280,757,557 |
| Value added..... | \$102,483,512 | \$3,008,310 | \$16,403,098 | \$22,324,347 | \$7,708,402 | \$151,927,669 |

Preliminary figures from the 1919 census place the number of establishments at 3,153 and the value of products at \$573,785,000.

The lumber consumed in the manufacture of furniture in 1916 was 944,677,807 board feet, oak being 45.6 per cent of the total. Other woods used were, in order of importance, red gum, maple, birch, yellow poplar, chestnut, basswood, and beech. In all, 71 different kinds are employed. The most important foreign woods were mahogany (1.7 per cent), lignum-vitæ (0.06 per cent), satinwood, and rosewood (each representing less than 0.01 per cent of the total). Foreign woods, of considerable importance in the finest grades of furniture, are insignificant with respect to the industry as a whole. The producing States rank as follows: With respect to value of furniture produced, New York, Illinois, Michigan, Pennsylvania, Indiana, Wisconsin, Ohio, Massachusetts; with respect to board feet of lumber consumed, North Carolina, Illinois, New York, Indiana, Michigan, Pennsylvania, Wisconsin, Ohio.

Imports fell in value from \$1,017,201 in 1914 to \$333,358 in 1918 (fiscal year). The chief sources are France, Italy, the United Kingdom, Canada, Hongkong, and Japan. Formerly Austria-Hungary and Germany exported largely the cheapest grades, France and Italy the finest grades. Later statistics follow:

| Calendar year. | Value. | Duty. |
|----------------------|-----------|----------|
| 1918..... | \$219,441 | \$32,120 |
| 1919..... | 469,648 | 68,142 |
| 1920..... | 1,866,623 | 275,522 |
| 1921 (9 months)..... | 1,395,742 | ..... |

Exports of nonmetal furniture in 1914 were valued at \$6,529,249; in 1915, at \$2,923,203; in 1918 (fiscal year), at \$3,938,778. Exports fell off greatly during the war, reaching low ebb in 1915. The markets of chief importance are Canada, Argentina, Cuba, Mexico, Panama, Brazil, Chile, the United Kingdom, British South Africa, Australia, France, and Italy. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------------|-------------|-------------|-------------|---------------------|
| Chairs..... | \$1,201,267 | \$1,503,766 | \$2,409,335 | \$935,770 |
| Office and store furniture..... | 501,478 | 872,170 | 1,744,683 | 899,874 |
| All other..... | 1,831,481 | 2,559,493 | 4,416,539 | 1,909,983 |
| Total..... | 3,534,226 | 4,935,429 | 8,561,557 | 3,745,627 |

It will be seen that imports are considerably smaller than exports, indicating ability of American manufacturers to compete, but that imports are increasing relatively to exports—about 6 per cent in 1918 to about 37 per cent in 1921 (nine months). This gain in imports may be due in part to the rapid depletion of our hardwood forests and consequent increase in price of domestic hardwoods.³

It will also be noted that exports and imports, while considerable in the aggregate, are both small as compared with domestic production. In 1919 exports are less than 1 per cent of production.

³ See report on Senate resolution 811 (1920), "Timber depletion, lumber prices, lumber exports, and concentration of timber ownership," p. 9.

Foreign trade in furniture is small compared with the domestic trade, because (1) furniture is bulky and, rates being charged by space, expensive to transport; (2) in transshipment, in shifting cargo in rough weather, and in passing through hot and moist areas it is liable to breakage and deterioration, especially the finish; (3) most countries have raw material and competent artisans; and (4) high-grade furniture is little used in other countries as compared with the United States.

MANUFACTURES OF WOOD OR BARK, N. S. P. F.

Imports and exports.—The following tables show the imports and exports of certain articles for which no special provision was made in the act of 1913:

Imports.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|------------------------|----------------|---------|-------------|--------|------------------|
| PICTURE FRAMES. | | | | | |
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | 162 | \$2,168 | \$13.38 | \$325 | ..... |
| 1919..... | 3,359 | 31,652 | 9.42 | 4,749 | ..... |
| 1920..... | 62,873 | 78,294 | 1.24 | 11,736 | ..... |
| 1921 (9 months)..... | 16,856 | 39,865 | 2.36 | ..... | ..... |

CHRISTMAS TREES.

| | | | |
|----------------------|----------|---------|-------|
| 1918..... | \$20,230 | \$2,023 | 10 |
| 1919..... | 61,748 | 6,175 | 10 |
| 1920..... | 63,623 | 6,362 | 10 |
| 1921 (9 months)..... | 214 | ..... | ..... |

MANUFACTURES OF WOOD OR BARK, N. S. P. F.

| | | |
|----------------------|-------------|-----------|
| 1918..... | \$1,002,084 | \$150,016 |
| 1919..... | 1,452,973 | 207,695 |
| 1920..... | 3,124,291 | 468,157 |
| 1921 (9 months)..... | 2,042,820 | ..... |

Exports.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-----------|------------|------------|---------------------|
| Woodenware..... | \$164,756 | \$529,321 | \$470,356 | \$352,679 |
| Trimnings, moldings, and other house furnishings..... | 362,825 | 521,254 | 775,943 | 295,833 |
| Incubators and brooders..... | 146,987 | 122,521 | 232,297 | 119,335 |
| Implement and tool handles..... | 1,310,431 | 3,114,641 | 3,097,609 | 1,433,151 |
| Doors, sash, and blinds..... | 390,332 | 569,726 | 1,224,805 | 882,858 |
| Boat oars and paddles..... | 255,378 | 392,494 | 509,871 | 215,288 |
| Heading..... | 563,564 | 591,021 | 1,028,026 | 164,996 |
| All other manufactures of wood..... | 9,360,888 | 14,748,109 | 19,961,221 | 8,677,073 |

Suggested changes.—Were kindling wood, hop poles, hoop poles, ship planking, broom handles, sawdust, and wood flour, in paragraph 647 of the act of 1913, intentionally omitted from H. R. 7456?

A provision for "wood manufactured, not specially provided for." inserted before "and manufactures of wood" in this paragraph would cover wood manufactured but not advanced to the stage of an article having a distinct name or use.

Page 80, line 24; Strike out "in this section" to agree with practice elsewhere.

SCHEDULE 5.—SUGAR MOLASSES, AND MANUFACTURES OF.

PARAGRAPH 501.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 501. Sugars, tank bottoms, sirups of cane juice, melada, concentrated melada, concrete and concentrated molasses, testing by the polariscope not above seventy-five sugar degrees, and all mixtures containing sugar and water, testing by the polariscope above fifty sugar degrees and not above seventy-five sugar degrees, $1\frac{1}{10}$ cents per pound, and for each additional sugar degree shown by the polariscopic test, four one-hundredths of 1 cent per pound additional, and fractions of a degree in proportion.

ACT OF 1909.

SCHEDULE E.—SUGAR, MOLASSES, AND MANUFACTURES OF.

PAR. 216. Sugars not above number sixteen Dutch standard in color, tank bottoms, sirups of cane juice, melada, concentrated melada, concrete and concentrated molasses, testing by the polariscope not above seventy-five degrees, ninety-five one-hundredths of one cent per pound, and for every additional degree shown by the polariscopic test, thirty-five one-thousandths of one cent per pound additional, and fractions of a degree in proportion; and on sugar above number sixteen Dutch standard in color, and on all sugar which has gone through a process of refining, one cent and ninety one-hundredths of one cent per pound; * * *

[No corresponding provision for all mixtures containing sugar and water.]

[For drainings and sweepings see par. 503, H. R. 7456.]

ACT OF 1913.

SCHEDULE E.—SUGAR MOLASSES, AND MANUFACTURES OF.

PAR. 177. Sugars, tank bottoms, sirups of cane juice, melada, concentrated melada, concrete and concentrated molasses, testing by the polariscope not above seventy-five degrees, seventy-one one-hundredths of 1 cent per pound, and for every additional degree shown by the polariscopic test, twenty-six one-thousandths of 1 cent per pound additional, and fractions of a degree in proportion:¹ * * * *Provided*, That the duties imposed in this paragraph shall be effective on and after the first day of March, nineteen hundred and fourteen, until which date the rates of duty provided by paragraph two hundred and sixteen of the tariff Act approved August fifth, nineteen hundred and nine, shall remain in force: *Provided, however*, That so much of paragraph two hundred and sixteen of an Act to provide revenue, equalize duties, and encourage the industries of the United States, and for other purposes, approved August fifth, nineteen hundred and nine, as relates to the color test denominated as Number Sixteen Dutch standard in color, shall be and is hereby, repealed: *Provided further*, That on and after the

¹ Sugars, tank bottoms, sirups of cane juice, melada, concentrated melada, concrete and concentrated molasses, testing by the polariscope not above seventy-five degrees, one and sixteen one-hundredths of 1 cent per pound, and for every additional degree shown by the polariscopic test, four one-hundredths of 1 cent per pound additional, and fractions of a degree in proportion: Par. 20, emergency tariff act of 1921.

first day of May, nineteen hundred and sixteen, the articles hereinbefore enumerated in this paragraph shall be admitted free of duty. [The last proviso was repealed by the act of April 27, 1916, ch. 93.]

[No corresponding provision for all mixtures containing sugar and water.]

[For drainings and sweepings see par. 503, H. R. 7456.]

SUGAR.

(See Reports T. I. S.-9 and 16, and Survey E-1.)

This paragraph embraces refined sugar and raw or unrefined sugar in any form which might be used commercially for the manufacture of refined sugar.

Description and uses.—Pure sugar (sucrose) is a definite chemical compound ($C_{12}H_{22}O_{11}$) derived from the juices of several plants, especially the cane, beet, maple, and palm. Sucrose, in varying degrees of purity, is the sugar of commerce and the tariff. There are, however, more than 100 substances known to chemical science as "sugars," but differing from sucrose in composition and properties. Of these, the most important commercially are dextrose and levulose ($C_6H_{12}O_6$), found in certain fruits and in honey. Dextrose is also manufactured from starch as a constituent of glucose and grape sugar. Tank bottoms are the settlings from sugar solutions and are the impurities found in molasses tanks. Melada is another name for cane sirup, and, like molasses, may be "concentrated" by boiling down to a thick granulous mass, which hardens upon cooling. The United States consumes (1920) over 4,500,000 tons of sugar per year (more than one-fifth of the world's consumption), about one-sixth of which is beet sugar. The per capita consumption in the United States, which has increased from 18.2 pounds in 1865 to 91.5 pounds in 1920, ranks high, and is now exceeded but slightly, if at all, by only a few countries—the United Kingdom, Mexico, Denmark, Australia, and New Zealand. About three-fourths of the American consumption is used directly in the household; the remainder in various forms of manufacturing, e. g., soft drinks, condensed milk, bakers' products, canned fruits, and tobacco.

Raw and refined sugar: Nearly all the sugar produced by the factories in Cuba, Porto Rico, and Hawaii and about two-thirds of the product of the factories in Louisiana are raw sugar—that is, it still contains molasses and other impurities adhering to the crystals. An increasing proportion of the Louisiana product is carried beyond the raw stage and marketed as "yellow clarified," "plantation granulated," and other forms suitable for final consumption. The great bulk of the sugars imported from Cuba consists of raw centrifugal sugar, the polariscopic test of which ranges approximately from 92° to 97° . The selling basis is 96° , with allowances up or down from the basic price, according to test. By far the greater portion is purchased by the refineries and after being purified and decolorized becomes "refined" sugar. Refined sugars as turned out by the large cane-sugar refineries consist of two general classes—hard refined sugars, such as granulated, powdered, cube, loaf, etc., the polariscopic test of which will approximate 100° , and soft refined sugars ranging

from about 80° to 90° in polariscopic test. The latter sugars vary in color from a light yellow to brown and have some of the sirup or molasses adhering to the crystals. They include the "brown" sugar of commerce. The beet-sugar factories produce hard sugars only.

Production.—Before the war the world production had reached 20,603,000 short tons, 11,169,000 tons of cane and 9,434,000 tons of beet sugar. The chief sources of supply were, in order, for cane sugar, Cuba, India, United States (including insular possessions), Java, Japan, Argentina, Australia, Mauritius, Brazil, the West Indies; for beet sugar, Germany, Austria-Hungary, Russia, France, the United States, Italy, and other (chiefly European) countries. War conditions caused a decrease in the production of beet sugar and an increase of cane sugar. By 1919-20 the production of beet sugar had decreased to 3,665,689 tons and the production of cane sugar had increased to 13,425,230 tons, a net decrease from the prewar total of 3,512,081 tons. From 45.8 per cent of the total, the production of beet sugar had decreased to 21.4 per cent. The present world production (1920-21) is 18,490,308 tons—13,200,163 tons cane, 5,290,145 tons beet.

The United States derived (1921) 53.9 per cent of its supply from domestic production and 46.1 per cent from importations.² Average annual production for the five-year period, 1915-1919, was as follows (figures represent thousands of tons and percentage of total consumption): Cane sugar, continental United States, 245.3 (5.8 per cent); Porto Rico, 379.2 (9.0 per cent); Philippine Islands, 119.6 (2.8 per cent); Hawaiian Islands, 587.7 (14.0 per cent); Virgin Islands, 9.0 (0.2 per cent). Beet sugar, continental United States, 788.6 (18.8 per cent); total, 2,129.4 (50.6 per cent). Cane sugar in continental United States is produced almost exclusively in Louisiana and Texas; beet sugar in California, Colorado, Utah, Idaho, Michigan, and 13 other States. The proportions of domestic sugar increased from 13 per cent in 1865 to 48.8 per cent in 1918, falling to 37.3 per cent in 1920.

The following table shows the number of establishments, number of wage earners, capital investment, amount paid in wages, average annual wage, value of products, value added, tons of sugar produced, and value of sugar produced in the cane and beet sugar industry in the continental United States, as reported by the census of 1914:

| | Continental United States. | Beet sugar. | Cane sugar. | Refining. |
|------------------------------|----------------------------|---------------|--------------|---------------|
| Establishments..... | 259 | 60 | 181 | 18 |
| Wage earners..... | 22,892 | 7,997 | 3,632 | 11,253 |
| Capital..... | \$315,677,669 | \$142,181,328 | \$32,096,524 | \$140,499,819 |
| Wages..... | \$15,990,957 | \$6,606,204 | \$1,561,376 | \$7,823,377 |
| Average annual wage..... | \$670 | \$826 | \$430 | \$696 |
| Value of products..... | \$373,639,298 | \$62,605,210 | \$21,635,378 | \$289,398,715 |
| Value added..... | \$52,196,361 | \$21,205,849 | \$5,677,155 | \$25,313,357 |
| Tons of sugar produced..... | 4,341,408 | 743,473 | 264,801 | 3,333,134 |
| Value of sugar produced..... | \$363,034,123 | \$58,590,466 | \$18,947,683 | \$285,495,974 |

Preliminary figures from the census for 1919, showing a comparison between the output of the industry in that year and in 1914, follow:

² Derived from Weekly Statistical Trade Journal, Jan. 12, 1922, p. 15.

MANUFACTURE OF CANE SUGAR.

Reports were received from 202 establishments in 1919; from 181 establishments in 1914. Of the 202 establishments reporting in 1919, 189 were located in Louisiana, 6 in South Carolina, 3 in Florida, 2 in Georgia, and 1 each in Mississippi and Texas. The following table shows the manufacture of cane-sugar products in 1914 and 1919.

| Product. | Quantity. | | Value. | |
|---------------------------------|-----------------|-----------------|--------------|--------------|
| | 1919 | 1914 | 1919 | 1914 |
| Total cane-sugar products | | | \$57,741,320 | \$21,635,373 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| Sugar | 450,955,838 | 529,601,993 | 46,659,085 | 18,947,635 |
| Refined | 71,627,346 | 107,187,416 | 9,547,378 | 4,228,860 |
| Clarified | 258,293,878 | 182,149,649 | 26,563,156 | 6,742,266 |
| Raw | 113,154,404 | 229,646,354 | 9,898,958 | 7,615,147 |
| Brown | 7,890,210 | 10,618,574 | 649,593 | 361,410 |
| | <i>Gallons.</i> | <i>Gallons.</i> | | |
| Molasses | 20,058,248 | 20,675,260 | 4,868,740 | 2,021,517 |
| Syrups | 6,739,978 | 2,420,633 | 4,185,199 | 609,696 |
| All other products | | | 2,024,296 | 56,477 |

MANUFACTURE OF BEET SUGAR.

Reports were received from 85 establishments in 1919, from 60 establishments in 1914. Of the 85 establishments reporting in 1919, there were 16 each in Michigan and Utah, 14 in Colorado, 10 in California, 8 in Idaho, 5 in Ohio, 4 each in Nebraska and Wisconsin, and 1 each in Illinois, Indiana, Iowa, Kansas, Minnesota, Montana, Washington, and Wyoming. The following table shows the output of various beet-sugar products in 1914 and 1919.

| Product. | Quantity. | | Value. | |
|---------------------------------|-----------------|-----------------|---------------|--------------|
| | 1919 | 1914 | 1919 | 1914 |
| Total beet-sugar products | | | \$149,155,892 | \$62,605,210 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| Sugar | 1,426,891,315 | 1,466,947,817 | 138,099,693 | 58,590,466 |
| Granulated | 1,421,914,425 | 1,479,466,899 | 137,852,387 | 58,351,324 |
| Raw | 4,976,890 | 8,480,918 | 247,306 | 239,142 |
| | <i>Gallons.</i> | <i>Gallons.</i> | | |
| Molasses | 18,841,429 | 26,461,291 | 2,364,563 | 1,536,192 |
| | <i>Tons.</i> | | | |
| Pulp | 2,082,531 | | 5,798,412 | 2,094,863 |
| Dried | 976,501 | | 4,829,568 | 1,510,759 |
| Moist | 1,106,030 | | 968,844 | 384,104 |
| All other products | | | 2,893,224 | 383,689 |

SUGAR REFINING.

Reports were received from 20 establishments in 1919, and from 18 establishments in 1914. Of the 20 establishments reporting in 1919, 5 were located in New York, 4 in Pennsylvania, 3 in Louisiana, 2 each

in California, Massachusetts, and New Jersey, and 1 each in Texas and Georgia. The following table shows the product of sugar refining in 1914 and 1919.

| Product. | Quantity. | | Value. | |
|-----------------------------|---------------------------------|---------------------------------|---------------|---------------|
| | 1919 | 1914 | 1919 | 1914 |
| Total for the industry..... | | | \$730,966,706 | \$289,398,715 |
| Refined sugar..... | <i>Pounds.</i> 7,042,905,337 | <i>Pounds.</i> 6,666,268,045 | 713,567,395 | 285,495,974 |
| Molasses..... | <i>Gallons.</i> 5,916,668 | <i>Gallons.</i> 35,802,995 | 678,771 | 3,284,278 |
| Molasses and sirup..... | | | | |
| Sirup..... | 38,144,320 | | 14,637,830 | |
| All other products..... | | | 2,102,710 | 618,463 |

Imports.—Formerly sugar was imported from many sources, among the most important of which were Cuba, Java, and Germany. Since 1903, when, in connection with the reciprocity treaty, a preferential rate was given to Cuba, imports from other sources have dropped off. Now over 95 per cent of the imported sugar comes from Cuba. Importations consist almost exclusively of raw sugars, ranging in polariscopic test from 75° upward, over 90 per cent, however, being of sugars testing between 95° and 97°. In 1914 imports were: Beet sugar, 1,184 tons, valued at \$70,829; cane sugar, 2,531,179 tons, valued at \$101,415,499. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

BEEET SUGAR.

| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
|-----------|----------------|-----------|--------|---------|------------------|
| 1918..... | 380 | \$35 | \$0.09 | \$4 | 12.83 |
| 1919..... | 1,180 | 108 | .09 | 14 | 12.06 |
| 1920..... | 36,332,165 | 6,315,637 | .17 | 492,961 | 7.81 |
| 1921..... | 7,970 | 849 | .11 | | |

CANE SUGAR.¹

| | | | | | |
|----------------------|---------------|---------------|--------|--------------|--|
| 1918..... | 5,147,328,431 | \$241,093,900 | \$0.05 | \$50,392,991 | |
| 1919..... | 6,939,676,648 | 390,677,144 | .06 | 67,908,807 | |
| 1920..... | 7,702,780,240 | 959,206,556 | .12 | 73,170,330 | |
| 1921 (9 months)..... | 4,771,427,650 | 216,689,423 | .04 | | |

¹ Included in the imports of cane sugar shown in the above table are the following imports admitted free of duty from the Philippine and Virgin Islands:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 151,568,106 | \$7,103,712 | \$0.05 |
| 1919..... | 196,319,609 | 9,328,574 | .05 |
| 1920..... | 318,156,663 | 46,636,117 | .14 |
| 1921 (9 months)..... | 209,289,374 | 12,455,518 | .06 |

In 1920, it will be noted, imports of beet sugar rose to 36,332,165 pounds from only 1,180 pounds in 1919 and 380 pounds in 1918. In the same year imports of full-duty cane sugar showed a noteworthy increase—from 137,228,888 pounds (about 2 per cent of the total) in 1919 to 1,948,358,618 pounds (about 25.3 per cent of the total) in 1920. These heavy importations of full-duty sugar (cane and beet) were made possible by the high prices prevailing in 1920. Ordinarily the Cuban preference of 20 per cent has been nearly sufficient to exclude all but Cuban sugars. The exceptional conditions of 1920 made it profitable to import sugars from other sources over the duty.

The following table shows by months the quantity and value of dutiable cane sugar imported during 1921:

| Month. | Quantity. | Value. | Month. | Quantity. | Value. |
|---------------|----------------|--------------|----------------|----------------|-------------|
| | <i>Pounds.</i> | | | <i>Pounds.</i> | |
| January..... | 254,505,311 | \$15,553,984 | July..... | 237,718,074 | \$6,604,752 |
| February..... | 502,279,208 | 28,457,466 | August..... | 509,504,947 | 14,721,202 |
| March..... | 821,904,235 | 39,525,122 | September..... | 281,485,513 | 7,744,241 |
| April..... | 841,168,244 | 40,511,233 | October..... | 303,002,856 | 7,605,968 |
| May..... | 643,268,005 | 26,445,919 | November..... | 475,706,063 | 9,861,890 |
| June..... | 356,385,734 | 12,380,733 | December..... | 358,177,684 | 7,894,514 |

Exports.—None of the domestic product (unless Philippine Island sugar is regarded as domestic) and no raw sugars are exported. A portion of the imported raw is refined for export, the refiners using the imported sugar rather than the domestic product in order to obtain the benefit of the drawback. This business, only 1 per cent of sugar receipts in normal times, became important during the war, rising to 12 per cent of the total receipts in the period 1915–1917. Exports of refined sugar in 1914 were 25,448 tons, valued at \$1,839,983; in 1916, 815,075 tons, valued at \$79,309,147; in 1918 (fiscal year), 288,241 tons, valued at \$38,761,686.

In normal times the countries of chief importance in the export trade were the United Kingdom, Panama, Mexico, and Newfoundland. During the war several European countries, which had previously relied upon domestic production or importation from the Central Powers and Russia, became important purchasers from American refineries. Statistics for the calendar years 1918–1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|---------------|--------------|---------------------|
| Quantity (pounds)..... | 407,296,324 | 1,475,407,678 | 924,192,385 | 785,984,488 |
| Value..... | \$27,033,667 | \$114,737,491 | \$94,877,045 | \$42,961,931 |

The above exports are of refined sugar, including maple sugar, which, as already stated, had previously been imported as raw sugar, the exporter receiving the benefit of drawback. Drawback is also obtained on the export of other products than refined sugar in the preparation of which imported raw sugar has been used. Among

such products are chewing gum, cocoa, confectionery, preserved fruits, dairy products, and tobacco. The magnitude of this business may be judged from the following table, showing exports of raw sugar subject to drawback and drawback received thereon for the calendar years 1918-1920:

| | 1918 | 1919 | 1920 |
|---|-------------|---------------|---------------|
| Exports of imported raw sugar (pounds)..... | 372,930,943 | 1,497,019,239 | 1,388,396,876 |
| Drawback received..... | \$3,772,814 | \$14,987,183 | \$13,456,823 |

Important changes in classification.—Sugar drainings and sugar sweepings, specifically mentioned in the acts of 1909 and 1913, are not so mentioned in H. R. 7456. In their place and more inclusive is a new item for “all mixtures containing sugar and water, testing by the polariscope above 50° and not above 75°.” Mixtures containing sugar and water, testing by the polariscope 50° or less, are not specifically provided for.

In the acts of 1909 and 1913 the dividing line between “sugars” and “molasses” is placed at 56 sugar degrees, whereas in H. R. 7456 (par. 501) this dividing line is lowered to 50 sugar degrees. Sugars, molasses and sirups are placed in the same paragraph in both the acts of 1909 (par. 216) and the act of 1913 (par. 177), whereas in H. R. 7456 they are separated, sugars and some sirups appearing in paragraph 501 and molasses and other sirups in paragraph 503.

Conflicting provisions.—There is a conflict between paragraph 501 and paragraph 503. The same material might come within the provisions of paragraph 501, “sirups of cane juice, melada, * * * testing by the polariscope not above 75 sugar degrees,” and “all mixtures containing sugar and water testing by the polariscope above 50 sugar degrees and not above 75 sugar degrees,” and the provision of paragraph 503, “molasses and sirups * * * testing above 48 per centum total sugars.” There is also a conflict between the provision in paragraph 501 for “sugars” and “all mixtures containing sugar and water,” and the provision in paragraph 504 for “maple sugar and maple sirup,” and the provision in paragraph 506 for “sugar candy and confectionery.”

Suggested changes.—The dividing line between raw sugars and molasses in the tariff laws has for many years been placed at 56 sugar degrees. This dividing line is lowered to 50 sugar degrees in H. R. 7456. No adequate reason for this change has been found, but on the other hand strong objection to it can logically be made because the edible grades of molasses will frequently test above 50 degrees. (See also discussion under par. 503, p. 599.)

Tank bottoms, sirups of cane juice, melada, concentrated melada, and concrete and concentrated molasses enumerated in this paragraph are mixtures of sugar and water with impurities and are therefore covered by the new provision in this paragraph for such mixtures, and might be omitted. It is suggested to avoid possible litigation that the words “sirups and other” be inserted before “mixtures” in line 5, page 81, of H. R. 7456, and the words “of, or” inserted after “mixtures.”

The words "all the foregoing not specially provided for" should be added after "seventy-five sugar degrees," page 81, line 7, H. R. 7456, to avoid conflict with paragraph 504, which provides for "maple sugar and maple sirup," and with paragraph 506, which provides for "sugar candy and confectionery."

With all these changes the paragraph would read:

PAR. 501. Sugars testing by the polariscope not above seventy-five sugar degrees, and all sirups and other mixtures of or containing sugar and water, testing by the polariscope above fifty-six sugar degrees and not above seventy-five sugar degrees, all the foregoing not specially provided for, cents per pound, and for each additional sugar degree shown by the polariscopic test, of 1 cent per pound, additional, and fractions of a degree in proportion.

Page 81, line 1 (title of schedule 5): Insert a comma after "sugar."

PARAGRAPH 502.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 502. Any person manufacturing or refining in the United States sugar, testing by the polariscope over ninety-nine degrees, produced from beet or cane grown in the continental United States, shall for each pound so manufactured or refined during any month in any State, Territory, or the District of Columbia, be permitted to import, at any time before the expiration of nine months after the last day of such month (for the sole purpose of being manufactured or refined by him in such State, Territory, or District), two pounds of sugar testing by the polariscope not above ninety-six degrees, at three-fourths of the rate of duty to which such sugar would otherwise be subject. The Secretary of the Treasury shall make all regulations necessary for the enforcement of this paragraph, including the taking of bonds to secure compliance with its provisions.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

REDUCTION OF DUTY ON IMPORTED RAW SUGAR TO REFINERIES USING DOMESTIC RAW SUGAR.

General comments.—Paragraph 502 is new matter, having no corresponding provision in previous acts. The concession as to rate of duty provided for in the paragraph is open to refiners who make use of domestic raw sugar for the purpose of refining. Beet sugar manufacturers and Louisiana refiners could undoubtedly avail themselves of the privileges of the paragraph. Doubt has been expressed whether the seaboard refineries could do so. The imported sugar must be refined in the same State, Territory, or District

in which the domestic raw sugar is manufactured or refined, and some have interpreted the paragraph as requiring that the domestic raw sugar must also be produced in the same State, Territory, or District in which it is refined. If the latter interpretation holds, the seaboard refiners would be precluded from the benefits of the paragraph, as raw sugar is not produced in the Atlantic seaboard States. On the other hand the paragraph may be interpreted in such a way as to permit the seaboard refiners to import foreign sugars, under the concession as to duty, on the basis of Louisiana or other domestic raw sugars which they may have refined.

Production.—As the provision is new there are no previous statistics as to production under the paragraph. It has been suggested by members of the trade that some beet sugar factories in Michigan and some cane sugar factories in Louisiana might avail themselves of the privileges of the provision. It is thought that beet sugar manufacturers in other regions would be precluded from the benefits of the provision by freight costs on imported raws.

Imports.—The total beet-sugar production of Michigan averaged for the three years 1918–1920 about 284,000,000 pounds, and the total cane-sugar production of Louisiana and Texas averaged for the same years about 385,000,000 pounds, a total of 669,000,000 pounds, or about 300,000 long tons. If this domestic production were made the basis for importing foreign raws under the provisions of the paragraph, it would appear that the maximum tonnage of imported raws on which the concession could be allowed would be 600,000 long tons, or about 18 per cent of the total imports. As it is doubtful to what extent Michigan beet-sugar manufacturers could refine raw cane sugar without extensive changes in their machinery, and as it is unlikely that the total output of Louisiana raws would be made the basis of imports, it is probable that the actual imported tonnage subject to the concession in duty would be much less than the above figure.

Exports.—It is unlikely that there would be any exports under the provision, as refiners would find it to their advantage to export sugars refined exclusively from imported raws and obtain the drawback of 99 per cent of the entire duty paid, rather than to export refined sugar made partly from domestic raws.

Important changes in classification.—The provision is new.

Suggested changes.—Page 81, lines 14 and 21, of H. R. 7456: The word "sugar" should be inserted before the word "degrees" to make the reading conform to the wording of paragraph 501.

PARAGRAPH 503.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 503. Molasses and sirups testing not above 48 per centum total sugars, twenty-five one-hundredths of 1 cent per gallon; testing above 48 per centum total sugars, two hundred and seventy-five one-thousandths of 1 cent additional for each per centum of total sugars and fractions of a per centum in proportion.

ACT OF 1909.

PAR. 216. * * * molasses testing not above forty degrees, twenty per centum ad valorem; testing above forty degrees and not above fifty-six degrees, three cents per gallon; testing above fifty-six degrees, six cents per gallon; sugar drainings and sugar sweepings shall be subject to duty as molasses or sugar, as the case may be, according to polariscopic test.

ACT OF 1913.

PAB. 177. * * * molasses testing not above forty degrees, 15 per centum ad valorem; testing above forty degrees and not above fifty-six degrees, 2½ cents per gallon; testing above fifty-six degrees, 4½ cents per gallon; sugar drainings and sugar sweepings shall be subject to duty as molasses or sugar, as the case may be, according to polariscopic test; * * *

MOLASSES AND SIRUP.

(See Survey E-1.)

Description and uses.—Molasses is a by-product of the sugar industry. It is what remains of the juice after the principal impurities have been removed, the juice boiled down, and the greater part of the sugar content crystallized and removed by centrifugation. Sirup is a direct product of the cane juice, containing all the sugar, but freed from some impurities and boiled to the desired consistency.

An exception to the description given is to be noted in "fancy" and "extra fancy" molasses produced in the West India Islands, chiefly Barbados. In this variety cane juice is concentrated to a thick sirup after treatment which converts a portion of the sucrose content into invert sugar, but from which none of the sucrose has been extracted. The introduction of modern methods into the manufacture of raw sugar and consequent reduction in the supply of edible molasses resulted in the above-mentioned "fancy" product which is known commercially as molasses.

This product differs from sirup of cane juice in that the latter has been concentrated without any process of inversion and might profitably be converted into sugar by continuing the process of evaporation, while the former, by reason of the large percentage of invert sugar, would yield comparatively little crystallized sucrose.

Molasses is produced from both the beet and cane, that obtained from the beet being unsuitable for human food. Beet and low-grade cane molasses (blackstrap) are used in the manufacture of industrial alcohol and as a cattle feed. Cane molasses is also used in the manufacture of rum.

Production.—In 1914 20,675,260 gallons of cane molasses, valued at \$2,021,517, 2,420,633 gallons of cane sirup, valued at \$609,696, and 26,000,000 gallons of beet molasses were produced as by-products in factories whose principal output was sugar. Sirup is also manufactured as a major product in several of the Gulf States on farms and in small factories making no sugar. Later statistics follow:

³ Molasses testing not above forty degrees, 24 per centum ad valorem; testing above forty degrees and not above fifty-six degrees, 3½ cents per gallon; testing above fifty-six degrees, 7 cents per gallon; sugar drainings and sugar sweepings shall be subject to duty as molasses or sugar as the case may be according to polariscopic test: Par. 20, emergency tariff act of 1921.

| Commodity. | Year. | Unit. | Quantity. | Value. |
|----------------------------------|---------|-------------|------------|-------------|
| Beet molasses ¹ | 1917-18 | Ton..... | 239,338 | \$7,000,000 |
| Cane molasses ² | 1920-21 | Gallon..... | 54,089,837 | |
| Cane sirup ³ | 1920-21 | do..... | 43,507,000 | |

¹ Figures from completed schedules secured by the Tariff Commission.

² Figures from Statistical Abstract of United States, 1920, p. 229.

³ Department of Agriculture estimate.

For preliminary figures from the census of 1919 showing production of sirup and molasses as by-products of the sugar industry, see under "Sugar," paragraph 501.

Imports have rapidly increased in recent years from 51,410,271 gallons in 1914, valued at \$1,774,719, to 130,730,861 gallons in 1918 (fiscal year), valued at nearly \$9,177,833. Imports of molasses for the calendar years 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|----------------------|-----------------|--------------|-------------|-------------|
| | <i>Gallons.</i> | | | |
| 1918..... | 142,546,811 | \$10,326,611 | \$0.07 | \$1,193,329 |
| 1919..... | 118,842,004 | 4,161,210 | .03 | 499,166 |
| 1920..... | 161,177,519 | 5,081,610 | .03 | 507,669 |
| 1921 (9 months)..... | 57,633,168 | 1,443,083 | .02 | |

The above table shows total importations of all grades of molasses. If segregated by the grades provided for in the Act of 1913, the average annual importations for the three years 1918-1920 were: (1) Molasses testing not above 40 degrees, 139,289,062 gallons valued at \$5,670,762; (2) testing above 40 degrees and not above 56 degrees, 1,555,771 gallons valued at \$847,111; (3) above 56 degrees, 10,642 gallons valued at \$5,268.

A comparatively small quantity, 20,792 gallons in 1920, is imported free of duty—all from the Virgin Islands. Of the dutiable imports by far the greater part is from Cuba—148,084,934 gallons out of the total of 161,156,639 gallons in 1920. The imports from Cuba, however, are a low-grade molasses, blackstrap, used largely in the manufacture of industrial alcohol and as an ingredient of cattle feed. A high-grade molasses is imported in considerable quantities (728,925 gallons in 1920) from Barbados. Recent imports of sirups are as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|----------------------|----------------|---------|-------------|-------|
| | <i>Pounds.</i> | | | |
| 1918..... | 153,953 | \$6,483 | \$0.04 | \$873 |
| 1919..... | 753,968 | 35,069 | .05 | 4,650 |
| 1920..... | 1,656,129 | 81,102 | .05 | 6,013 |
| 1921 (9 months)..... | 346,410 | 10,033 | .03 | |

Exports.—The most important countries of destination for molasses are the United Kingdom, Canada, and the West Indies. The United Kingdom, Norway, Denmark, Sweden, and the Netherlands are the most important purchasers of American sirup. Prewar exports (fiscal year 1914) are compared with shipments during the calendar years 1918-1921 in the following table:

| | 1914 | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|------|------|------|------|---------------------|
|--|------|------|------|------|---------------------|

MOLASSES.

| | | | | | |
|-------------------------|-----------|-------------|-------------|-------------|-----------|
| Quantity (gallons)..... | 1,002,441 | 5,413,932 | 6,685,784 | 4,828,149 | 4,438,904 |
| Value..... | \$175,498 | \$1,190,911 | \$1,311,217 | \$1,097,480 | \$883,582 |

SIRUPS, INCLUDING MAPLE SIRUP.

| | | | | | |
|-------------------------|-------------|-------------|--------------|-------------|-------------|
| Quantity (gallons)..... | 11,630,528 | 3,184,290 | 16,731,846 | 6,564,835 | 4,322,652 |
| Value..... | \$1,491,639 | \$2,012,121 | \$10,299,244 | \$4,164,177 | \$1,187,729 |

Important changes in classification.—In the acts of 1909 and 1913 molasses testing not above 40° by the polariscope was subject to an ad valorem duty. If testing above 40° it was subject to a specific duty, the specific rate being twice as high when the test was above 56° as the rate when the test was between 40° and 56°. In H. R. 7456 a new method of assessment for duty is introduced. The polariscopic test is abandoned, sirups, previously not coupled with molasses, are put in the same classification with that article, and the duty upon both is based upon total sugar content, a specific rate per gallon being levied when the total sugar content is not above 48 per cent, and an added specific rate for each percentage of sugar content above 48.

Conflicting provisions.—There is a conflict between the provision of paragraph 503 for “molasses and sirups” and that of paragraph 501 for “sirups” and “mixtures containing sugar and water” and the provision in paragraph 504 for “maple sugar.” The same article might be assessed for duty as a “sirup” or as a “mixture containing sugar and water.”

There are three fairly distinct articles of commerce to be provided for under the general head of “Molasses, sirup, and other mixtures containing sugar and water.” To make clear the distinction it is necessary to distinguish first between “sucrose” and “invert sugar.” Chemically speaking there are a considerable number of substances known as “sugars.” The sugar of commerce is sucrose ($C_{12}H_{22}O_{11}$). The process of manufacturing sugar consists in the extraction and crystallization of sucrose from the juice of the cane or beet. After the extracting process has been carried as far as is economical there remains a liquor containing a small quantity of unextracted sucrose and a considerable quantity of “invert sugar.” “Invert sugar” is a mixture of two other sugars, “dextrose” and “levulose,” both having the formula $C_6H_{12}O_6$. Sucrose and dextrose both have the property of rotating a beam of polarized light to the right, while levulose rotates it to the left. The combination of dextrose and levulose in equal parts, i. e., invert sugar, rotates it to the left, and, if mixed with sucrose, tends to neutralize the action of the sucrose. It follows that a molasses or sirup may have a considerable percentage “total sugars” and yet show a low test by the polariscope. The polariscopic test alone, therefore, applied in previous acts, is not a proper test for molasses and sirup which contain invert sugar. The introduction of the test by content of total sugars is a step in the right direction, but the dividing lines in paragraphs 501 and 503 are

not so chosen as best to correspond with commercial practice. This leads to the three types of products referred to above.

(1) *Blackstrap*.—This is a by-product of the process of manufacturing sugar by the modern method of the vacuum pan and centrifugal machine. Blackstrap contains, besides the concentrated impurities remaining in the liquor after the sucrose has been extracted, a small amount of unextracted sucrose and a considerable amount of invert sugar. The polariscopic test therefore is low, 26° to 36° , but the total sugars may run as high as 56 per cent and usually run above 48 per cent. Blackstrap is not suitable for human food, but is valuable for cattle feed and for the manufacture of industrial alcohol. Since it is not customarily bought and sold at a price on a sliding scale based on the analysis but rather at a fixed price per gallon it may properly carry a specific duty. Paragraph 503 is faulty as it stands, as the dividing line, 48 per cent, cuts into the blackstrap instead of separating all blackstrap from the next general commercial grade, edible molasses and sirups. As blackstrap, for the purposes for which it is used, is not appreciably more valuable when its total sugars run above 48 per cent, while the rate of increase for assessment of duty is made very rapid (e. g., for only 1 per cent above 48 the rate of duty would be more than doubled) the practical effect of the provision would be to cause importers to have the blackstrap tested before shipment, and if the test ran above 48 per cent to dilute it until it was not above 48 per cent. The additional freight charge caused by useless water would be much less than the additional duty. If the importation is used in cattle feed the dilution increases the danger of fermentation.

(2) *Edible molasses and sirup*.—The quality and price of the edible grades of molasses and sirup are determined primarily by the flavor and color rather than by the percentage of total sugar. Therefore a fixed rate of duty expressed in cents per gallon would be more in accord with commercial practice than a sliding scale of duties based on the percentage of sugar as provided for in H. R. 7456 (paragraph 503). The recommendation given below as to the dividing lines between blackstrap molasses, edible molasses, and high-grade sirups from which granulated sugar might be made is based upon a study of the analyses of many typical samples.

(3) *Sirups of polariscopic test above 56°* .—Only a small fraction (probably less than 1 per cent) of the edible molasses on the market tests more than 56 degrees by the polariscope. However, a concentrated cane juice containing little invert sugar and testing above 56 degrees might be imported for the purpose of making refined sugar, if the rates of duty on such sirups were substantially below the rate on raw sugar. They should therefore come under the same provision as that for raw sugar in paragraph 501. Actual experience under the acts of 1909 and 1913 demonstrates that there is no danger that the intended duty on raw sugar will be evaded by the importation of sirups testing below 56 degrees by the polariscope.

Although the polariscopic test is not suitable for distinguishing between blackstrap and edible molasses for reasons explained above, nevertheless it is a good method of testing sirups intended for or suitable for use in the preparation of granulated sugar. The specification recommended has been in use for tariff purposes for many years and is in accord with trade practice and should be retained.

The words "not specially provided for" should be added to avoid conflict with paragraph 504 "maple sirup."

In the last part of paragraph 503 as it now stands it is not clear whether the additional rate is *per gallon* for each *additional* per centum of total sugars.

Suggested changes.—Paragraph 503 might accordingly be changed to read:

Molasses and sirups and other mixtures of or containing sugar and water, not specially provided for, containing not above 56 per centum of total sugars, — cents per gallon; containing above 56 per cent of total sugars and testing by the polariscope not above 56 sugar degrees, — cents per gallon.

PARAGRAPH 504.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 504. Maple sugar and maple sirup, 4 cents per pound; dextrose testing not above 90.7 per centum and dextrose sirup, 1½ cents per pound. Sugar cane in its natural state, or unmanufactured, \$1 per ton of two thousand pounds; sugar contained in dried sugar cane, or in sugar cane in any other than its natural state, 75 per centum of the rate of duty applicable to manufactured sugar of like polariscopic test.

ACT OF 1909.

PAR. 217. Maple sugar and maple sirup, four cents per pound; glucose or grape sugar, one and one-half cents per pound; sugar cane in its natural state, or unmanufactured, twenty per centum ad valorem.

ACT OF 1913.

PAR. 178. Maple sugar and maple sirup, 3 cents per pound; glucose or grape sugar, 1½ cents per pound; sugar cane in its natural state, or unmanufactured, 15 per centum ad valorem: *Provided*, That on and after the first day of May, nineteen hundred and sixteen, the articles hereinbefore enumerated in this paragraph shall be admitted free of duty. [The proviso was repealed by the act of April 27, 1916, chapter 93.]

MAPLE SIRUP AND MAPLE SUGAR.

(See Survey E-2.)

Description and uses.—Maple sirup and maple sugar are derived from the sap of the maple tree and contain sucrose, identical with that in the juices of the cane or beet. Refined maple sugar is indistinguishable from cane sugar. Maple sugar is prized, however, because of the impurities which give it a characteristic flavor, hence is not refined. Besides its well-known uses as a confection and for table purposes, a large part is employed in the manufacture of tobacco products. It is said that this industry consumed half the domestic crop in 1913.

Production.—Maple sirup and maple sugar are produced chiefly in New England and in the North Atlantic and Lake States—New York, Ohio, and Vermont leading. The total output in 1910 was 4,100,000

gallons of sirup and 14,100,000 pounds of sugar, valued at \$5,200,000; in 1918, 5,000,000 gallons of sirup and 13,000,000 pounds of sugar. In 1919, because of unfavorable weather conditions, there was a marked decline—3,900,000 gallons of sirup and 10,400,000 pounds of sugar. More detailed statistics are shown in the following table:

| Year. | Maple sirup. | Maple sugar. | Total on sugar basis, 8 pounds to gallon. | Percentage in form of sugar. |
|-----------|-----------------|----------------|---|------------------------------|
| | <i>Gallons.</i> | <i>Pounds.</i> | <i>Pounds.</i> | |
| 1900..... | 2,056,611 | 11,928,770 | 28,381,658 | 41.9 |
| 1910..... | 4,106,118 | 14,060,206 | 46,911,550 | 30.0 |
| 1917..... | 4,286,100 | 10,838,650 | 45,127,450 | 23.9 |
| 1918..... | 4,905,264 | 13,270,865 | 52,512,977 | 25.3 |
| 1919..... | 3,854,488 | 10,168,629 | 41,004,533 | 24.8 |
| 1920..... | 3,605,555 | 7,528,640 | 36,373,060 | 20.7 |

It will be seen that the output fluctuated considerably from year to year, one reason being the dependence of the industry upon seasonal conditions, some years being much more favorable to the flow of sap than others. The table shows a tendency to market an increasing proportion of the product in the form of sirup.

Imports of sirup and sugar in 1914, chiefly from Canada, were 2,095,983 pounds, valued at \$163,047; in 1918 (fiscal year), 5,049,474 pounds, valued at \$909,412. Statistics for the period 1918-1921 follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|-----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 3,807,111 | \$850,873 | \$0.21 | \$114,213 | 14.26 |
| 1919..... | 4,277,300 | 1,189,695 | .28 | 128,319 | 10.79 |
| 1920..... | 7,607,634 | 1,812,102 | .24 | 228,229 | 12.59 |
| 1921 (9 months)..... | 1,586,115 | 288,906 | .18 | | |

Imports are derived almost exclusively from Canada.

Exports are not segregated. Exports of maple sugar are included under the heading, "Sugar, refined, including maple sugar." Exports of maple sirup are included under the heading, "Sirup, including maple sirup."

DEXTROSE AND DEXTROSE SIRUP (REFERRED TO IN PREVIOUS ACTS AS GRAPE SUGAR AND GLUCOSE.)

(See Survey E-2.)

Description and uses.—Glucose and grape sugar are manufactured from starch and are therefore usually made by firms which also make starch for sale. In the United States the raw material for the combined starch-glucose industry is usually corn, although potatoes and wheat are used to some extent. In Europe potatoes are the most important raw material. In the process, starch is boiled with dilute hydrochloric acid thus causing the starch to combine chemically with water, which converts it into dextrin, maltose, and finally dextrose. The product is then neutralized, decolorized, and concentrated by

evaporation. If the boiling with acid and the concentration by evaporation are stopped at a relatively early stage a liquid sirup known as glucose is obtained, whereas if both these operations are prolonged, a solid sugar known as grape sugar is obtained.

Glucose is a colorless or slightly amber-colored sirup, with about one-half the sweetening power of sugar. Mixed with cane sirup or maple sirup, it is a familiar article of table use. It is also known as corn sirup. It is extensively used by tanners, bakers, and brewers, and in the manufacture of jellies and confectionery. Grape sugar is used in the manufacture of vinegar and in brewing; also, as a reducing agent in many industries, and in silvering glass.

Production of glucose in 1909 was 769,700,000 pounds, valued at \$17,900,000, and of grape sugar, 159,100,000 pounds, valued at \$3,600,000. Preliminary figures from the census of 1919 show the value of the glucose (including all sirups) produced in that year to have been, \$80,608,000; grape sugar (157,276,000 pounds) \$9,315,000. The industry flourishes chiefly in the corn belt—Illinois, Indiana, Iowa, and Missouri. The most important factories are in Argo, Ill., and Edgewater, N. J. Though less favorably located with respect to the domestic corn supply, Edgewater, in addition to being nearer eastern and European markets, is advantageously situated with respect to imported Argentine corn, which is often cheaper than the American grain and contains more oil—corn oil being an important by-product of the industry.

This industry lends itself to the economies of large-scale production and has been subject to persistent attempts at monopoly. A pool was arranged in 1885, which continued, with intermission, until 1890. Consolidations were effected in 1897, in 1902, and in 1906. The last consolidation, under the name of the Corn Products Refining Co., still remains the dominant figure in the industry. Its dissolution has been ordered by the courts.

Imports.—Imports of glucose are comparatively small, the largest since 1910 being 268,592 pounds, valued at \$8,345, in 1911. Later statistics follow.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|----------------|---------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 104,557 | \$6,331 | \$0.06 | \$1,176 | 18.58 |
| 1919..... | 40,267 | 3,040 | .07 | 453 | 14.90 |
| 1920..... | 50 | 5 | .10 | ..... | 11.20 |

In only one year since 1910 have imports of grape sugar exceeded 500 pounds. No imports are recorded for 1918, 1919, or 1920.

Exports.—About one-eighth of domestic glucose is exported. In 1914 the exports were 162,680,378 pounds, valued at \$3,766,289; in 1916, 148,523,098 pounds, valued at \$3,772,860; in 1918, 80,970,749 pounds, valued at \$4,949,159. The exports decreased during the war to less than one-half, but the rise in price increased the value. The destination of the exports was widespread, including all the principal countries of Europe, several countries of South America, Canada, Cuba, Australia, New Zealand, and South Africa. From one-half to

four-fifths of the trade was with the United Kingdom. Exports of grape sugar in 1914 were 36,850,496 pounds, valued at \$799,635; in 1916, 37,883,089 pounds, valued at \$962,101; in 1918 (fiscal year), 16,887,557 pounds, valued at \$1,045,512. Over 90 per cent of the export trade was with the United Kingdom.

Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|--------------|-------------|---------------------|
| GLUCOSE. | | | | |
| Quantity (pounds)..... | 42,740,417 | 220,380,761 | 144,760,031 | 160,479,032 |
| Value..... | \$2,552,637 | \$13,169,051 | \$3,993,815 | \$4,793,757 |
| GRAPE SUGAR. | | | | |
| Quantity (pounds)..... | 14,591,733 | 35,236,948 | 17,736,137 | 14,303,990 |
| Value..... | \$906,290 | \$1,970,893 | \$1,074,015 | \$463,444 |

Important changes in classification.—In previous acts the substances referred to in paragraph 504 as “dextrose testing not above 99.7 per centum” and “dextrose sirup” were called respectively “grape sugar” and “glucose.”

Suggested changes.—The term dextrose refers to a definite chemical substance ($C_6H_{12}O_6$) and may properly apply to the substance referred to in paragraph 505 as “dextrose testing above 99.7 per centum.” The substances which will be assessed for duty under paragraph 504 and referred to as “dextrose testing not above 99.7 per centum” and “dextrose sirup” are commercial products, containing, it is true, dextrose, but containing also other substances. The first is known to the trade as “grape sugar” or “corn sugar”; the second as “glucose.” The normal composition of glucose, exclusive of water, is about 45 per cent maltose, 35 per cent dextrin, and 20 per cent dextrose. It is questionable whether in framing a tariff act which has to do with commercial products it is preferable to depart from commercial terminology, especially when the chemical term substituted represents only a minor ingredient of the commercial product in question.

The following wording is suggested: “Grape sugar or cereal sugar or corn sugar or potato sugar, and glucose or corn sirup or potato sirup, [rate] per pound.”

SUGAR CANE.

Production and uses.—The cane from which sugar is obtained is a species of grass, requiring from 18 months to 2 years to mature sufficiently to yield the best results, and hence can be best produced in tropical climates. In no part of continental United States, except southern Florida (a sugar region of potential promise), is continuous growth of the cane through 12 months of the year possible. The other Gulf States, though growing cane, are somewhat at a disadvantage because the season is seldom longer than nine months. The superiority of a mature cane for sugar extraction is shown by

the fact that in Hawaii the average yield of sugar per ton of cane is 245.6 pounds; in Porto Rico, 221.9 pounds; in Cuba, 229.1 pounds, while in Louisiana it is only 143.3 pounds. Louisiana and Texas, however, are important sugar-producing States, furnishing 5 per cent of the total domestic consumption. Sugar cane is also grown in the other Gulf States, but mainly for making sirup, for which purpose a mature cane is not so necessary.

Imports.—Because of the bulk of cane in comparison with its value, it is unprofitable to transport it any considerable distance for manufacture. For this reason the foreign trade in cane is necessarily of small importance. Imports in 1918 (fiscal year) are given as having a value of \$639,392. Statistics for the period 1918–1921 follow:

| Calendar year. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|----------|------------------------|
| 1918..... | \$623,564 | \$93,535 | 15.00 |
| 1919..... | 398,284 | 59,743 | 15.00 |
| 1920..... | 331,502 | 49,577 | 14.96 |
| 1921 (9 months)..... | 309,628 | | |

Exports.—None recorded.

Suggested changes.—Page 82, line 12, paragraph 504. If the words “or unmanufactured” after the words “in its natural state” shall be considered necessary the same words should be inserted in line 14 after the words “in any other than its natural state.” The words “or unmanufactured” are apparently unnecessary in either place.

PARAGRAPH 505.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 505. Adonite, arabinose, dulcete, galactose, inosite, inulin, levulose, mannite, d-talose, d-tagatose, ribose, melibiose, dextrose testing above 99.7 per centum, mannose, melitzitose, raffinose, rhamnose, salicin, sorbite, xylose, and other of the higher saccharides required for scientific purposes, 50 per centum ad valorem.

ACT OF 1909.

PAR. 665. Salicin [Free].

PAR. 3. * * * all chemical compounds, mixtures and salts, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 591. Salicin [Free].

PAR. 5. * * * all chemical and medicinal compounds, preparations, mixtures and salts * * * not specially provided for in this section, 15 per centum ad valorem.

VARIOUS “SUGARS.”

Description and uses.—The items enumerated in paragraph 505 are for the most part substances belonging to a class of carbohydrates chemically known as sugars. They are not, however, used as foods

nor do they have an industrial or economic relationship to commercial sugar. They are in fact highly refined chemicals, used primarily for bacteriological testing and medicinal diagnosis.

Two of the substances included in the list in paragraph 505 are not sugars at all; inulin is a variety of starch, and salicin is a glucoside.

Production.—These substances are extracted from various vegetable materials on a small laboratory scale and are commonly sold in bottles containing a fraction of an ounce. Before the war they were not produced for sale at all in the United States, but since the outbreak of the European war two American firms have undertaken the manufacture of some of them. The annual demand for these rare sugars is very small, probably not more than a few hundred pounds a year for any one of them, with the possible exception of salicin.

Imports during the fiscal year ended June 30, 1914, were as follows: Salicin, 4,200 pounds, valued at \$15,234; mannite, 451 pounds, \$1,129; dulcite, 77 pounds, \$559; adonite, arabinose, inulin, raffinose, rhamnose, xylose, each less than \$100 worth imported. There is no record that any of the others were imported at all. With the exception of 1914, the several items in paragraph 505, excluding salicin, were imported under a basket clause and were not segregated. The following table shows the imports of salicin since 1917:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 729 | \$7,046 | \$9.66 |
| 1919..... | 365 | 4,264 | 11.65 |
| 1920..... | 2,772 | 32,396 | 11.69 |
| 1921 (9 months)..... | 230 | 1,080 | 4.70 |

Exports.—Not recorded.

Important changes in classification.—The items in paragraph 505, with the exception of salicin, are for the first time specifically provided for. Salicin was on the free list (par. 591) of the act of 1913. The other items were assessed for duty under the general provisions of paragraph 5, "Alkalies, alkaloids, and all chemical and medicinal compounds, preparations and salts, and combinations thereof, not specially provided for in this section, 15 per centum ad valorem."

Suggested changes.—Paragraph 505, page 82, line 20: Strike out the word "melitzitose" and insert "melezitose" to correct a misspelling. It is suggested that these names be rearranged in alphabetical order for convenience in reference.

Paragraph 505, page 82, lines 21 and 22: The phrase "and other of the higher saccharides required for scientific purposes" is objectionable for several reasons. In the first place, the word "higher" would exclude some of the simpler saccharides known as "monosaccharides," which logically belong herein and which it is probably intended to include herein; and in the second place, the phrase "for scientific purposes" would require the customs authorities to determine the use for which the import is intended which always gives

difficulty in administration; and thirdly, and most important, this provision is probably too broad because it might be held to include maltose or malt sugar and lactose or milk sugar, which are not elsewhere more specifically provided for. Lactose or milk sugar was specifically provided for on the free list in the act of 1913 (par. 547), but was omitted from the present bill with the intention of throwing it into the basket clause in paragraph 5, dutiable at 25 per cent. In the absence of this provision in paragraph 505, malt sugar would probably also be dutiable under paragraph 5 at 25 per cent. Neither malt sugar nor milk sugar are, from an industrial point of view, in the same class with these rare sugars referred to in paragraph 505 and should not be classified with them. If specific mention for lactose or milk sugar and maltose or malt sugar is made elsewhere, then it is suggested that in lines 16 and 17 the phrase "and other of the higher saccharides required for scientific purpose" should be stricken out and there should be inserted the phrase "and other saccharides not specially provided for."

It is further suggested that the whole of paragraph 505 should be transferred to schedule 1 and inserted between paragraphs 81 and 82. Although the products provided for in paragraph 505 are chemically sugars, they are not used for food or confectionery and have no industrial or economic relationship to commercial sugar, but are highly refined chemicals used primarily for bacteriological testing and medicinal diagnosis and logically belong in schedule 1 with other chemicals and drugs.

PARAGRAPH 506.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 506. Sugar candy and all confectionery not specially provided for, and on sugar after being refined, when tintured, colored, or in any way adulterated, 30 per centum ad valorem. The value of the immediate coverings other than the outer packing case or other covering shall be included in the dutiable value of the merchandise.

ACT OF 1909.

ACT OF 1913.

PAR. 219. Sugar candy and all confectionery not specially provided for in this section, valued at fifteen cents per pound or less, and on sugars after being refined, when tintured, colored or in any way adulterated, four cents per pound and fifteen per centum ad valorem; valued at more than 15 cents per pound, fifty per centum ad valorem. The weight and the value of the immediate coverings, other than the outer packing case or other covering, shall be included in the dutiable weight and the value of the merchandise.

PAR. 180. Sugar candy and all confectionery not specially provided for in this section, valued at 15 cents per pound or less, 2 cents per pound; valued at more than 15 cents per pound, 25 per centum ad valorem. The weight and the value of the immediate coverings, other than the outer packing case or other covering, shall be included in the dutiable weight and the value of the merchandise.

SUGAR CANDY AND CONFECTIONERY, N. S. P. F., ETC.

(See Survey F-2.)

Description.—The distinction between confectionery and certain food products is not always easily drawn. The figures in the next paragraph follow the classification of the Census Bureau, and include under "confectionery" candy and confections, cake ornaments, popcorn balls and cake, chewing gum, salted nuts, and stuffed dates, but do not include the products of establishments making primarily chocolate and cocoa.

Production.—To the value of total output in 1914, \$154,000,000, may be added \$17,000,000 for the allied product, chewing gum.

The industry is widespread, but centers in New York, Massachusetts, Pennsylvania, and Illinois, four States producing a little more than one-half the entire domestic output.

Preliminary figures for the 1919 census show 3,148 establishments engaged in the manufacture of confectionery, with products valued at \$447,800,000. In value of output the rank of States was: New York, Massachusetts, Illinois, Pennsylvania, Ohio, Wisconsin, Missouri, California, Maryland, New Jersey.

Imports from Germany in 1912 aggregated 799,000 pounds and from Austria-Hungary 215,000 pounds, about 64 per cent of the whole. Other important sources are the United Kingdom, France, Netherlands, Spain, Italy, Russia, and several Asiatic countries. The total annual imports for 1911-1914 decreased from an average of 1,486,000 pounds, valued at \$265,000, to 714,000 pounds, valued at \$126,000, for 1915-1918. Imports for 1914 were 1,671,806 pounds, valued at \$294,019; for 1918 (fiscal year), 301,796 pounds, valued at \$64,588. Statistics for the period 1918-1921 follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 180,550 | \$27,399 | \$0.15 | \$6,039 | 22.01 |
| 1919..... | 839,376 | 195,515 | .23 | 42,317 | 21.64 |
| 1920..... | 1,229,325 | 371,796 | .30 | 87,345 | 23.49 |
| 1921 (9 months)..... | 442,602 | 122,322 | .28 | | |

Exports increased during the war from an annual average of \$1,200,000 during the preceding four years to an annual average of \$1,800,000. The exports for 1914 were valued at \$1,329,147; for 1918 (fiscal year), \$1,856,751. The countries of chief importance in the export trade are the United Kingdom, Canada, Cuba, the Philippine Islands, Australia, South Africa, Panama, and Mexico. Statistics for later calendar years were as follows: 1918, \$1,225,928; 1919, \$12,305,082; 1920, \$6,255,476; 1921 (9 months), \$1,239,233.

Important changes in classification.—The act of 1913 divides confectionery into two classes. The clause "and on all sugar after being refined, when tintured, colored, or in any way adulterated," is added. The provision for "weight" in the case of outer covering is omitted as unnecessary.

Suggested changes.—Omit "on" before sugar in the second line of the paragraph.

Paragraph 506, page 82, line 25: A duty of 30 per cent on "sugar after being refined, when tintured, colored, or in any way adulterated," will be less than the duties imposed in paragraph 501 on raw or refined sugars whenever the dutiable value of sugar is less than 7.2 cents per pound. Pulverized sugar is sometimes mixed with a small percentage of starch for the purpose of preventing caking. Granulated sugar is sometimes colored for confectioners' use. Such adulterated sugars would come under the provisions of this paragraph. An addition of tincture or coloring matter or other adulterant might permit the importation of sugars at less than the rates imposed in paragraph 501.

Paragraph 506, page 83, lines 1-3: Strike out all of the paragraph after the words "ad valorem" in line 1. This entire sentence is unnecessary because coverings of goods carrying ad valorem duties are dealt with by general provisions, or if an exception shall be made in case of these goods the word "only" should be inserted after "coverings" in line 1, and the words "other than the outer packing case or other covering" should be stricken out of lines 1 and 2.

SCHEDULE 6.—TOBACCO AND MANUFACTURES OF.

PARAGRAPH 601.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 601. Wrapper tobacco, and filler tobacco when mixed or packed with more than 50 per centum of wrapper tobacco, and all leaf tobacco the product of two or more countries or dependencies when mixed or packed together, if unstemmed, \$2.10 per pound; if stemmed, \$2.75 per pound; filler tobacco of the kind known as Turkish, \$1 per pound; filler tobacco not specially provided for, if unstemmed, 45 cents per pound; if stemmed, 60 cents per pound: *Provided*, That filler tobacco, not specifically provided for, commonly used without removing the stem shall be subject to the same duty as stemmed.

ACT OF 1909.

SCHEDULE F.—TOBACCO AND MANUFACTURES OF.

PAR. 220. Wrapper tobacco, and filler tobacco when mixed or packed with more than fifteen per centum of wrapper tobacco, and all leaf tobacco the product of two or more countries or dependencies when mixed or packed together, if unstemmed, one dollar and eighty-five cents per pound; if stemmed, two dollars and fifty cents per pound; filler tobacco not specially provided for in this section, if unstemmed, thirty-five cents per pound; if stemmed, fifty cents per pound.

[No corresponding provision for tobacco of the kind known as Turkish.]

ACT OF 1913.

SCHEDULE F.—TOBACCO AND MANUFACTURES OF.

PAR. 181. Wrapper tobacco, and filler tobacco when mixed or packed with more than 15 per centum of wrapper tobacco, and all leaf tobacco the product of two or more countries or dependencies when mixed or packed together, if unstemmed, \$1.85 per pound;¹ if stemmed, \$2.50 per pound;² filler tobacco not specially provided for in this section, if unstemmed, 35 cents per pound;³ if stemmed, 50 cents per pound.⁴

[No corresponding provision for tobacco of the kind known as Turkish.]

TOBACCO.

Description and uses.—Tobacco of commerce consists of the dried, cured leaves of *Nicotiana tabacum* and *N. rustica* (with or without the midrib or stem), commonly known as leaf tobacco, and its various manufactured products intended for smoking, chewing, or snuffing. The green leaves are subjected to curing, which removes most of the water, and usually to fermentation or aging in preparation for manu-

¹ \$2.85 per pound, par. 25, emergency tariff act of 1921.

² \$3 per pound, par. 25, emergency tariff act of 1921.

³ 35 cents per pound, par. 25, emergency tariff act of 1921.

⁴ 50 cents per pound, par. 25, emergency tariff act of 1921.

facture into cigars, cigarettes, plug, twist, and various types of granulated, fine-cut, and cut-plug tobaccos.

Production.—The United States is the largest producer and exporter of tobacco, growing nearly one-third of the world's crop, now estimated at 4,000,000,000 pounds; other leading countries are India, China, Russia, Austria-Hungary, the Dutch East Indies, the Philippines, Japan, Turkey, Cuba, and Brazil. World production in 1912 (latest complete figures) was as follows:

| [In 1,000 pounds.] | | | |
|--|----------|--|-------------|
| United States (except Philippines) | 979, 355 | Austria-Hungary | 188, 180 |
| Brazil (1911) | 54, 468 | Germany | 85, 741 |
| France | 49, 884 | Russia | 237, 406 |
| Italy | 89, 683 | British India | 450, 000 |
| Turkey | 68, 894 | Japan | 93, 696 |
| Dutch East Indies | 182, 427 | Other countries less than 40,000,000 pounds | 298, 748 |
| Philippine Islands | 65, 219 | | |
| Cuba (estimated) | 42, 080 | Total | 2, 835, 740 |

The production of India and China is very great, but for the most part is consumed locally. In international trade the tobaccos of the United States, Cuba, the Dutch East Indies, Turkey, Bulgaria, Greece, the Philippines, and Brazil are of most significance. Tobacco culture is highly specialized in this country and several distinct types (for different uses) are grown in well-defined areas. Different types of foreign and domestic tobaccos are largely noncompetitive. In 1920 a crop of 1,508,000,000 pounds was produced on 1,894,000 acres, about 56 per cent in Kentucky and North Carolina, and 34 per cent in Virginia, Ohio, Wisconsin, Pennsylvania, South Carolina, and Tennessee. Establishments engaged in its manufacture in 1914 numbered 13,951, employing 178,872 wage earners, receiving wages of \$77,856,000; with capital of \$303,840,000; cost of materials, \$207,134,000; and value of products, \$490,165,000 (latest available figures). The number of retail tobacconists in 1918 was 823,000. In 1920 large cigars consumed 183,000,000 pounds; small cigars, 2,500,000 pounds; large cigarettes, 141,000 pounds; small cigarettes, 177,000,000 pounds; smoking tobacco, chewing tobacco, and snuff, 306,000,000 pounds.

Revenues from tobacco.—Manufactured tobacco is universally an important source of public revenue and in some 18 countries (including France, Italy, Spain, Japan, Austria-Hungary, and Sweden) State monopolies have been founded for this purpose. Great gains in the revenue are said to be thus realized without adding to the consumer's price. Distribution is concentrated in a single revenue agency, retaining the profits of wholesalers and retailers and saving the expenses incident to competition. In France ex-soldiers are preferred and given a fixed commission for the work of retail distribution in lieu of (or supplemental to) pensions. In the fiscal year 1921 our internal revenue from tobacco aggregated more than \$255,000,000—over \$135,000,000 from cigarettes, \$52,000,000 from cigars, and \$65,000,000 from "manufactured tobacco." To offset the heavy internal taxes, compensatory duties are levied upon imports plus an additional percentage for protection. In 1920 these duties yielded \$34,000,000, of which \$30,000,000 was from unmanufactured tobacco. The ad valorem equivalents are sometimes over 180 per cent.

Imports of manufactured and unmanufactured tobacco in 1920 totaled 68,000,000 pounds, valued at \$75,000,000, leaf tobacco making up 88 per cent of the quantity and 78 per cent of the value of the whole. Generally our imports are high-grade leaf tobacco used in making cigars and cigarettes. From Cuba we receive chiefly cigar filler and relatively small quantities of cigar wrapper; from Turkey, Greece, and Bulgaria (Turkish or cigarette tobacco), the Dutch East Indies (cigar wrapper), and the Philippines (cigars and cheroots). Manufactured imports, other than from the Philippines, consist chiefly of high-priced cigars and cigarettes.

Exports in 1920 were valued at \$288,700,000, of which leaf tobacco constituted about \$245,000,000 and cigarettes about \$36,000,000. Leaf tobacco has been an important export since the settlement at Jamestown, averaging in recent years more than 400,000,000 pounds. The so-called "dark fire-cured" and "bright" or "flue-cured" types of Kentucky, Tennessee, Virginia, and the Carolinas constitute the greater portion of leaf exports. Their average valuation price is lower than that of the imported product, but the volume of exports is much larger. Exports have been chiefly to England, France, Italy, Germany, Australia, Spain, the Netherlands, Belgium, and Canada.

WRAPPER TOBACCO AND FILLER TOBACCO.

Description and uses.—The typical cigar-wrapper leaf—thin, light in weight, of fine texture, elastic, and of proper color, size, and burning properties—is readily distinguished from typical cigar-filler leaf and from the American cigarette tobacco. Wrapper, especially the lower grades, is not so easily distinguished from binder grades, and in the less typical grades it may be difficult even to distinguish wrapper and filler. As a rule, the same locality does not produce cigar wrapper, binder, and filler of equal excellence. The type of leaf required for domestic cigarettes is quite different from cigar leaf.

Production.—The Sumatra wrapper is conceded to be the standard of excellence, largely because of its "covering capacity," 1 pound providing wrappers for 500 or more cigars. A similar grade is grown in Java, and Cuba produces a fine cigar wrapper in limited quantities. The well-known "broadleaf" wrapper is extensively grown in the Connecticut Valley; the "Havana seed" wrapper is grown there also, and to a limited extent in other sections. The greater proportion of these types, however, is of the binder and filler grades. A high-grade wrapper (from Cuban seed) is extensively grown under artificial shade in the Connecticut Valley and in the vicinity of Quincy, Fla., the total production now averaging 6,000,000 to 8,000,000 pounds. Cigar binder and filler types are grown in large quantities in Cuba, the Philippines, and in Pennsylvania, Ohio, Wisconsin, and New York. "Turkish" tobacco of high aroma and excellent flavor produced in Macedonia, in Asiatic Turkey, and in the islands of the Aegean, bears a relation to the cigarette industry analogous to that of Cuban tobacco to the cigar industry. Typical cigarette leaf is grown in large quantities in Virginia, the Carolinas, and Georgia; burley also being used in increasing quantities in cigarettes and other types adapted to chewing and pipe-smoking tobaccos and for export are grown chiefly in Kentucky, Tennessee, Virginia, Ohio, and Maryland.

In recent years a relatively small amount of cigarette leaf has been grown in California from Turkish seed.

Imports of wrapper tobacco during 1910-1914 from Sumatra and Java (through Amsterdam) averaged about 6,000,000 pounds; filler leaf from Cuba, including some wrapper and binder grades, averaged 25,000,000 pounds. Before the war large and rapidly increasing quantities (reaching 20,000,000 pounds) of leaf, designated "Turkish tobacco," were imported from Macedonia and Asia Minor for cigarettes and fancy smoking mixtures. During the war notable quantities of cigarette tobacco came from Greece and China. Detailed statistics for the years 1918-1921 follow:

| Calendar year. | Quantity. | Value. | Duty. |
|---|----------------|--------------|--------------|
| WRAPPER TOBACCO, ETC., UNSTEMMED. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 4,393,631 | \$5,888,695 | \$7,707,471 |
| 1919..... | 4,861,440 | 7,437,751 | 8,956,463 |
| 1920..... | 6,963,054 | 11,137,579 | 12,857,362 |
| 1921 (9 months)..... | 8,533,681 | 15,693,684 | ..... |
| WRAPPER TOBACCO, ETC., STEMMED. | | | |
| 1918..... | 206,095 | \$70,095 | \$53,046 |
| 1919..... | 10,302 | 8,961 | 20,601 |
| 1920..... | 82 | 101 | 205 |
| 1921 (9 months)..... | 16,365 | 20,772 | ..... |
| FILLER TOBACCO, N. S. P. F., UNSTEMMED.¹ | | | |
| 1918..... | 33,287,472 | \$21,980,576 | \$10,043,034 |
| 1919..... | 35,972,123 | 29,860,717 | 11,829,457 |
| 1920..... | 38,033,019 | 33,756,720 | 12,520,272 |
| 1921 (9 months)..... | 30,273,215 | 26,668,552 | ..... |
| FILLER TOBACCO, N. S. P. F., STEMMED.¹ | | | |
| 1918..... | 9,117,160 | \$8,208,806 | \$2,944,636 |
| 1919..... | 9,138,800 | 9,641,154 | 3,576,076 |
| 1920..... | 11,418,293 | 13,170,833 | 4,374,834 |
| 1921 (9 months)..... | 7,019,677 | 9,143,845 | ..... |
| TURKISH-TYPE TOBACCO (CIGARETTE FILLER).² | | | |
| 1918..... | 23,682,514 | \$10,498,352 | \$8,288,880 |
| 1919..... | 46,326,607 | 41,362,524 | 16,214,312 |
| 1920..... | 33,590,757 | 34,545,169 | 13,891,765 |

¹ Includes Turkish-type tobacco.

² General imports from countries producing Turkish-type tobacco.

Under the emergency tariff act (par. 25) wrapper tobacco, and filler tobacco when mixed or packed with more than 15 per centum of wrapper tobacco, and all leaf tobacco the product of two or more countries or dependencies, when mixed or packed together are dutiable if unstemmed at \$2.35 per pound; if stemmed, at \$3 per pound.

The following table shows imports of leaf tobacco suitable for cigar wrappers during nine months of 1920 and 1921:

| Months. | Quantity. | | Value. | |
|----------------|----------------|----------------|-----------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 251,695 | 265,926 | \$361,038 | \$660,670 |
| February..... | 330,694 | 402,869 | 393,737 | 846,526 |
| March..... | 10,716 | 419,654 | 26,398 | 547,516 |
| April..... | 50,492 | 420,428 | 60,875 | 911,378 |
| May..... | 191,709 | 107,622 | 231,208 | 97,526 |
| June..... | 882,979 | 447,964 | 1,385,246 | 808,163 |
| July..... | 1,509,855 | 788,207 | 3,016,418 | 1,823,683 |
| August..... | 1,615,566 | 896,746 | 3,319,372 | 1,740,882 |
| September..... | 2,148,620 | 165,144 | 4,114,728 | 342,188 |

Exports of cigar leaf tobacco were inconsiderable until the war. There has been an expanding foreign demand for the bright flue-cured type; other exports have continued stable. England and continental Europe are the chief purchasers. It is estimated that fully 80 per cent of the country's production of fire-cured leaf and Maryland tobacco (about 60 per cent of the flue-cured) and nearly 50 per cent of the dark air-cured types are exported. Exports of leaf tobacco since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------------|---------------|---------------|---------------------|
| Quantity (pounds)..... | 403,871,275 | 785,913,164 | 467,662,124 | 403,880,003 |
| Value..... | \$122,599,767 | \$259,438,483 | \$244,897,187 | \$167,729,793 |

Important changes in classification.—The tariff acts of 1909 and 1913 provided that when a bale of mixed filler and wrapper tobacco contained more than 15 per centum of wrapper tobacco the entire bale should be dutiable at the wrapper rate, which at the present time is six times as high as the duty on fillers. H. R. 7456 changes the percentage of wrapper from 15 to 50 per cent. It does not, however, affect the present practice of assessing duties on mixed bales when the percentage of wrapper is within the prescribed amount; in such cases the wrapper and filler tobacco are assessed the rates of duty provided for each class. Mixed bales of wrapper and filler are imported almost entirely from Cuba where leaves suitable for wrapper are grown on the same plant with the filler grades and where it is not the general practice to sort these two kinds.

In addition to the foregoing alteration, two provisions have been added to this paragraph—one for “filler tobacco of the kind known as Turkish,” and another for “filler tobacco, not specifically provided for, commonly used without removing the stem.” Both provide for the cigarette tobaccos coming chiefly from Macedonia, Samsoun, Smyrna, and the islands of the Aegean.

Suggested changes.—There are two important changes to be considered here. One relates to the provision for “filler tobacco commonly known as Turkish,” which would be difficult of administration, and, moreover, includes substantially all tobacco used without re-

moving the stem. So-called Turkish tobacco is grown in Greece, Asia Minor, Bulgaria, and Roumania, and similar kinds are grown in South Africa, Italy, China, and California. Types of Turkish tobacco grown in the various producing sections differ so widely that it would be difficult precisely to define the term. Turkish tobacco is commonly used without removing the stem and without special provision therefor would take the rate for stemmed filler tobacco by virtue of the proviso to this paragraph. If, however, the provision for "filler tobacco commonly known as Turkish" were eliminated the rate on such tobacco would not be so high as that now given for it in this paragraph.

The other important change to be considered is the provision for wrapper tobacco. The tariff provisions regarding wrapper tobacco for many years have resulted in constant administrative difficulties, since it is almost impossible accurately to differentiate some types of wrapper from binder and filler. This is illustrated by the *St. Elmo* case (*St. Elmo Cigar Co. v. United States*, 7 Ct. Cust. Appls., 153, of 1916), wherein eight tobacco experts estimated the percentage of wrapper in identical bales at from 15 to 90 per cent. As a remedy for the difficulties arising from basing the duties upon any percentage of wrapper tobacco in bales containing both wrapper and filler, it is proposed that duties might be levied upon types of tobacco such as Sumatra and Cuban. This proposal will perhaps be more clearly understood if a suggested rephrasing of paragraphs 601 and 602 be submitted, as follows:

PAR. 601. Leaf tobacco of the type commonly known as Java or Sumatra; leaf tobacco the product of two or more countries or dependencies, when mixed or packed together; and wrapper tobacco not specially provided for; all the foregoing, unstemmed [rate]; stemmed [rate].

PAR. 602. Leaf tobacco of the type commonly known as Cuban, unstemmed [rate]; stemmed [rate]; filler tobacco not specially provided for, unstemmed [rate]; stemmed [rate].

PAR. 603. Turkish and other tobacco commonly used without removing the stem [rate].

Reasons for suggested reclassification, i. e., for the adoption of new provisions for Cuban and Sumatra or Java tobacco and the omission of special duties on mixed bales of wrapper and filler.

(1) Cuban and Sumatra or Java tobacco are distinctive; each type is *sui generis*. Only wrapper tobacco is imported from the Dutch East Indies, but of the imports from Cuba, such tobacco constitutes only about one-half of 1 per cent.

(2) Cuba produces relatively little of the grades of wrapper acceptable to the American trade. Cuba itself hardly produces sufficient of the better grades of wrapper for its own large export trade in fancy cigars. The Cuban climate and soil are not adapted to wrapper tobaccos, and attempts to produce wrapper under shade have met with little success. The production of "clear Havanas" in the United States has declined within recent years, and high-priced Connecticut wrapper has to a large extent replaced Havana wrapper in the finer grades of cigars.

(3) It is the relatively unimportant proportion of wrapper from Cuba that has caused most of the difficulty in the administration of the tobacco duties. The declared imports of wrapper tobacco are about 7,000,000 pounds; Cuba ships about 100,000 pounds, or 1.5

per cent and the Dutch East Indies nearly all of the remainder. The declared imports of wrapper from Cuba are only about one-half of 1 per cent of the domestic wrapper consumption. Of a total production of about 8,000,000,000 cigars they would cover only some 30,000,000. Cuba is virtually the sole source of imported cigar filler of the Cuban type. The Cuban type of filler is in great demand for blending with domestic tobaccos and for the manufacture of clear Havana cigars. There it is not the general practice to sort wrapper and filler; the same plant produces both. Moreover, no definite standard exists for wrapper tobacco. Nearly every Cuban bale contains a few leaves suitable for wrapper. Some are clearly of wrapper grade; others are of indeterminable quality, which manufacturers will variously appraise as wrapper, binder, or filler, according to the quality, size, and shape of cigars they produce. After the tobacco is baled in Cuba fermentative changes occur in the leaf which alter its quality. Moreover, manufacturers whose output consists of "seed and Havana cigars" use imported tobacco only for filler.

(4) The change from 15 to 50 per cent proposed in H. R. 7456 does not obviate the fundamental administrative difficulty of differentiating wrapper and filler.

(5) Under the existing law, if a bale contains not more than 15 per cent of wrapper, the wrapper and filler pay the duties respectively provided for each class. If, however, it is found to contain more than 15 per cent of wrapper, the entire bale takes the wrapper rate, six times as high as for filler. In such a contingency, after the customs appraisers have gone to the trouble and expense of examining 10 hands in every bale, in accordance with present requirements, the bales are often exported in preference to paying the wrapper rate on tobacco consisting largely of filler.

(6) If the indicated rephrasing of paragraphs 601 and 602 were adopted, the administration of the tobacco schedule would be greatly simplified; regulations under paragraph 602 of H. R. 7456, which would doubtless continue to require the examination of at least 10 hands in every bale of Cuban tobacco, would be rendered unnecessary. Only the first sentence of that paragraph, which defines wrapper, need be retained. In actual practice, the requirement that "at least one bale, box, or package in every ten" shall be examined, and "at least 10 hands in each examined bale, box, or package" is not carried out. In Turkish tobacco, for instance, the importations consist of anywhere from 2 to 50,000 bales covered by one invoice. It is unnecessary to examine 10 hands in every tenth bale of such shipments, wherein there is never any question as to classification, because Turkish tobacco is all of one type. Similarly, all the imported Java or Sumatra consists of wrapper; here also the examination is not necessary. In the case of Cuban tobacco, the Treasury regulations require the examination of every bale.

(7) The adoption of the Sumatra or Java classification will prevent similar complications from arising in the case of tobacco from the Dutch East Indies. It is in this type of tobacco that the tariff problem chiefly centers. There are indications that complications similar to those in the Cuban trade may here develop.

(8) Catch-all provisions are added for wrapper and filler tobacco not specially provided for; these general provisions would take care of the relatively small quantities of imported tobacco that do not fall under the three important distinctive classes, i. e., Java or Sumatra wrapper, Cuban filler, and Turkish leaf.

It has been suggested that the Cuban and Sumatra classification may be discriminatory between different countries. But the classifications refer to types, not to geographic boundaries; moreover, they merely continue ratios of duty long in effect and simplify the language of the bill.

Reasons for the change in H. R. 7456 from 15 to 50 per cent as a dividing line between wrapper and filler tobacco.—(1) Under paragraphs 601 and 602 of H. R. 7456 Cuban bales, like all other imported tobaccos containing less than 50 per cent of wrapper tobacco, would pay wrapper duty on the wrapper content and filler duty on the filler content; whereas the proposed reclassification would provide one rate only for Cuban leaf tobacco, regardless of the proportions of wrapper and filler. Separate duties for such tobaccos have been customary in the tariff legislation of this country.

(2) Unless the duty on Cuban tobaccos be raised above the present duty on Cuban filler, the change in classification will involve the abandonment of certain revenues heretofore collected upon the relatively small quantity of wrappers imported from Cuba.

(3) As in the case of the suggested reclassification, the change from 15 to 50 per cent provided in H. R. 7456 would permit the importation of the intermediate grade of Cuban tobacco and thereby increase the customs revenue and permit manufacturers to make a higher grades of cigars. At present only the typical wrapper and the typical filler grades of Cuban tobacco can be imported, because the bales of other Cuban tobacco when classified as wrapper are usually returned to Cuba or exported to some other country. The tobaccos that would be most affected by the change from 15 to 50 per cent as a dividing line between wrapper and filler tobacco are Cuban.

(4) Neither the suggested reclassification nor the change from 15 to 50 per cent would have any effect upon the importation of Sumatra tobacco, since virtually no Sumatra fillers are imported and Sumatra tobacco packed with other tobacco would be subject to the provisions in lines 7 and 8, page 53, of H. R. 7456, treating leaf tobacco the product of two or more countries or dependencies, when mixed or packed together, the same as wrapper.

If the distinction between wrapper and filler tobacco in paragraph 601 as passed by the House of Representatives shall be continued, the following changes should be made:

Page 83, line 18: Strike out comma after "tobacco" to agree with line 11, and change "specifically" to "specially" to agree with the usual form.

Page 83, line 14: Insert a comma after "stem."

Page 83, paragraph 601, lines 11, 12: The rate on stemmed filler tobacco is not proportionate to the rate on unstemmed filler tobacco in the ratio of 35 cents to 50 cents in the acts of 1909 and 1913. There is a loss in stemming of about 40 per cent between the weight of the

unstemmed and stemmed tobacco. One hundred pounds of unstemmed leaf tobacco when stemmed would weigh about 60 pounds. Sixty-five cents instead of 60 cents per pound would be a nearer equivalent to the existing rate.

PARAGRAPH 602.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 602. The term "wrapper tobacco" as used in this title means that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers, and the term "filler tobacco" means all other leaf tobacco. Collectors of customs shall permit entry to be made, under rules and regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco when the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least 1 bale, box, or package in every 10, and at least 1 in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least 10 hands shall be examined in each examined bale, box, or package.

ACT OF 1909.

PAR. 221. The term wrapper tobacco as used in this section means that quality of leaf tobacco which is suitable for cigar wrappers, and the term filler tobacco means all other leaf tobacco. Collectors of customs shall not permit entry to be made, except under regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco, unless the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least one bale, box, or package in every ten, and at least one in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least ten hands shall be examined in each examined bale, box, or package.

ACT OF 1913.

PAR. 182. The term wrapper tobacco as used in this section means that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers, and the term filler tobacco means all other leaf tobacco. Collectors of customs shall not permit entry to be made, except under regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco, unless the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least one bale, box, or package in every ten, and at least one in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least ten hands shall be examined in each examined bale, box, or package.

Suggested changes.—See Suggested Changes, paragraph 601, page 616.

PARAGRAPH 603.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 603. All other tobacco, manufactured or unmanufactured, including scrap tobacco, not specially provided for, 55 cents per pound.

ACT OF 1909.

PAR. 222. All other tobacco, manufactured or unmanufactured, not specially provided for in this section, and scrap tobacco, fifty-five cents per pound.

ACT OF 1913.

PAR. 183. All other tobacco, manufactured or unmanufactured, not specially provided for in this section, 55 cents per pound; scrap tobacco, 35 cents per pound.

TOBACCO, N. S. P. F.

Description and uses.—The term scrap tobacco includes the broken fragments of leaves which are the by-product of stemmeries and also the clippings which accumulate in working cigars. "Scrap" denotes both raw and manufactured products. There is a marked increase in the production of chewing tobacco made from scrap, considerable quantities of cigar leaf being used for that purpose.

Various other types and forms of smoking and chewing tobaccos come under this paragraph—granulated, fine-cut, and long-cut, types used for rolling cigarettes; pipe smoking and chewing, made from various combinations and blends of domestic and imported tobaccos. The flat plug, heavily sweetened western plug, and twist are also important forms of manufacture in which large quantities of licorice, sugar, honey, and flavoring materials are used.

Production of scrap, plug, and other forms of smoking and chewing tobacco is very large. In 1920 there were produced 227,000,000 pounds of smoking tobacco, 139,000,000 pounds of plug, 12,000,000 pounds of twist, and 9,000,000 pounds of fine cut. With the exception of scrap, nearly all of these are made from the flue-cured, the burley, and the dark air-cured types (other than cigar leaf), together with certain quantities of imported tobacco. In general, this class of manufactures requires considerable special machinery and equipment. The demand for pipe and cigarette preparations seems to be increasing at the expense of chewing products.

Imports of scrap from Cuba and the Philippines are considerable. Imported Cuban scrap is used as filler in low-priced cigars to give them the distinctive "Havana" flavor. Limited quantities of manufactured tobacco used for a special class of trade are imported under this paragraph, mainly from the United Kingdom, Italy, China, and Hongkong. Imports of scrap in the fiscal year 1918 aggregated 3,829,834 pounds; the total value of "all other manufactures of" was about \$130,000. Detailed statistics of imports follow:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------------|-----------|-----------|
| SCRAP TOBACCO. | | | |
| 1918..... | Pounds. 3,748,354 | \$398,270 | \$248,070 |
| 1919..... | 1,438,510 | 448,921 | 206,772 |
| 1920..... | 2,526,151 | 769,116 | 369,169 |
| 1921 (9 months)..... | 1,216,271 | 450,077 | ..... |

| Calendar year. | Quantity. | Value. | Duty. |
|---|----------------|-----------|-----------|
| ALL OTHER TOBACCO, UNMANUFACTURED. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 46,896 | \$37,467 | \$25,696 |
| 1919..... | 32,784 | 14,858 | 17,661 |
| 1920..... | 54,271 | 33,186 | 29,795 |
| 1921 (9 months)..... | 31,218 | 17,969 | |
| ALL OTHER TOBACCO, MANUFACTURED. | | | |
| 1918..... | 189,684 | \$104,863 | \$102,491 |
| 1919..... | 157,593 | 117,729 | 86,420 |
| 1920..... | 205,697 | 178,075 | 112,880 |
| 1921 (9 months)..... | 173,247 | 126,593 | |

Exports since 1917 by calendar years are tabulated as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------------------|-------------|-------------|-------------|------------------|
| Smoking tobacco: | | | | |
| Quantity (pounds)..... | 5,340,226 | 6,260,086 | 4,837,721 | 6,877,661 |
| Value..... | \$2,960,992 | \$3,260,789 | \$2,196,713 | \$1,847,416 |
| Plug tobacco: | | | | |
| Quantity (pounds)..... | 5,563,614 | 5,628,350 | 5,185,157 | 1,959,025 |
| Value..... | \$2,067,969 | \$2,745,484 | \$2,878,015 | \$1,073,848 |
| All other tobacco, manufactured: | | | | |
| Value..... | \$484,841 | \$1,710,527 | \$963,453 | \$453,620 |

Important changes in classification.—Scrap tobacco, and tobacco, n. s. p. f., have been classed together, at the same rate. In the act of 1918 there was a difference of 20 cents between the duties upon these two classes.

Suggested changes.—Paragraph 603: The rate of 55 cents per pound on manufactured tobacco being lower than 60 cents per pound on filler tobacco, stemmed, might lead to the importation of manufactured tobacco for use as filler tobacco, and thereby to the escape from the difference of 5 cents per pound in the duty.

Manufacturers assert that the proposed duty upon scrap tobacco is disproportionately high, in comparison with filler tobacco.

PARAGRAPH 604.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 604. Snuff and snuff flour, manufactured of tobacco, ground dry, or damp, and pickled, scented, or otherwise, of all descriptions, and tobacco stems, cut, ground, or pulverized, 55 cents per pound.

ACT OF 1909.

PAR. 228. Snuff and snuff flour, manufactured of tobacco, ground dry, or damp, and pickled, scented, or otherwise, of all descriptions, fifty-five cents per pound.

PAR. 696. Tobacco stems [Free].

ACT OF 1913.

PAR. 184. Snuff and snuff flour, manufactured of tobacco, ground dry, or damp, and pickled, scented, or otherwise, of all descriptions, 55 cents per pound.

PAR. 632. Tobacco stems [Free].

TOBACCO SNUFF, ETC.

Description and uses.—Snuff is made chiefly from the darker grades of the heavy fire-cured type of tobacco admixed with stems and fats, pepper, sand, etc. The principal classes are (1) rappee or French snuff, used for inhaling; (2) maccaboy, for inhaling and chewing; (3) Scotch, Swedish, Polish, Copenhagen, etc., for chewing or dipping. The Scotch types are strong and practically free from added flavoring materials. Manufacture consists essentially in fermenting, drying, and grinding under special conditions.

Production was 37,000,000 pounds in 1918 and 26,000,000 in 1920. It is made in large quantities in France and in other countries.

Imports of snuff, chiefly from Italy, are fairly constant at about 30,000 pounds, valued at \$1 per pound. Imports since 1917 of snuff and snuff flour have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|----------|----------|
| | <i>Pounds.</i> | | |
| 1918..... | 33,157 | \$16,727 | \$18,219 |
| 1919..... | 26,244 | 13,039 | 14,430 |
| 1920..... | 23,880 | 10,500 | 13,130 |
| 1921 (9 months)..... | 23,437 | 11,420 | ..... |

Exports are not separately recorded.

Important changes in classification.—A new provision has been added for tobacco stems, cut, ground, or pulverized. When not so prepared, they remain free of duty (see par. 1671, p. 1457).

Suggested changes.—Page 84, paragraph 604, lines 10, 11: Strike out "of all descriptions" and insert in line 9 after "flour" making the paragraph read: "Snuff and snuff flour, of all descriptions, manufactured of tobacco, ground dry, or damp, and pickled, scented, or otherwise, and tobacco stems, cut, ground, or pulverized, 55 cents per pound.

PARAGRAPH 605.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 605. Cigars, cigarettes, cheroots of all kinds, \$4.50 per pound and 25 per centum ad valorem, and paper cigars and cigarettes, including wrappers, shall be subject to the same duties as are herein imposed upon cigars.

ACT OF 1909.

ACT OF 1913.

PAR. 224. Cigars, cigarettes, cheroots of all kinds, four dollars and fifty cents per pound and twenty-five per centum ad valorem, and paper cigars and cigarettes, including wrappers, shall be subject to the same duties as are herein imposed upon cigars.

PAR. 185. Cigars, cigarettes, cheroots of all kinds, \$4.50 per pound and 25 per centum ad valorem, and paper cigars and cigarettes, including wrappers, shall be subject to the same duties as are herein imposed upon cigars.

CIGARS, CIGARETTES, AND CHEROOTS.

Description and uses.—The cigar is made of three components, viz., the filler or body, the binder which serves to retain the form of the filler, and the wrapper which covers and imparts finish to the cigar.

Cigars are of many shapes and sizes, but average about 21 pounds of leaf to 1,000 cigars of the most popular size. The highest priced cigars are shaped and rolled by hand, whereas cheroots are usually made by machinery. Until recently, medium priced cigars were handmade, except the shaping of them in molds. Cuban tobacco is conceded to produce the finest cigar, and the "clear Havana," or all-Cuban cigar, is the standard of excellence. The "seed and Havana" cigar is made of Cuban filler, a domestic binder, and Connecticut broadleaf wrapper. The lower priced cigars have for filler a mixture of Cuban and domestic leaf or domestic leaf alone, a domestic binder, and, chiefly, a Sumatra wrapper. The domestic shade-grown wrapper has come into extensive use for both the higher and the medium priced cigars. Cheroots are largely made of tobacco not usually classed as cigar leaf.

The principal classes of American cigarettes are (1) those made entirely from domestic leaf, chiefly the bright flue-cured, and, to a lesser extent, burley; (2) the "Turkish blend," made of mixtures of domestic and imported cigarette tobacco; (3) the "Turkish" and "Egyptian" cigarettes, made from the products of Macedonia and Asia Minor, designated collectively as "Turkish tobacco." The manufacture of cigarettes involves elaborate and complex machinery, special and fancy brands being made by hand. Flavoring herbs, cascarilla bark, corn husk, etc., are sometimes used. Some cigarettes have mouthpieces of paper, cork, or other material. Cigarettes vary in weight, but the most popular size approximates 3 pounds to 1,000.

Production of large cigars amounted to about 7,000,000,000 and 7,917,000,000, and of small cigars to over 844,000,000 and 633,000,000 in 1918 and 1920, respectively. The greater portion consists of popular priced grades of domestic tobacco except, perhaps, the wrapper. The "seed or Havana" cigar also has accounted for an extensive branch of the industry. The manufacture of "clear Havana" cigars from Cuban leaf is an important industry in Tampa and Key West, Fla. Cigar production has not increased greatly in recent years, and manufacturers have declined in number. Domestic output of cigarettes, especially of the "Turkish blend" class, has grown remarkably, in 1908 being less than 7,000,000,000; in 1919 over 53,000,000,000. In 1920 the production was 47,000,000,000, a recession from the high point of the previous year.

Imports of cigars average per annum about 600,000 pounds from Cuba, with increasingly large quantities from the Philippines—about 4,200,000 pounds in 1918. Imports of cigarettes are small, averaging 75,000 pounds before the war, mostly from Mexico, the Philippines, and Egypt. Imports since 1917 have been as follows:

CIGARS AND CHEROOTS OF ALL KINDS.

| Calendar year. | Quantity. | Value. | Duty. |
|-----------------|-----------------------------|-------------|-------------|
| 1918 | <i>Pounds.</i> 5,071,360 | \$8,658,138 | \$2,233,657 |
| 1919 | 4,435,531 | 11,040,943 | 2,746,426 |
| 1920 | 6,103,281 | 16,175,037 | 3,334,960 |
| 1921 (9 months) | 1,431,814 | 4,284,036 | |

CIGARETTES AND PAPER CIGARS, INCLUDING WRAPPERS.

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|----------|----------|
| | <i>Pounds.</i> | | |
| 1918..... | 10,399 | \$18,830 | \$12,085 |
| 1919..... | 9,888 | 25,882 | 18,260 |
| 1920..... | 23,678 | 85,669 | 73,296 |
| 1921 (9 months)..... | 7,634 | 28,274 | ..... |

Exports of cigars and cigarettes are unimportant, except to China and the Straits Settlements, these countries taking nearly 6,000,000,000 cigarettes in 1918. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|--------------|--------------|--------------|---------------------|
| Cigars and cheroots: | | | | |
| Quantity (M)..... | 22,900 | 50,056 | 52,961 | 4,018 |
| Value..... | \$809,411 | \$1,088,504 | \$1,146,175 | \$119,211 |
| Cigarettes: | | | | |
| Quantity (M)..... | 12,145,539 | 16,211,769 | 15,833,870 | 6,299,782 |
| Value..... | \$23,723,922 | \$38,070,451 | \$35,977,374 | \$12,070,837 |

SCHEDULE 7.—AGRICULTURAL PRODUCTS AND PROVISIONS.

GENERAL.

NOTE.—In a report entitled "Suggested reclassification and revision of tariff schedules relating to agricultural products and provisions," prepared by the United States Tariff Commission and printed by the Ways and Means Committee, many changes were suggested in the wording, sequence, and arrangement of the agricultural schedule. New provisions were inserted, unimportant or unnecessary clauses were eliminated, and the paragraphs were reformed in the light of customs litigation and decisions, as well as of changes in commercial nomenclature. Nearly all of these suggestions were embodied in the bill H. R. 7456. Attention is directed to the fact that the document above referred to explains these changes in greater detail than is here possible, and gives conversion equivalents and other incidental information that may be of use in the framing of a tariff bill. It also contains an appendix giving statistics of production, imports, and exports.

Important changes in classification applicable to the entire schedule.—With a view to a more logical and orderly presentation, the agricultural paragraphs have been entirely rearranged, under general captions such as "Meat animals and their products," "Fish and fish products," under which the particular paragraphs have been placed in alphabetical order.

Suggested changes.—The general headings referred to above have been omitted from the bill H. R. 7456. Without them the arrangement and sequence of the provisions are not so effective. It is therefore suggested that they be inserted in the appropriate places in this schedule. The headings in question are:

- Meat animals and their products.
- Dairy products.
- Birds, poultry, and poultry products.
- Other live animals and animal products.
- Fish and fish products.
- Cereals and cereal products.
- Fruits and fruit products.
- Nursery and greenhouse stock.
- Nuts.
- Seeds.
- Vegetables and vegetable products.
- Miscellaneous.

PARAGRAPH 701.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 701. Cattle, less than two years old, 1 cent per pound; two years old or over, 1½ cents per pound; fresh beef and veal, 2 cents per pound; tallow, one-half of 1 cent per pound; oleo oil and oleo stearin, 1 cent per pound.

ACT OF 1909.

SCHEDULE G.—AGRICULTURAL PRODUCTS
AND PROVISIONS.

PAR. 225. Cattle, if less than one year old, two dollars per head; all other cattle if valued at not more than fourteen dollars per head, three dollars and seventy-five cents per head; if valued at more than fourteen dollars per head, twenty-seven and one-half per centum ad valorem.

PAR. 285. Fresh beef, veal, * * * one and one-half cents per pound.

PAR. 290. Tallow, one-half of one cent per pound; * * *

PAR. 3. * * * expressed oils, * * * twenty-five per centum ad valorem.

PAR. 640. Oleo stearin [Free].

ACT OF 1918.

SCHEDULE G.—AGRICULTURAL PRODUCTS
AND PROVISIONS.

PAR. 619. * * * cattle, * * * [Free].¹

PAR. 545. Meats: Fresh beef, veal, * * * [Free].²

PAR. 622. Tallow [Free].

PAR. 44. * * * all other animal oils, * * * 15 per centum ad valorem. [Covered oleo oil.]

PAR. 562. Oleo stearin [Free].

CATTLE.

(See Survey FL-25.)

Description and uses.—The cattle industry is of two general types. One is primarily for the production of dairy products, with a secondary yield of beef and veal. The other concerns itself principally with beef production. The first type prevails throughout the farming regions, the second on both range and farm. Approximately equal proportions of the domestic beef supply are contributed by the western ranges and by the farming regions.

Production.—On January 1, 1921, the number of cattle (exclusive of calves) on farms and ranges was 66,191,000, of which 23,321,000 were milch cows. No other country possesses so many cattle, except British India, and the statistics for that country include a large number of water buffaloes. From 1907 to 1914 there was a steady decline in the number of beef cattle. In the West this decline resulted from the direct and indirect effects of homesteading; in the farming sections it was largely due to the competition of other types of agriculture. During the war the number of beef cattle greatly increased, but market statistics indicate that the present number is little larger than in 1914.

The distribution of beef cattle depends largely upon cheap feed and pasture, hence the region west of the Mississippi is more than twice as important as the country eastward. The Corn Belt shows the greatest density of cattle, largely because of the fact that feeder cattle from the West are shipped in for fattening.

In the number of dairy cattle there was a slow but steady growth during the period of the decline in beef cattle. Dairying has progressed at the expense of beef production, especially in or near areas of dense population, and to some extent elsewhere. Wisconsin, New York, Minnesota, Illinois, Iowa, Ohio, Pennsylvania, and Michigan rank in order in the number of dairy cows.

Imports of cattle were relatively small for a number of years prior to 1910; they consisted largely of feeders brought in from Mexico,

¹ Cattle, except for breeding, 30 per centum ad valorem. (Par. 12, emergency tariff act of 1921.)

² Fresh or frozen beef or veal, 2 cents per pound. (Par. 14, emergency tariff act of 1921.)

although pure-breds from England were also imported in some numbers. After 1910 the internal troubles of Mexico greatly stimulated shipments from that country. Of the 872,093 head imported in 1914, Mexico contributed 72 per cent and Canada nearly all of the remainder. Thereafter imports from Mexico fell off rapidly, Canadian shipments replacing them. The Canadian receipts consist largely of stockers and feeders. (For imports of pure-bred stock, see par. 1507, p. 1231.) Imports for the calendar years 1918-1921 have been as follows:

| Cattle. | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|---------------------------|--------------|--------------|---------------------|
| Total: | | | | |
| Number..... | 353,199 | 642,395 | 379,114 | 114,353 |
| Value..... | \$25,170,588 | \$53,296,078 | \$27,418,604 | \$4,301,800 |
| Bulls: | | | | |
| Number..... | 14,198 | 8,000 | 3,392 | 548 |
| Value..... | ¹ \$178,356 | \$457,897 | \$480,668 | \$62,283 |
| Cows, dairy or milk: | | | | |
| Number..... | ¹ 2,692 | 13,840 | 4,479 | 595 |
| Value..... | ¹ \$262,671 | \$1,060,509 | \$864,717 | \$206,331 |
| All other cattle: | | | | |
| Number..... | ¹ 346,299 | 620,555 | 371,333 | 113,210 |
| Value..... | ¹ \$24,739,561 | \$51,787,672 | \$26,083,219 | \$4,033,186 |

¹ July 1 to Dec. 31.

² Jan. 1 to June 30, cows and bulls were included with "All other"; they were reported separately after June 30, 1918.

Statistics bearing on imports of cattle under the emergency tariff act are presented below:

| Month. | Quantity. | | Value. | |
|----------------|---------------------------|----------------|-------------|-------------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Number.</i> | <i>Number.</i> | | |
| January..... | 26,971 | 17,468 | \$1,924,945 | \$1,137,503 |
| February..... | 24,590 | 8,066 | 2,003,097 | 514,501 |
| March..... | 16,766 | 11,677 | 985,336 | 674,277 |
| April..... | 19,874 | 23,674 | 809,791 | 742,760 |
| May..... | 16,094 | 14,498 | 640,239 | 476,696 |
| June..... | 24,381 | 392 | 1,101,417 | 89,408 |
| | { Free ¹ | 3,760 | | 45,237 |
| | { Dutiable..... | 8 | 1,100,049 | 1,415 |
| July..... | 18,333 | 5,049 | | 71,510 |
| | { Free ¹ | 152 | 2,323,663 | 33,162 |
| | { Dutiable..... | 10,796 | | 199,359 |
| August..... | 32,071 | 52 | 3,740,570 | 16,135 |
| | { Free ¹ | 18,762 | | 301,637 |
| | { Dutiable..... | 48,630 | 4,200,644 | 24,636 |
| September..... | 43,055 | 105 | | 599,223 |
| | { Free ¹ | 28,429 | 5,063,039 | 98,731 |
| | { Dutiable..... | 62,049 | 37,707 | 767,001 |
| October..... | 48,630 | 78 | 3,525,814 | 55,308 |
| | { Free ¹ | 46,250 | | 271,974 |
| | { Dutiable..... | 13,718 | | |

¹ "Cattle and sheep and other stock imported for breeding purposes shall be admitted free of duty" (par. 15, emergency tariff act of 1921). No separate classification for "Cattle for breeding purposes" from Oct. 3, 1913, to June, 1921.

Exports of cattle declined from 593,409 head in 1904 (of which 65 per cent went to Great Britain) to 18,000 in 1914. The latter went chiefly to Canada, Mexico, and Cuba. During the World War cattle exports were relatively unimportant, but since 1918 there has been a considerable increase. The largest numbers went to Mexico, owing to the depletion of the Mexican herds. Some shipments have

also gone to Europe. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------|-----------|-------------|--------------|---------------------|
| Number..... | 17,280 | 69,859 | 85,302 | 161,608 |
| Value..... | 1,082,758 | \$6,439,521 | \$10,752,525 | \$10,318,513 |

Important changes in classification, etc.—See General Notes on Paragraph, page 632.

FRESH BEEF AND VEAL.

Description and uses.—Carcass beef is placed on the market in three conditions—chilled, frozen, or unrefrigerated. The greater part is chilled or frozen, according to the conditions of shipment. Chilled beef is kept in refrigerator cars and is shipped at temperatures ranging from 32° to 38° F. At these temperatures chemical and bacterial action are greatly retarded and beef sides and quarters may be kept in good condition for from 30 to 60 days. Meat is frozen solid at about 16° F., the growth and reproduction of bacteria being thereby arrested. Experiments indicate that it may be maintained in wholesome condition for three years and probably much longer.

On the average the weight of meat obtained is somewhat over one-half of the live weight of the animal, but the amount received for meat is usually about 80 per cent of the total value of products.

Production by packers in 1919 was 4,932,000,000 pounds of fresh beef, valued at \$847,000,000, greater in quantity and much greater in value than the output of 1909, 4,200,000,000 pounds, valued at \$327,000,000. Concentration of operation and control is pronounced in the packing industry, especially in cattle slaughtering. Of the total slaughter of cattle in 1916 by interstate slaughterers, 81 per cent was in 12 large packing centers—24.5 per cent in Chicago, 14.7 per cent in Kansas City, 10.2 per cent in Omaha, 8.7 per cent in St. Louis, and 5.2 per cent in New York City. In 1916 five great interests are reported to have handled 82.2 per cent of the cattle slaughtered by interstate slaughterers. These tendencies result from conditions in the raising and marketing of live stock and the very great economies in large-scale production, especially in the utilization of by-products. Location in the corn belt makes possible great saving in freight of finished products as compared with transportation of live animals.

Imports advanced from 4,150,139 pounds in 1913 to 175,740,155 pounds in 1914; this was just as the country was changing from a beef surplus to a beef deficiency. Imports increased to 182,000,000 pounds in 1915, 72 per cent coming from Argentina and most of the rest from Uruguay, Canada, and Australia. In 1916 and 1917 there were sharp declines in imports. It is reported that the large American packing interests controlled the production of 63.3 per cent of the chilled and frozen beef exported from Argentina in 1914. Imports since 1917 by calendar years have been as follows.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Fresh beef: | | | | |
| Quantity (pounds)..... | 22,501,954 | 33,588,241 | 40,520,057 | 18,518,540 |
| Value..... | \$3,974,092 | \$5,394,609 | \$6,160,993 | \$2,431,972 |
| Fresh veal: | | | | |
| Quantity (pounds)..... | 939,121 | 4,873,515 | 9,662,048 | 3,514,436 |
| Value..... | \$199,353 | \$1,013,472 | \$1,896,277 | \$466,981 |

About 80 per cent of the relatively small imports in recent years have come from Canada.

Below is given a comparison by months for 1920 and 1921 of beef and veal, which are provided for in paragraph 14 of the emergency tariff act of 1921:

| Month. | Quantity. | | Value. | |
|----------------|----------------|----------------|-----------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 2,717,414 | 4,273,228 | \$409,353 | \$613,510 |
| February..... | 2,276,408 | 1,167,706 | 338,459 | 222,093 |
| March..... | 2,981,915 | 1,741,384 | 463,039 | 266,946 |
| April..... | 5,195,400 | 2,571,947 | 1,056,606 | 373,038 |
| May..... | 4,138,798 | 3,293,252 | 739,915 | 408,906 |
| June..... | 5,819,305 | 1,855,874 | 914,044 | 225,212 |
| July..... | 2,778,844 | 1,922,531 | 471,342 | 208,168 |
| August..... | 5,618,896 | 3,141,482 | 971,937 | 340,102 |
| September..... | 5,808,068 | 2,065,599 | 926,754 | 234,978 |
| October..... | 5,251,153 | 3,561,848 | 728,779 | 337,674 |
| November..... | 5,437,271 | 3,361,417 | 736,808 | 353,624 |
| December..... | 2,158,633 | 3,421,681 | 300,234 | 354,477 |

Exports.—This country practically dominated the foreign trade in fresh, chilled, and frozen beef 15 years ago, but by 1914 only 6,300,000 pounds were exported, 5,500,000 to Panama. Argentine exports have steadily increased, displacing those of the United States which formerly supplied the United Kingdom. During the war American exports again increased under the stimulation of European war demands. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------------|--------------|--------------|---------------------|
| Quantity (pounds)..... | 514,341,529 | 174,426,999 | 89,649,148 | 9,560,116 |
| Value..... | \$109,605,363 | \$40,280,747 | \$17,584,887 | \$1,691,707 |

In 1919 the United Kingdom received over 40 per cent of our exports; in 1920 Belgium and Germany were the most important markets.

Important changes in classification, etc.—See General Notes on Paragraph, page 632.

TALLOW.

Description and uses.—The term "tallow" includes the fats from sheep and cattle. The larger part of the tallow produced in the United States comes from the fat of cattle, the yield being 50 pounds from a steer to 1 pound from a sheep or goat. The edible fats of

beef are handled much the same as hog fats. Oleo stock is merely a high grade of edible beef tallow, used in making oleo oil and stearin. Oleo oil is used in the manufacture of margarines and is also heavily exported, especially to Holland. Edible tallows are also used in making sausage, suet puddings, mincemeat, and similar products. The inedible tallows, produced from city butchers' scraps and from the fat of diseased and fallen animals, are used in soap, leather dressings, greases, and in the technical industries.

Production.—The output of tallows in the United States in 1917 was 259,509,000 pounds. If 153,188,000 pounds of oleo produced in 1917 are added, tallows rank fourth in production of all fats and oils. In 1920, 263,990,000 pounds of inedible and 37,353,000 pounds of edible tallow were produced.

Imports of tallow in the fiscal year 1918 were unprecedented, being 98,176,560 pounds, valued at \$14,365,676. The raw tallow imported (mostly from Canada) was over six times the exports. The average imports for 1911–1914 were only 1,299,025 pounds; in 1914, 3,371,833 pounds. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 51,885,808 | 12,096,189 | 14,874,637 | 1,058,429 |
| Value..... | \$7,444,230 | \$1,812,903 | \$1,841,796 | \$1,058,429 |

New Zealand, Australia, Argentina, and Canada were the principal sources of imports in 1919 and 1920.

Exports of tallow, as such, decreased from an average of 28,900,000 pounds for 1911–1914 to 5,014,000 pounds in 1918 (fiscal year.) Exportation of oleo oil, the most important tallow derivative, similarly decreased. Much more oleo oil is exported than raw tallow, the average being 113,759,000 pounds for 1911–1914. Holland, the largest importer of American oleo oil, manufactured it into margarines for the European trade. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 4,222,657 | 38,953,783 | 20,691,638 | 10,749,517 |
| Value..... | \$745,977 | \$6,370,112 | \$2,950,675 | \$805,154 |

Exports in 1919 and 1920 went largely to the United Kingdom, France, and the Netherlands.

Important changes in classification, etc.—See General Notes on Paragraph, page 632.

OLEO STEARIN AND OLEO OIL.

Description and uses.—Oleo stearin is a joint derivative with oleo oil from edible tallows. The stearin is separated from the oil by a "graining" process, which consists in running the melted tallow into large truck tanks; it is then wheeled into a graining room and kept for a day or so at the crystallizing temperature of stearin. After the solid stearin is removed, the mass is pressed in hydraulic or lever

presses. The oleo oil is used in margarines and the solid stearin as a base for lard substitutes and stiffening for lard compounds, also to a less extent in oleomargarines and candles. Most of the domestic stearin is produced by the large-scale packing establishments having special equipment for the purpose; the smaller packers do not ordinarily convert tallows.

Production.—In 1920 the production of oleo oil amounted to 132,000,000 pounds and that of edible animal stearin (mostly oleo stearin) to 69,000,000 pounds.

Imports of oleo stearin, principally from Argentina and Uruguay, ranged from about 900,000 pounds in 1916 to over 9,500,000 pounds in 1913. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 1,556,781 | 2,358,206 | 962,657 | 365,334 |
| Value..... | \$250,122 | \$475,156 | \$180,590 | \$28,171 |

Exports.—In late years the United Kingdom with its greatly enlarged oleomargarine industry has rivaled Holland in importance as a destination for our exports of oleo oil. Exports of "stearin from animal fats," largely consisting of oleo stearin, go mostly to Canada, Netherlands, the United Kingdom, and France. Exports for calendar years 1918 to 1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------------------|--------------|--------------|--------------|---------------------|
| Oleo oil: | | | | |
| Quantity (pounds)..... | 69,106,350 | 75,585,164 | 74,368,344 | 106,150,316 |
| Value..... | \$15,493,321 | \$22,025,340 | \$16,585,209 | \$12,077,941 |
| Stearin from animal fats: | | | | |
| Quantity (pounds)..... | 10,550,241 | 20,854,724 | 17,512,978 | 22,258,559 |
| Value..... | \$2,291,160 | \$4,171,151 | \$3,487,578 | \$2,191,814 |

Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Cattle and the principal cattle products (other than hides), separated in previous tariff acts, have been brought together in one paragraph. The duty on cattle, which in the act of 1909 was upon the per-head basis, according to age, is based in H. R. 7456 on weight (pound) and age (less than two years old and two years old or more). Most of the higher-priced heavy animals would come within the latter class.

Cattle were on the free list (par. 619) of the act of 1913 and are dutiable under paragraph 12 of the emergency tariff act of 1921.

Fresh beef and veal were on the free list (par. 545) of the 1913 act and are dutiable under paragraph 14 of the emergency tariff act.

A new provision is made for oleo oil; and oleo stearin is transferred from the free list (par. 562), act of 1913.

Tallow is exempt from duty under the act of 1913 (par. 622).

Suggested changes.—H. R. 7456 provides two sets of duties upon live cattle, based upon weight; one for animals below two years of age and the other for animals two years old or over. These rates are more flexible than the former rates per head. These duties, however, bear more heavily upon the lighter and cheaper Mexican cattle than upon those originating in Canada. If specific duties should be retained, another method would be to base the duties upon animals falling under certain weights; (1) one rate for animals weighing 1,050 pounds or more; (2) one rate for animals weighing less than 1,050 and not less than 725 pounds; and (3) a third rate for animals weighing less than 725 pounds. The first group takes in animals of feeder type which often are butchered immediately, as well as butcher cattle. Some feeder cattle that are not fleshy enough for immediate slaughter, except under unusual market conditions, also would be included, but this division deals with approximate fairness with the butcher and heavy feeder types. The second group would include light and medium weight feeders. It would also include relatively unimportant numbers of light butcher cattle. The third class covers stocker cattle—animals brought in for more or less prolonged grazing before finishing for slaughter.

With a duty of 2 cents per pound upon fresh beef and veal, a proportionate rate for the first class would approximately be 1.1 cents per pound live weight; for the second class 0.9 cent, and for the third class 0.8 cent, based on normal live-weight values.

In view of the fact that cattle and the principal products thereof are grouped in paragraph 701, provision might there be made for "beef and veal, prepared or preserved in any manner, not specially provided for." This would include such products as corned beef and canned beef, which otherwise would be dutiable under the general provision in paragraph 706.

PARAGRAPH 702.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 702. Sheep and goats, 1 cent per pound; fresh mutton, 1½ cents per pound; fresh lamb, 2 cents per pound.

ACT OF 1909.

PAR. 228. Sheep, one year old or over, one dollar and fifty cents per head; less than one year old, seventy-five cents per head.

PAR. 229. All other live animals, not specially provided for in this section, twenty per centum ad valorem.

PAR. 285. Fresh * * * mutton, lamb, * * * one and one-half cents per pound.

ACT OF 1913.

PAR. 619. * * * sheep, and all other domestic live animals suitable for human food not otherwise provided for in this section [Free].³

PAR. 645. Meats: Fresh * * * mutton, lamb. * * * [Free].⁴

³ Sheep; One year old or over, \$2 per head; less than one year old, \$1 per head. (Par. 13, emergency tariff act of 1921.)

⁴ Fresh or frozen mutton, lamb, 2 cents per pound. (Par. 14, emergency tariff act of 1921.)

SHEEP AND GOATS.

(See Report on the Wool-growing Industry.)

Production.—In actual number of sheep the United States ranks fourth among the countries of the world, but in the number relative to the population it is far below other countries, notably New Zealand, Australia, Uruguay, and Argentina. Since 1900 the number of sheep per capita has steadily decreased (barring a slight increase during the war). In 1900 there were 39,853,000 animals of shearing age, in 1920 only 34,935,000. The number of goats, on the other hand, rose from 3,000,000 in 1910 to 3,500,000 in 1920. In the far West the decline in the sheep population has primarily been due to the effects of homesteading; in the farming regions it has resulted largely from the competition of other farm enterprises.

Sheep are especially adapted to rough land; goats to dry shrubby regions. Goats do well where sheep can not exist unless fed. Texas leads in the number of goats with 1,707,000 head, New Mexico being second with 227,000. Texas also has the largest number of sheep, 2,552,000; it is followed by California with 2,356,000 and Ohio with 2,103,000. Michigan is the only other State east of the Mississippi that has more than 1,000,000 head.

Imports of sheep were negligible prior to 1914, when 223,729 were brought in, 92 per cent from Mexico and the remainder largely from Canada. During the later years they were for immediate slaughter and were chiefly from Canada, while the goats were mostly from Mexico and the West Indies. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Sheep: | | | | |
| Quantity (number)..... | 150,203 | 224,774 | 172,905 | 53,117 |
| Value..... | \$1,653,717 | \$2,473,386 | \$1,730,272 | \$306,071 |
| Goats: | | | | |
| Quantity (number)..... | 43,749 | 8,635 | 11,548 | 290 |
| Value..... | \$120,294 | \$20,371 | \$51,141 | \$806 |

The table below, showing imports by months for 1920 and 1921, indicates the effect of the emergency tariff act ⁵ upon imports.

| Month. | Quantity. | | Value. | |
|----------------|---------------|---------|-----------|----------|
| | 1920 | 1921 | 1920 | 1921 |
| | Number. | Number. | | |
| January..... | 8,611 | 5,232 | \$127,381 | \$48,044 |
| February..... | 3,263 | 261 | 46,864 | 6,866 |
| March..... | 5,247 | 1,241 | 47,593 | 10,000 |
| April..... | 1,763 | 1,234 | 16,145 | 7,781 |
| May..... | 1,114 | 416 | 12,925 | 3,446 |
| June..... | 1,863 | 1,815 | 24,330 | 10,411 |
| | free..... | | | |
| | dutiable..... | 49 | | 211 |
| July..... | 1,633 | 10 | 24,185 | 539 |
| | free..... | | | |
| | dutiable..... | 846 | | 4,414 |
| August..... | 15,835 | 118 | 197,125 | 2,024 |
| | free..... | | | |
| | dutiable..... | 9,957 | | 48,821 |
| September..... | 37,534 | 7 | 372,339 | 165 |
| | free..... | | | |
| | dutiable..... | 31,931 | | 163,35 |
| October..... | 39,687 | 3 | 371,079 | 95 |
| | free..... | | | |
| | dutiable..... | 18,607 | | 87,939 |
| November..... | 36,690 | 57 | 238,711 | 5,139 |
| | free..... | | | |
| | dutiable..... | 11,390 | | 58,905 |
| December..... | 19,666 | 92 | 151,535 | 3,655 |
| | free..... | | | |
| | dutiable..... | 1,483 | | 10,206 |

⁵ "Cattle and sheep and other stock imported for breeding purposes shall be admitted free of duty." No separate classification for "sheep, for breeding purposes," prior to June, 1921.

Exports of sheep and goats have never been more than negligible in amount. The average annual value of sheep exported during the period for 1913-1917 was \$99,606. The demoralized market of 1921 permitted the shipment of 106,000 head mainly to Mexico; the bulk of those exported in 1919 also went to that country. Exports of sheep since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------|-----------|-----------|-----------|---------------------|
| Number..... | 7,962 | 34,531 | 48,878 | 105,922 |
| Value..... | \$120,882 | \$339,974 | \$571,690 | \$555,283 |

Important changes in classification, etc.—See General Notes on paragraph, page 636.

FRESH MUTTON AND LAMB.

Production in 1914 was 629,232,690 pounds, valued at \$74,675,627, 495,000,000 pounds in 1909, 460,000,000 pounds in 1904, and 400,000,000 pounds in 1899. In 1919, production had declined to 501,201,000 pounds with a value of \$120,451,000. Of the sheep slaughtered in 1916 by interstate slaughterers, 86.4 per cent was handled by the five big packing companies, 63.4 per cent in Chicago, Kansas City, Omaha, and New York City.

Imports.—After the removal of the duty in 1913, imports of mutton in 1914 increased from 212,843 pounds in the previous year to 9,705,923 pounds and of lamb from 12,722 pounds to 3,026,372 pounds. These imports were about 2.5 per cent of the domestic production. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|--------------|---------------------|
| Fresh mutton: | | | | |
| Quantity (pounds)..... | 22,145 | 3,357,424 | 23,468,107 | 6,192,139 |
| Value..... | \$4,594 | \$545,508 | \$2,557,803 | \$683,104 |
| Fresh lamb: | | | | |
| Quantity (pounds)..... | 585,741 | 4,851,758 | 77,700,214 | 15,241,200 |
| Value..... | \$129,694 | \$1,001,830 | \$10,087,576 | \$1,639,468 |

The greatly increased imports in 1920 consisted largely of British surplus stocks from New Zealand.

Below is given a comparison by months for 1920 and 1921 of imports of fresh mutton and lamb provided for in paragraph 14 of the emergency tariff act of 1921.

| Month. | Quantity. | | Value. | |
|----------------|----------------|----------------|-----------|-------------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 864,561 | 13,864,205 | \$180,599 | \$1,304,914 |
| February..... | 850,243 | 4,980,140 | 189,405 | 594,741 |
| March..... | 744,174 | 418,955 | 178,075 | 50,533 |
| April..... | 2,358,858 | 53,380 | 411,252 | 10,311 |
| May..... | 5,253,962 | 47,587 | 539,813 | 7,023 |
| June..... | 2,033,200 | 103,826 | 283,978 | 12,792 |
| July..... | 5,181,526 | 113,801 | 701,227 | 20,679 |
| August..... | 13,956,578 | 617,243 | 1,971,726 | 113,946 |
| September..... | 18,460,700 | 1,237,402 | 2,180,495 | 207,633 |
| October..... | 27,024,972 | 1,301,538 | 3,191,632 | 212,397 |
| November..... | 13,791,198 | 1,244,103 | 1,540,702 | 198,719 |
| December..... | 10,648,347 | 1,416,208 | 1,262,475 | 256,933 |

Exports.—Before the war the proportion taken by the United Kingdom decreased from 43 per cent in 1909 to 10 per cent in 1913; and that by Canada increased from 16 to 80 per cent. New Zealand is the most important exporter, shipping 212,000,000 pounds in 1911. Argentina, Australia, and Uruguay export more than this country. Exports of mutton (except canned) for the calendar years 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 1,630,815 | 3,009,164 | 3,575,409 | 6,463,199 |
| Value..... | \$387,132 | \$632,667 | \$758,526 | \$1,193,286 |

In 1919 Canada took 86 per cent and in 1920, 51 per cent of the total exports.

Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Mutton and lamb are put in the same paragraph with sheep in accordance with the general plan of grouping in this schedule. A new specific provision is made for goats, and the rate upon sheep is put upon a basis of live weight, rather than per head as in the act of 1909 (par. 228).

Fresh mutton and lamb were on the free list (par. 545) of the 1913 act and are dutiable under paragraph 14 of the emergency tariff act of 1921. Sheep were on the free list (par. 619) of the act of 1913 and are dutiable under paragraph 13 of the emergency tariff act of May 27, 1921.

Suggested changes.—Under the emergency tariff act sheep less than one year old are dutiable at \$1 per head, one year old or older at \$2 per head, while H. R. 7456 bases the duty upon live weight—1 cent per pound. There is much less need for a duty per pound of live weight in the case of sheep than of cattle. (See par. 701.) Owing to the character of the sheep and lamb market, a flat rate per head may be applied to both sheep and lambs; the much higher price paid for lambs per 100 pounds virtually offsets the lower price for sheep; the weight of which, per head, averages much greater than that of lambs.

The limited outlet for dressed mutton, compared with dressed lamb, also suggests a single classification for the two products. The same rates as on sheep and lambs may be applied to goats and the rate on fresh mutton and lamb may with approximate justice be applied to goat meat.

Provision might also be made for mutton and lamb, prepared or preserved, to take care of such products as canned mutton.

PARAGRAPH 703.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 703. Swine, one-half of 1 cent per pound; fresh pork, three-fourths of 1 cent per pound; bacon, hams, and shoulders, of pork, prepared or preserved, 1½ cents per pound; lard, 1 cent per pound; lard compounds and lard substitutes, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 226. Swine, one dollar and fifty cents per head.

PAR. 619. Swine, * * * [Free].

PAR. 284. Bacon and hams, four cents per pound.

PAR. 545. Meats: Fresh * * * pork,⁶

PAR. 285. Fresh * * * pork, * * * one and one-half cents per pound.

bacon and hams; * * * [Free].⁷

PAR. 288. Lard, one and one-half cents per pound.

PAR. 528. Lard, lard compounds, and lard substitutes [Free].

[No corresponding provision for lard compounds and lard substitutes.]

SWINE.

Production.—The United States is by far the most important swine-producing country in the world, the number on farms, January 1, 1919, being estimated as 75,587,000, a steady increase from about 59,000,000 in 1914. This increase was influenced by demands during the war. By January, 1921, the number had decreased to 66,649,000. About one-half of the hogs are found in the corn belt—Iowa, Illinois, Missouri, Nebraska, Kansas, Indiana, and Ohio. These States convert corn into pork which, because of its much greater value, can better bear transportation charges.

Imports.—With the removal of the duty of \$1.50 per head, there was an increase from 1,547 head in 1913 to 96,429 head in 1914, valued at \$1,473,357. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------|-----------|-----------|----------|---------------------|
| Number..... | 7,474 | 20,657 | 1,096 | 1,399 |
| Value..... | \$185,617 | \$758,259 | \$22,868 | \$35,218 |

In 1920, 86 per cent of the imports were from Canada.

Exports.—The export trade in live swine, except pure-bred stock, is confined for the most part to neighboring countries. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------|-----------|-----------|-------------|---------------------|
| Number..... | 10,308 | 24,745 | 55,250 | 93,855 |
| Value..... | \$333,729 | \$683,911 | \$1,723,784 | \$1,471,708 |

⁶ Pork dutiable at 2 cents per pound. (Par. 14, emergency tariff act of 1921.)

⁷ Meats of all kinds, prepared or preserved, n. s. p. f., 25 per centum ad valorem. (Par. 14, emergency tariff act of 1921.)

In 1920, 86 per cent of the exports went to Cuba.

Important changes in classification, etc.—See General Notes on Paragraph, page 642.

FRESH PORK.

Production.—Over 44,000,000 hogs were slaughtered in 1919 and the production of dressed pork was 2,112,000,000 pounds, valued at \$532,000,000, an increase from 1,877,000,000 pounds, valued at \$226,000,000 in 1914. Pork packing is well adapted to small establishments, therefore concentration is much less marked than in the slaughter of other food animals. Of the hogs handled in 1916 by interstate slaughterers, 18.4 per cent were slaughtered in Chicago, as compared with 24.5 per cent of the cattle.

Imports of fresh pork previous to 1914 ranged from 130,000 pounds to 260,000 pounds. With the removal of the duty in 1914 they rose to 4,700,000 pounds, and in 1915 to 16,200,000 pounds, almost all of which came from Canada. From 1916 to 1918 (fiscal year) imports declined to less than 2,000,000 pounds annually. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 1,716,989 | 2,779,361 | 1,541,009 | 435,193 |
| Value..... | \$375,306 | \$601,051 | \$415,092 | \$110,397 |

Below is given a comparison of imports, by months, for 1920 and 1921 of fresh pork, provided for in paragraph 14 of the emergency tariff act of 1921:

| Month. | Quantity. | | Value. | |
|----------------|----------------|----------------|----------|----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 127,155 | 37,492 | \$35,504 | \$12,763 |
| February..... | 231,013 | 33,153 | 53,817 | 16,517 |
| March..... | 45,249 | 138,539 | 11,369 | 36,460 |
| April..... | 69,611 | 39,341 | 18,747 | 9,869 |
| May..... | 148,410 | 30,207 | 41,792 | 8,739 |
| June..... | 50,896 | 68,058 | 13,029 | 11,231 |
| July..... | 33,877 | 11,916 | 11,835 | 2,705 |
| August..... | 47,959 | 20,410 | 16,991 | 4,424 |
| September..... | 50,560 | 56,047 | 18,654 | 7,689 |
| October..... | 539,355 | 226,180 | 128,865 | 32,206 |
| November..... | 68,810 | 46,873 | 27,166 | 12,770 |
| December..... | 125,114 | 107,847 | 39,323 | 22,976 |

Exports of fresh pork are unimportant compared with exports of other pork products. Before the war they ranged from 1,040,000 to 2,597,000 pounds, but in 1916 expanded to 63,005,000 pounds. The United Kingdom took 26,402,000 pounds and Canada 32,962,000 pounds. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 11,632,635 | 26,776,978 | 38,305,236 | 49,466,515 |
| Value..... | \$2,907,894 | \$8,347,557 | \$9,050,463 | \$8,481,067 |

In 1919, 82 per cent of the exports went to Canada while in 1920 the United Kingdom took 51 per cent and Canada 33 per cent.

Important changes in classification, etc.—See General Notes on Paragraph, page 642.

BACON AND HAMS.

Imports before 1914 ranged from 400,000 pounds to 650,000 pounds, but rose in 1914, with the abolition of the duty, to 2,131,000 pounds and in 1915 to 7,533,000 pounds (96 per cent from Canada). Later statistics, for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 1,877,387 | 2,646,235 | 754,735 | 182,412 |
| Value..... | \$545,650 | \$787,730 | \$234,919 | \$56,835 |

Nearly 90 per cent came from Canada in 1920.

Below is given a comparison of imports, by months, for 1920 and 1921 of bacon and hams¹ provided for in paragraph 14 of the emergency tariff act of 1921.

| Month. | Quantity. | | Value. | |
|----------------|-----------|---------|----------|---------|
| | 1920 | 1921 | 1920 | 1921 |
| | Pounds. | Pounds. | | |
| January..... | 80,550 | 10,782 | \$25,554 | \$3,901 |
| February..... | 23,772 | 59,100 | 7,375 | 15,432 |
| March..... | 47,483 | 29,041 | 14,411 | 9,693 |
| April..... | 113,580 | 49,317 | 27,831 | 13,503 |
| May..... | 38,401 | 8,754 | 11,063 | 3,811 |
| June..... | 7,291 | | 3,522 | |
| July..... | 102,025 | | 31,218 | |
| August..... | 107,713 | | 33,051 | |
| September..... | 60,286 | | 22,537 | |
| October..... | 118,462 | | 35,487 | |
| November..... | 41,998 | | 16,917 | |
| December..... | 13,174 | | 5,953 | |

Exports.—The United States is by far the leading country in the export of hams and bacon; Denmark follows, but is far below, and Canada is next. Exports of bacon before the war ranged from 152,000,000 pounds in 1910 to 208,000,000 pounds in 1912. Exports of hams, shoulders, and bacon reached an unprecedented figure in 1918 (fiscal year). Statistics for the calendar years 1918–1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------------|---------------|---------------|---------------|---------------------|
| Bacon: | | | | |
| Quantity (pounds)..... | 1,104,788,081 | 1,190,297,494 | 636,675,572 | 354,746,660 |
| Value..... | \$315,968,064 | \$373,913,227 | \$156,296,908 | \$60,622,950 |
| Hams and shoulders, cured: | | | | |
| Quantity (pounds)..... | 537,213,041 | 596,795,663 | 185,246,755 | 187,948,909 |
| Value..... | \$145,674,888 | \$189,428,837 | \$50,887,588 | \$39,929,857 |

¹ Included in "All other, prepared or preserved meats," after May, 1921.

In 1920, 63 per cent of the hams and shoulders and 54 per cent of the bacon exported went to the United Kingdom, France, Germany, and the Netherlands, and Belgium also received important amounts.

Important changes in classification, etc.—See General Notes on Paragraph, page 642.

LARD.

Description and uses.—Lard is America's most important fat, butter excepted. The term includes prime steam, neutral, leaf, and all lards made from hog fat exclusively. By far the larger part of the output of big packing plants is prime steam lard, produced by the live-steam method of rendering the chopped fats. Leaf lard is kettle rendered from the leaf fats that surround the kidneys. Neutral lard, or "neutral," is kettle rendered, but at a lower temperature than ordinary lard, so that it retains practically no hog flavor, and is used largely in oleomargarine. Large quantities of lard are chilled and pressed to separate the stearin from the olein and palmitin. Stearin is mixed with ordinary lard to give it firmness in warm weather and to make a base for margarines; it is also used in making candles. Olein or lard oil is used in signal lights and miner's lamps and as a lubricant.

Production of lard in 1914 was 1,119,188,675 pounds, valued at \$120,414,007, a decrease of 10 per cent compared with 1909, coinciding with a greatly increased use of lard compounds and substitutes for culinary purposes. The figures given do not include the output of small butchers nor that of farmers, estimated at perhaps 1,000,000,000 pounds. Under favorable conditions the output can be quickly increased, as instanced by the increase in the number of swine on farms from 67,503,000 in 1917 to 71,374,000 in 1918. In 1919 production rose to 1,373,000,000 pounds, valued at \$416,000,000.

Imports of lard are insignificant compared with production or export, having reached the maximum of 1,131,998 pounds, including compounds and substitutes, in the fiscal year 1918, with 230,816 pounds as the average for the four years previous. Under a duty of 1½ cents per pound 4,117 pounds were imported in 1913 and 125,636 pounds came in duty free in 1914. Later imports of lard, lard compounds, and lard substitutes for calendar years are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|---------|---------------------|
| Quantity (pounds)..... | 800,777 | 3,845,865 | 14,456 | 3,955 |
| Value..... | \$182,821 | \$1,042,989 | \$3,099 | \$741 |

Exports of lard in 1920 (calendar year) were 612,000,000 pounds, valued at \$143,000,000, about 21 per cent going to the United Kingdom, 20 per cent to Germany, and 15 per cent to the Netherlands. Exports decreased during the war. The average for 1915-1918 was 434,954,000 pounds, compared with 502,211,000 pounds for 1911-1914. Higher prices, difficulties of trans-Atlantic shipping, and loss of exports to Germany (normally about 30 per cent) probably explain the decrease. Before the war lard was by far the most important export of the meat-packing industry. Exports of neutral lard were 6,307,000 pounds in 1918 (fiscal year) as compared with

the maximum of 62,317,909 pounds in 1912. Statistics of exports since 1917 by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------------|---------------|---------------|---------------------|
| Lard: | | | | |
| Quantity (pounds)..... | 548,817,901 | 760,901,611 | 612,249,951 | 695,658,722 |
| Value..... | \$144,933,151 | \$237,983,449 | \$143,371,441 | \$83,454,378 |
| Neutral lard: | | | | |
| Quantity (pounds)..... | 6,307,164 | 22,957,137 | 23,238,071 | 20,515,126 |
| Value..... | \$1,612,790 | \$7,725,983 | \$5,806,042 | \$3,018,060 |

Important changes in classification, etc.—See General Notes on Paragraph, page 642.

LARD SUBSTITUTES AND LARD COMPOUNDS.

Description and uses.—Lard substitutes and lard compounds, are of two types—(1) those containing a base of animal fats, and (2) those made entirely from vegetable oils by a process of hydrogenation. The first is made by mixing heated vegetable oil with a proper proportion of melted hog or beef fats; this is quickly chilled and violently beaten to give it the appearance of natural lard. The second, from vegetable oils, is a recent development. The refined and bleached oil is subjected to a hardening process in which reduced nickel is employed to effect a combination of the hydrogen gas and liquid glycerides. The oleins of the oil are changed into stearins, which are solid at ordinary temperatures. By this process most of our tremendous production of cotton seed oil has been made available for use as a cooking fat.

Production of 1,173,446,000 pounds of lard substitutes was reported in 1917, an increase of 146,313,000 over 1916. The most important constituent of this lard substitute was cottonseed oil, of which 1,069,214,000 pounds were used; 55,000,000 pounds of stearin, 34,000,000 pounds of soy-bean oil, 17,000,000 pounds of vegetable stearin, and 12,000,000 pounds of peanut oil were also employed. Besides an enormous increase in the output of lard substitutes, the variety of oils used therein has also increased. Of the materials used in producing lard substitutes in 1918 less than 10 per cent were imported.

Imports of lard compounds and substitutes are combined in the statistics with the imports of lard.

Exports of lard compounds and substitutes decreased during the war, averaging 65,500,000 pounds for 1911-1914 and 52,500,000 for 1915-1918. Statistics of exports for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|-------------|---------------------|
| Quantity (pounds)..... | 43,977,410 | 124,962,950 | 32,051,458 | 37,601,644 |
| Value..... | \$10,258,536 | \$31,605,385 | \$7,218,845 | \$4,302,920 |

In 1920 Cuba received 22 per cent of the total exports; Mexico, 19 per cent, and the United Kingdom, 13 per cent.
Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Swine are transferred from the free list of the act of 1913 (par. 619). Several provisions for hogs and hog products have been combined in one paragraph. Necessarily their tariff problems require joint consideration. A new provision has been added for shoulders of pork. To avoid conflict, and because of possible substitution, lard compounds and lard substitutes exempt from duty under the act of 1913 (par. 528), are assessed the same duty as hydrogenated oils provided for in paragraph 52. Fresh pork and bacon and hams were on the free list (par. 545) of the act of 1913. The emergency tariff act of 1921 (par. 14) imposes a duty on meats of all kinds prepared or preserved, n. s. p. f.

Suggested changes.—Pickled or cured pork which is in part dutiable under paragraph 706 constitutes by far the largest item in our pork trade. To maintain the general plan of bringing together the principal hog products, it is suggested that "shoulders, of pork, prepared or preserved," be replaced by "all other pork, prepared or preserved, and not specially provided for."

PARAGRAPH 704.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 704. Reindeer meat, 20 per centum ad valorem; venison and other game not specially provided for, 1½ cents per pound.

ACT OF 1909.

PAR. 285. * * * venison and other game, except birds, one and one-half cents per pound.

[No corresponding provision for reindeer meat.]

ACT OF 1913.

PAR. 227. Venison, and other game, 1½ cents per pound; * * *

[No corresponding provision for reindeer meat.]

REINDEER MEAT.

Description and uses.—Within the last decade reindeer have become the principal source of meat supply for the natives of Alaska. The skin is highly prized for clothing on account of its frost-resisting qualities. The Alaskan reindeer is a domestic animal, which is able to live on the moss and other sparse vegetation of the Arctics. The average dressed weight of the carcass is 150 pounds. The meat is not a "game" variety, but has a distinctive, fine flavor and in quality has been classed with beef and mutton.

Production and imports.—Reindeer are not native to Alaska; imports from Siberia have formed the basis of herds which now number about 93,000 animals. Three-fourths of these are owned by natives. There is now an increasing surplus over local require-

ments. In 1920 shipments to the United States amounted to 1,600 carcasses, weighing about 250,000 pounds, valued at \$60,000. Reindeer are also produced in Scandinavian countries.

Important changes in classification.—See General Notes on Paragraph below.

VENISON AND OTHER GAME.

Various Federal and State statutes place certain limitations on the commerce in game, defining hunting seasons, providing for hunting licenses and bag limits, and conditioning the possession, sale, and export of game. The Criminal Code of March 4, 1909 (35 Stat., 1137) prohibits the importation or interstate transportation of certain noxious animals and birds and of animals and birds illegally imported or killed or shipped in violation of State laws. The act of May 25, 1900, subjects foreign game to State laws prohibiting sale, etc., and paragraph 347 of the act of 1913 prohibits the importation of plumes, feathers, skins, etc., of wild birds, except for scientific or educational purposes. These laws tend to restrict the commerce in game.

Imports in 1913 of venison reached the maximum of 294,315 pounds, valued at \$46,739; of all other game except birds, 448,570 pounds, valued at \$31,763. In 1915 imports of "game birds, dressed," were valued at \$15,354. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|------------------------------|----------------|---------|---------|------------------------|
| VENISON. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 16,979 | \$2,546 | \$255 | 10.00 |
| 1919..... | 44,960 | 7,956 | 674 | 8.48 |
| 1920..... | 167,823 | 41,545 | 2,517 | 6.03 |
| 1921 (9 months)..... | 47,400 | 16,569 | | |
| ALL OTHER GAME EXCEPT BIRDS. | | | | |
| 1918..... | 96,042 | \$8,979 | \$1,441 | 16.05 |
| 1919..... | 508,740 | 69,276 | 7,631 | 11.02 |
| 1920..... | 370,272 | 96,967 | 5,554 | 5.76 |
| 1921 (9 months)..... | 390,476 | 107,595 | | |

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—In this paragraph relating to game other than birds (par. 712) a new specific provision has been made for reindeer meat which resembles game in use.

Suggested changes.—Page 85, line 5, of H. R. 7456: Insert "except birds" after "game."

PARAGRAPH 705.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 705. Extract of meat, including fluid, 15 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 287. Extract of meat, not especially provided for in this section, thirty-five cents per pound; fluid extract of meat, fifteen cents per pound, but the dutiable weight of the extract of meat and of the fluid extract of meat shall not include the weight of the packages in which the same is imported.

PAR. 228. Extract of meat, not especially provided for in this section, 10 cents per pound; fluid extract of meat, 5 cents per pound, but the dutiable weight of the extract of meat and of the fluid extract of meat shall not include the weight of the packages in which the same is imported.

MEAT EXTRACT.

Description and uses.—Meat extract is obtained by boiling meat with water and concentrating the evaporated portion after the removal of fats. It is now largely a by-product of packing houses. In cooking, canning, and soaking meats, the meat juices are dissolved to a considerable extent in the water; by evaporating this water the meat extract is obtained. Fluid extract of meat is the same as meat extract, but less concentrated. A true meat extract contains only ingredients of meat soluble in hot water. A standard commercial variety shows 58.5 per cent organic matter, 21.5 per cent inorganic matter (salts), and 20 per cent water. Bouillon cubes, fluid, and semisolid extracts of meat are sold under various trade names. Gelatin, blood, albumen, &c. meat fiber are added to some extracts of beef, and sometimes the albumen is more or less peptonized. True meat extract has very little if any food value and can not be regarded as concentrated meat, but possesses marked stimulative and restorative properties. Being rich in cooked meat substances, it is used for flavoring soups.

Imports in 1918 (fiscal year) were 12 pounds of fluid and 1,401 pounds of all other meat extracts. Since 1912 imports have not exceeded 200,000 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

FLUID EXTRACT OF MEAT.

| | Pounds. | | | Per cent. |
|----------------------|---------|--------|-----|-----------|
| 1918..... | 43 | \$71 | \$2 | 3.03 |
| 1919..... | 13,000 | 17,342 | 650 | 3.75 |
| 1920..... | 2,542 | 2,367 | 127 | 5.37 |
| 1921 (9 months)..... | 133 | 162 | | |

ALL OTHER EXTRACT OF MEAT.

| | | | | |
|----------------------|--------|---------|-------|-------|
| 1918..... | 5,585 | \$8,747 | \$558 | 6.39 |
| 1919..... | 12,003 | 11,246 | 1,200 | 10.67 |
| 1920..... | 62,592 | 43,990 | 6,259 | 14.23 |
| 1921 (9 months)..... | 37,465 | 23,738 | | |

Important changes in classification.—The provisions for fluid extract of meat and all other meat extract, separately provided for in previous acts, are here grouped together. The exception concerning weight of packages in paragraph 228 of the act of 1913 is omitted as unnecessary, because, under a specific rate, net weight would be taken.

Suggested changes.—The words "including fluid" may be omitted, since the term "extract" appears to be sufficiently inclusive.

PARAGRAPH 706.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 706. Sausage casings, weasands, intestines, bladders, tendons and integuments, not specially provided for; meats, fresh, prepared, or preserved, not specially provided for, 15 per centum ad valorem: *Provided*, That no meats of any kind shall be imported into the United States unless the same is healthful, wholesome, and fit for human food and contains no dye, chemical, preservative, or ingredient which renders the same unhealthful, unwholesome, or unfit for human food, and unless the same also complies with the rules and regulations made by the Secretary of Agriculture, and that, after entry into the United States in compliance with said rules and regulations, said meats shall be deemed and treated as domestic meats within the meaning of and shall be subject to the provisions of the Act of June 30, 1906 (Thirty-fourth Statutes at Large, page 674), commonly called the "Meat Inspection Amendment," and the Act of June 30, 1906 (Thirty-fourth Statutes at Large, page 768), commonly called the "Food and Drugs Act," and that the Secretary of Agriculture be and hereby is authorized to make rules and regulations to carry out the purposes of this provision, and that in such rules and regulations the Secretary of Agriculture may prescribe the terms and conditions for the destruction of all such meats offered for entry and refused admission into the United States unless the same be exported by the consignee within the time fixed therefor in such rules and regulations.

ACT OF 1909.

PAR. 512. Bladders, and all integuments, tendons and intestines of animals * * * crude, dried or salted for preservation only, and unmanufactured, not specially provided for in this section [Free].

PAR. 23. * * * fish bladders * * * other than crude or dried or salted for preservation only, valued at not above ten cents per pound, two and one-half

ACT OF 1913.

PAR. 419. Bladders, and all integuments, tendons and intestines of animals * * * crude, dried or salted for preservation only, and unmanufactured, not specially provided for in this section [Free].

PAR. 385. * * * unmanufactured articles not enumerated or provided for in this section, a duty of 10 per centum ad valorem, * * *.

ACT OF 1909.

cents per pound; valued at above ten cents per pound and not above thirty-five cents per pound, twenty-five per centum ad valorem; valued above thirty-five cents per pound, fifteen cents per pound and twenty per centum ad valorem; * * *

PAR. 286. Meats of all kinds, prepared or preserved, not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 667. Sausages, bologna [Free].

ACT OF 1913.

[Weasands fall within this provision. T. D. 35886 of 1915; United States v. White, 8 Ct. Cust. Appls., 115, of 1917. Sausage casings come within paragraph 419 above. (Abstract 19744, T. D. 29288, of 1908.)]

PAR. 545. * * * meats of all kinds, prepared or preserved, not specially provided for in this section [Free] *Provided, however,* That none of the foregoing meats shall be admitted into the United States unless the same is healthful, wholesome and fit for human food and contains no dye, chemical, preservative, or ingredient which renders the same unhealthful, unwholesome or unfit for human food, and unless the same also complies with the rules and regulations made by the Secretary of Agriculture, and that, after entry into the United States in compliance with said rules and regulations, said imported meats shall be deemed and treated as domestic meats within the meaning of and shall be subject to the provisions of the Act of June thirtieth, nineteen hundred and six, (Thirty-fourth Statutes at Large, page six hundred and seventy-four), commonly called the Meat Inspection Amendment, and the Act of June thirtieth, nineteen hundred and six (Thirty-fourth Statutes at Large, page seven hundred and sixty-eight), commonly called the Food and Drugs Act, and that the Secretary of Agriculture be and hereby is authorized to make rules and regulations to carry out the purposes of this paragraph, and that in such rules and regulations the Secretary of Agriculture may prescribe the terms and conditions for the destruction for food purposes of all such meats offered for entry and refused admission into the United States unless the same be exported by the consignee within the time fixed therefor in such rules and regulations.⁹

SAUSAGE CASINGS, ETC., AND MEATS PREPARED OR PRESERVED N. S. P. F.

Description and use.—Under this head fall pickled and cured beef, pickled pork, canned meats, sausage, sausage casings, scrapple, head cheese, livers, sweetbreads, etc. Beef that is dried, salted, or pickled has lost its former prominent position in trade in favor of chilled and frozen beef; pork is, however, most in demand when it is salted, pickled, cured, or otherwise preserved. Canned meats, of which there are many varieties, are increasing in commercial importance.

Production of pickled and cured beef for 1899-1914 showed a steady decline, from 137,000,000 pounds to 91,000,000 pounds; while pickled and cured pork remained fairly steady, amounting to 3,138,000,000 pounds in 1899 (including bacon and hams) and to 2,929,000,000

⁹ Meats of all kinds, prepared or preserved, n. s. p. f., 25 per centum ad valorem. (Par. 14, emergency tariff act of 1921.)

pounds in 1914. The production of canned meats increased from 112,000,000 pounds in 1899 to 160,000,000 pounds in 1914. In 1919 790,703,000 pounds of sausage and 102,281,000 pounds of sausage casings were produced in packing houses.

Imports in this class of products are relatively much less important than exports. Imports of canned corned beef ranged in value from \$118,000 in 1915 to \$36,673,000 in 1918 (calendar years). In the latter year doubtless a large part of the imports consisted of American goods returned from Europe. Statistics of imports for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|--------------|-------------|-------------|---------------------|
| Bologna sausage: | | | | |
| Quantity (pounds)..... | 5,417 | 71,722 | 156,735 | 81,511 |
| Value..... | \$2,797 | \$43,340 | \$73,996 | \$33,921 |
| Canned beef: | | | | |
| Quantity (pounds)..... | | 16,731,826 | 3,979,073 | 264,281 |
| Value..... | \$36,673,220 | \$4,753,298 | \$514,790 | \$41,587 |
| Other canned meats: | | | | |
| Quantity (pounds)..... | | 1,520,638 | 943,801 | 167,838 |
| Value..... | \$1,156,337 | \$453,732 | \$295,072 | \$60,962 |
| Other prepared or preserved meats: | | | | |
| Quantity (pounds)..... | | 2,937,392 | 1,976,163 | 1,823,192 |
| Value..... | \$379,076 | \$631,668 | \$500,119 | \$328,517 |
| Sausage casings—intestines, etc.: | | | | |
| Quantity (pounds)..... | | 11,234,028 | 12,137,901 | 7,712,056 |
| Value..... | \$3,624,025 | \$5,628,412 | \$7,049,347 | \$4,208,042 |
| Sausage casings—weasands or ox gullets: | | | | |
| Quantity (pounds)..... | | 188,099 | 174,326 | 124,848 |
| Value..... | \$43,973 | \$132,263 | \$120,019 | \$90,590 |
| Bladders, integuments, tendons, etc., crude and manufactured: | | | | |
| Quantity (pounds)..... | | 2,806,388 | 1,279,818 | 246,056 |
| Value..... | \$389,311 | \$198,933 | \$251,423 | \$34,767 |
| Livers, sweetbreads, etc.: | | | | |
| Quantity (pounds)..... | | 3,532,074 | 3,399,507 | 763,578 |
| Value..... | \$165,837 | \$302,256 | \$412,358 | \$112,544 |
| Frogs' legs and snails: | | | | |
| Quantity (pounds)..... | | 20,460 | 24,814 | 24,378 |
| Value..... | \$4,436 | \$7,065 | \$10,627 | \$7,013 |

Below is given a comparison by months for 1920 and 1921 of imports of several items provided for in paragraph 14 of the emergency tariff act of 1921:

| Month: | Quantity. | | Value. | |
|--------|-----------|------|--------|------|
| | 1920 | 1921 | 1920 | 1921 |

BOLOGNA SAUSAGE,¹

| | Pounds. | Pounds. | | |
|----------------|---------|---------|----------|---------|
| January..... | 15,004 | 18,099 | \$10,120 | \$7,282 |
| February..... | 7,339 | 3,845 | 3,270 | 1,788 |
| March..... | 3,034 | 18,940 | 2,173 | 8,479 |
| April..... | 10,450 | 6,983 | 6,004 | 3,152 |
| May..... | 1,508 | 8,106 | 1,125 | 3,708 |
| June..... | 10,630 | ..... | 6,259 | ..... |
| July..... | 5,143 | ..... | 3,559 | ..... |
| August..... | 25,726 | ..... | 5,261 | ..... |
| September..... | 3,727 | ..... | 2,202 | ..... |
| October..... | 19,251 | ..... | 12,512 | ..... |
| November..... | 12,573 | ..... | 97,622 | ..... |
| December..... | 42,300 | ..... | 13,889 | ..... |

¹ Included in "All other prepared or preserved meats" after May, 1921.

| Month. | Quantity. | | Value. | |
|-------------------------|----------------|----------------|-----------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| SAUSAGE CASINGS. | | | | |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 899,618 | 704,399 | \$533,282 | \$882,297 |
| February..... | 648,116 | 747,058 | 439,860 | 375,236 |
| March..... | 404,921 | 1,120,888 | 343,281 | 411,310 |
| April..... | 1,000,049 | 663,983 | 568,958 | 360,551 |
| May..... | 1,325,476 | 973,648 | 876,275 | 627,352 |
| June..... | 1,042,738 | 1,044,134 | 600,016 | 607,733 |
| July..... | 2,205,706 | 996,931 | 942,461 | 557,082 |
| August..... | 1,608,110 | 758,288 | 1,003,014 | 455,675 |
| September..... | 752,666 | 729,727 | 413,053 | 430,806 |
| October..... | 857,604 | 470,269 | 634,874 | 355,729 |
| November..... | 770,259 | 876,952 | 391,580 | 362,510 |
| December..... | 622,638 | 870,877 | 277,715 | 431,390 |

ALL OTHER PREPARED OR PRESERVED MEATS.

| | | | | |
|----------------|-----------|-----------|-----------|-----------|
| January..... | 388,458 | 677,892 | \$116,935 | \$219,964 |
| February..... | 351,959 | 650,147 | 133,572 | 285,256 |
| March..... | 292,803 | 449,271 | 106,381 | 134,732 |
| April..... | 326,782 | 475,799 | 88,084 | 144,520 |
| May..... | 449,059 | 320,797 | 169,054 | 67,732 |
| June..... | 982,222 | 72,566 | 205,947 | 27,661 |
| July..... | 1,188,784 | 66,773 | 214,777 | 28,687 |
| August..... | 533,585 | 162,762 | 77,836 | 98,792 |
| September..... | 500,108 | 422,808 | 125,388 | 96,440 |
| October..... | 536,702 | 285,816 | 139,579 | 82,523 |
| November..... | 498,986 | 574,708 | 153,714 | 231,520 |
| December..... | 1,398,581 | 1,484,064 | 477,889 | 617,941 |

CANNED MEATS.

| | | | | |
|----------------|--|--------|--|---------|
| June..... | | 7,779 | | \$2,441 |
| July..... | | 6,335 | | 1,755 |
| August..... | | 89,242 | | 14,832 |
| September..... | | 7,502 | | 2,510 |
| October..... | | 57,712 | | 5,583 |
| November..... | | 8,431 | | 3,065 |
| December..... | | 12,297 | | 4,255 |

Exports of canned beef before the war ranged from 3,464,000 pounds (minimum) in 1914 to 14,804,000 pounds (maximum) in 1910. The United Kingdom is normally the largest purchaser; smaller amounts go to British Africa, the Philippines, Belgium, and Panama. Exports reached the unprecedented figure of 97,343,000 pounds in 1918 (fiscal year). Exports of pickled and other cured beef also rose during the war, reaching the maximum, 58,053,000 pounds, in 1917. Normally the United Kingdom takes about 25 per cent; Newfoundland and Germany rank next.

Exports of pickled pork fluctuated from 63,460,000 pounds in 1916 to 33,221,000 pounds in 1918 (fiscal years), with Canada and the United Kingdom the most important destinations. Exports of canned and other sausage increased to 15,026,449 pounds in 1918 (fiscal year). Most of this increase went to France, but normally more goes to Cuba. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|--------------|--------------|-------------|---------------------|
| Canned sausage: | | | | |
| Quantity (pounds)..... | 6,349,602 | 8,198,336 | 7,158,291 | 2,060,392 |
| Value..... | \$1,817,199 | \$2,761,944 | \$2,344,684 | \$719,807 |
| All other sausage: | | | | |
| Quantity (pounds)..... | 6,029,354 | 13,889,285 | 10,509,095 | 4,886,143 |
| Value..... | \$2,125,873 | \$5,911,850 | \$4,187,574 | \$1,670,222 |
| Beef, pickled, and other cured: | | | | |
| Quantity (pounds)..... | 44,206,020 | 42,804,724 | 25,771,176 | 18,968,576 |
| Value..... | \$7,921,220 | \$8,739,141 | \$3,659,815 | \$2,128,557 |
| Beef, canned: | | | | |
| Quantity (pounds)..... | 141,457,163 | 53,867,327 | 23,766,000 | 5,171,518 |
| Value..... | \$51,498,010 | \$20,672,964 | \$5,789,711 | \$1,084,996 |
| Pork, pickled: | | | | |
| Quantity (pounds)..... | 36,671,660 | 34,113,875 | 38,708,841 | 25,647,520 |
| Value..... | \$8,535,017 | \$8,632,518 | \$7,670,024 | \$3,453,766 |
| Pork, canned: | | | | |
| Quantity (pounds)..... | 5,267,342 | 5,791,706 | 1,802,241 | 757,318 |
| Value..... | \$1,776,392 | \$2,422,364 | \$752,120 | \$220,800 |
| Sausage casings: | | | | |
| Quantity (pounds)..... | 4,037,391 | 25,477,028 | 25,238,187 | 25,568,832 |
| Value..... | \$2,611,630 | \$6,809,834 | \$5,860,935 | \$4,596,300 |
| All other meat products, canned: | | | | |
| Value..... | \$8,819,996 | \$12,950,669 | \$6,480,276 | \$3,995,151 |
| All other meat products—except canned: | | | | |
| Value..... | \$6,943,692 | \$11,642,612 | \$7,169,569 | \$3,894,830 |

Important changes in classification.—Specific provision is made for sausage casings (free under paragraph 419, act of 1913, Abstract 19744, T. D. 29288 of 1908) and weasands, dutiable as an unenumerated unmanufactured article (*United States v. White*, 8 Ct. Cust. Appls. 115, of 1917; T. D. 35886 of 1915). The other articles were on the free list (pars. 419 and 545) of the act of 1913.

Suggested changes.—To maintain the general plan of the rearrangement of the Agricultural Schedule, sausage casings, weasands, intestines, etc., might be provided for in a paragraph separate from meats n. s. p. f.

If specific provision should be made for prepared or preserved beef (par. 701), prepared or preserved mutton (par. 702), and prepared or preserved pork (par. 703) a provision might be inserted in this paragraph for sausage by insertion of the words "including sausage."

PARAGRAPH 707.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 707. Milk, fresh, 1 cent per gallon; sour milk and buttermilk, one-half of 1 cent per gallon; cream, having less than 30 per centum of butter fat, 5 cents per gallon; having 30 per centum or more of butter fat, 10 cents per gallon.

ACT OF 1909.

ACT OF 1913.

PAR. 247. Milk, fresh, two cents per gallon; cream, five cents per gallon.
[No corresponding provision for sour milk and buttermilk.]

PAR. 547. Milk and cream. * * *
[Free].¹⁰
[No corresponding provision for sour milk and buttermilk.]

¹⁰ Milk, fresh, 2 cents per gallon; cream, 5 cents per gallon. (Par. 23, emergency tariff act of 1921.)

MILK AND CREAM.

(See Survey G-7.)

Description and uses.—Milk and cream are among the most important of foods, furnishing from 16 to 18 per cent of the nourishment of the average American family. In the value of its annual output the dairy industry approximates the production of wheat. International trade in unmanufactured milk and cream, however, is very small relative to the country's total supply and demand. Because of its limited keeping quality the maximum distance that milk can profitably be shipped is about 500 miles. The great bulk of the imports moves from eastern Canada to the New England States.

Production of milk in 1920 was 89,658,000,000 pounds valued at about \$2,000,000,000. The number of milch cows increased from 18,150,000 in 1910 to 19,672,000 in 1919. Since that year there has been a slight decrease.

Imports in 1913 of fresh cream amounted to 1,247,000 gallons valued at \$1,068,000; of fresh milk, 46,000 gallons valued at \$6,900. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-----------|-------------|-------------|---------------------|
| Fresh milk: | | | | |
| Quantity (gallons)..... | 1,519,966 | 2,763,401 | 2,520,657 | 1,955,729 |
| Value..... | \$341,684 | \$739,073 | \$623,407 | \$364,781 |
| Fresh cream: | | | | |
| Quantity (gallons)..... | 704,031 | 931,416 | 1,597,160 | 1,533,573 |
| Value..... | \$738,809 | \$1,111,130 | \$2,079,863 | \$1,902,051 |
| Cream—preserved or condensed or sterilized: | | | | |
| Quantity (pounds)..... | 7,034 | 240,290 | 852,631 | 3,581 |
| Value..... | \$677 | \$32,927 | \$136,030 | \$906 |

Below is given a comparison by months for 1920 and 1921 of fresh milk and cream, provided for in paragraph 23 of the emergency tariff act of 1921:

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|----------|----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Gallons.</i> | <i>Gallons.</i> | | |
| January..... | 196,159 | 145,924 | \$76,970 | \$69,662 |
| February..... | 141,196 | 126,363 | 52,226 | 43,022 |
| March..... | 169,958 | 160,167 | 75,367 | 72,892 |
| April..... | 221,966 | 234,179 | 119,045 | 129,131 |
| May..... | 843,116 | 427,244 | 211,120 | 270,370 |
| June..... | 473,853 | 726,006 | 377,799 | 488,446 |
| July..... | 457,614 | 345,404 | 313,260 | 372,699 |
| August..... | 703,150 | 583,925 | 512,648 | 425,633 |
| September..... | 525,078 | 540,030 | 371,373 | 404,977 |
| October..... | 383,823 | 424,003 | 283,674 | 314,091 |
| November..... | 301,230 | 389,044 | 197,092 | 248,553 |
| December..... | 200,674 | 310,660 | 111,696 | 171,098 |

Exports of milk and cream, other than condensed, in 1913 were valued at \$474,000. Later exports by calendar years are as follows: 1918, \$528,607; 1919, \$1,729,884; 1920, \$381,626; 1921 (9 months), \$366,417.

Important changes in classification.—To avoid litigation, new specific provisions have been made for buttermilk and sour milk, although

little of either is imported. Milk that has soured in transit is sometimes sold for its butterfat content. Cream varies greatly in butterfat content and thus in value. The new provisions for a heavier duty on cream having more than 30 per cent butterfat content is an attempt to maintain specific rather than ad valorem rates, and yet distribute the duty more nearly according to the relative value of the products.

Milk and cream were free of duty under the act of 1913 (par. 547) and milk, fresh, and cream are dutiable under paragraph 23 of the emergency tariff act of 1921.

Suggested changes.—In view of the fact that imports of sour milk and buttermilk are insignificant, the specific provisions therefor might be dropped and the word "fresh" eliminated in connection with milk.

There are administrative difficulties in determining the percentage of butter fat in cream imported on the frontiers.

PARAGRAPH 708.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 708. Milk, condensed or evaporated: In hermetically sealed containers, unsweetened, 1 cent per pound; sweetened, 1½ cents per pound; all other, 1¾ cents per pound; whole milk powder, 3 cents per pound; cream powder, 8 cents per pound; and skimmed milk powder, 1½ cents per pound; malted milk, and compounds of or substitutes for milk or cream, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 248. Milk, preserved or condensed, or sterilized by heating or other processes, including weight of immediate coverings, two cents per pound; * * *

[No corresponding provision for the other commodities.]

PAR. 547. Milk and cream, including milk or cream preserved or condensed, or sterilized by heating or other processes, * * * [Free].¹¹

[No corresponding provision for the other commodities.]

CONDENSED OR EVAPORATED MILK AND RELATED PRODUCTS.

(See Survey G-7.)

Description and uses.—The tremendous growth in recent years in the production of preserved milk has resulted from the demand for milk without the bulkiness and perishability of the fresh product, and from the perfection of methods of manufacture. Water constitutes about 87 per cent of the weight of fresh milk. In contrast to the local distribution of fresh milk, there is an extensive domestic and foreign trade in the condensed, evaporated, and powdered forms. In 1919, nearly 5,000,000,000 pounds of milk, or over 10 per cent of the total amount used for manufacturing purposes, was used in the production of the condensed and evaporated article. This was more than the amount used for cheese and about one-seventh of that consumed for butter.

¹¹ Milk, preserved or condensed, or sterilized by heating or other processes, including weight of immediate coverings, 2 cents per pound. (Par. 24, emergency tariff act of 1921.)

Both skimmed and unskimmed milk are condensed and evaporated. Condensed milk is distinguished from evaporated milk largely by the fact that as a finished product the former contains about 40 per cent cane sugar. Evaporated and condensed milk are put up in small cans for household, hotel, and restaurant trade and also in bulk for ice-cream manufacturers, bakers, etc.

The value of the various milk products varies widely with the degree of concentration. The following table shows the relative amounts of various products obtained from 100 pounds of average (3.5 per cent butter fat) milk:

| | Pounds. |
|---|---------|
| Evaporated milk (unsweetened)..... | 40 |
| Condensed milk (plus 16 pounds of sugar)..... | 36-40 |
| Evaporated bulk milk..... | 25-34 |
| Whole milk powder..... | 12.5 |
| Cream powder..... | 4.8 |
| And skimmed-milk powder..... | 7.6 |
| Skimmed-milk powder..... | 8.2 |
| And butter..... | 4.2 |

Milk powder is made by evaporating whole or skimmed milk to dryness. In appearance it closely resembles wheat flour. Skimmed-milk powder, because of its superior keeping qualities, is produced in larger quantities than the full-milk product.

Production of condensed and evaporated milk increased from 1,676,000,000 pounds in 1918 (fiscal year) to 2,094,000,000 pounds valued at \$293,000,000 in 1919. In 1920, with the falling off of both foreign and domestic demand, production declined to 1,559,000,000 pounds. The following table indicates that canned evaporated whole milk and condensed whole milk are the articles of outstanding importance in this group. In contrast to the general decline in 1920, it is interesting to note the increase in production of filled milk (evaporated skimmed milk modified with foreign fats) and also the increase in powdered milk.

Production of milk preparations, 1918-1920.¹

[Pounds.]

| | 1918 | 1919 | 1920 |
|---|-------------|---------------|-------------|
| Sweetened condensed milk: | | | |
| Case goods— | | | |
| Skimmed..... | 8,653,000 | 7,232,000 | 7,700,000 |
| Unskimmed..... | 411,225,000 | 568,251,000 | 340,391,000 |
| Bulk goods— | | | |
| Skimmed..... | 46,303,000 | 61,792,000 | 84,223,000 |
| Unskimmed..... | 40,872,000 | 36,910,000 | 23,524,000 |
| Unsweetened evaporated milk: | | | |
| Case goods— | | | |
| Skimmed..... | 12,049,000 | 3,626,000 | 5,526,000 |
| Unskimmed..... | 916,438,000 | 1,159,217,000 | 979,873,000 |
| Bulk goods— | | | |
| Skimmed..... | 56,782,000 | 65,442,000 | 64,324,000 |
| Unskimmed..... | 183,612,000 | 74,985,000 | 72,474,000 |
| Evaporated skimmed milk modified with foreign fat: | | | |
| Case goods..... | 41,034,000 | 62,262,000 | 84,044,000 |
| Bulk goods..... | 7,591,000 | 2,748,000 | 2,517,000 |
| Sterilized milk (canned like condensed)..... | 6,268,000 | 4,415,000 | 5,623,000 |
| Canned or evaporated buttermilk..... | 6,534,000 | 22,536,000 | 32,539,000 |
| Powdered whole milk..... | 4,164,000 | 8,661,000 | 10,334,000 |
| Powdered skimmed milk..... | 25,432,000 | 33,076,000 | 41,893,000 |
| Powdered cream..... | 654,000 | 692,000 | 309,000 |
| Malted milk..... | 15,654,000 | 17,496,000 | 19,715,000 |
| Dried or powdered buttermilk..... | 3,341,000 | 5,279,000 | 5,704,000 |

¹ From figures of the Bureau of Markets, U. S. Department of Agriculture.

Imports of preserved, condensed, or evaporated milk in 1920 came largely from Canada and the Netherlands. Statistics of imports since 1917 by calendar years are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------------|---------------|---------------|---------------------|
| Quantity (pounds)..... | 23, 198, 388 | 18, 268, 949 | 22, 903, 145 | 7, 720, 178 |
| Value..... | \$3, 221, 730 | \$2, 047, 143 | \$3, 193, 781 | \$1, 252, 090 |

Below is given a comparison, by months, for 1920 and 1921 of milk preserved or condensed, provided for in paragraph 24 of the emergency tariff act of 1921:

| Month. | Quantity. | | Value. | |
|----------------|----------------|----------------|------------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 2, 574, 763 | 162, 659 | \$344, 525 | \$51, 134 |
| February..... | 1, 689, 294 | 1, 600, 135 | 219, 528 | 227, 930 |
| March..... | 1, 250, 926 | 1, 412, 500 | 175, 216 | 243, 525 |
| April..... | 1, 436, 055 | 1, 152, 509 | 227, 046 | 197, 512 |
| May..... | 702, 811 | 2, 684, 392 | 105, 382 | 418, 394 |
| June..... | 4, 196, 279 | 354, 681 | 537, 576 | 47, 672 |
| July..... | 4, 584, 718 | 623, 398 | 676, 513 | 110, 079 |
| August..... | 2, 625, 695 | 594, 677 | 357, 928 | 109, 378 |
| September..... | 1, 190, 632 | 3, 501 | 180, 575 | 368 |
| October..... | 1, 560, 298 | 34, 963 | 183, 686 | 7, 539 |
| November..... | 978, 867 | 43, 390 | 147, 756 | 6, 133 |
| December..... | 962, 242 | 1, 491 | 146, 081 | 679 |

Exports of condensed milk increased tremendously, being 551,139,000 pounds, valued at \$72,825,000 in 1918 (fiscal year), as compared with an average of 15,773,900 pounds for 1910-1914. In 1918 (fiscal year) the United Kingdom, France, Belgium, and Cuba were the principal destinations of exports. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------|----------------|-----------------|----------------|---------------------|
| Condensed and evaporated milk: | | | | |
| Quantity (pounds)..... | 551, 139, 754 | 852, 865, 414 | (1) | (1) |
| Value..... | \$72, 824, 897 | \$121, 893, 337 | | |
| Sweetened condensed milk: | | | | |
| Quantity (pounds)..... | (1) | (1) | 277, 132, 114 | 72, 001, 461 |
| Value..... | | | \$47, 566, 834 | \$12, 284, 353 |
| Unsweetened evaporated milk: | | | | |
| Quantity (pounds)..... | (1) | (1) | 133, 945, 868 | 145, 129, 067 |
| Value..... | | | \$16, 672, 432 | \$15, 493, 456 |
| Powdered milk: | | | | |
| Quantity (pounds)..... | (1) | (1) | 3, 172, 039 | 7, 166, 177 |
| Value..... | | | \$999, 754 | \$1, 124, 594 |

¹ Sweetened condensed, unsweetened evaporated, and powdered milk not separately reported until 1920

Important changes in classification.—Milk or cream preserved or condensed or sterilized by heating or other processes was free under paragraph 547 of the act of 1913, and milk, so prepared, including the weight of the immediate coverings, is dutiable under paragraph 24 of the emergency tariff act of 1921. In previous laws all milk

preparations, including products differing widely in value and in the amount of raw milk used per pound of product, were grouped together and were dutiable at the same rate. The present classification distinguishes them, and the duty is distributed more nearly according to value. The first two clauses cover condensed and evaporated canned milk. The "all other" clause covers condensed or evaporated bulk milk, which is usually condensed to a greater degree than the canned product. The last clause provides for "filled milk" (condensed skimmed milk in which other fat has been substituted for the butter fat) and for other milk preparations.

Suggested changes.—In view of judicial constructions narrowing the word "compound," it might be well to insert after the word "compounds," in line 21, page 86, of H. R. 7456, the words "or mixtures," making the phrase read "compounds or mixtures of or substitutes for milk or cream."

"All other" is indefinite; "in other containers" might be substituted.

PARAGRAPH 709.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 709. Butter, 8 cents per pound;
oleomargarine, 8 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 245. Butter and substitutes therefor, six cents per pound.

PAR. 195. Butter and butter substitutes, 2½ cents per pound.¹³

BUTTER AND OLEOMARGARINE.

(See Survey G-7.)

Description and uses.—Butter is by far the most important milk product. In 1919 it constituted two-thirds of the combined value of condensed milk, cheese, and butter. One hundred pounds of average milk (3.5 per cent butter fat) produce about 4.2 pounds of butter. In the large markets butter is carefully graded, the quality being determined according to certain standards based on flavor, body, color, amount of salt, and condition of package. Imports compete more directly with one or more of these well-defined grades according to their quality.

Oleomargarine, the legal term under the internal-revenue oleomargarine act of 1886 for all butter substitutes, may be divided into three classes—(1) that made exclusively of animal oils and fats (chiefly oleo oil and neutral lard), (2) that made of a mixture of animal and vegetable oils, and (3) that exclusively of vegetable oils (mostly coconut, peanut, and cottonseed oils). In 1920 about 1 per cent of the total production was of the first class, 46 per cent of the second class, and 53 per cent of the third class. An internal-revenue tax of 10 cents per pound is imposed on colored oleomargarine and one-fourth of 1 cent per pound on uncolored. In consequence the

¹³ Butter and substitutes therefor, 6 cents per pound. (Par. 21, emergency tariff act of 1921.) Oleomargarine in packages of less than 10 pounds prohibited by act of Aug. 2, 1886, sec. 10.

latter makes up 96 per cent of the amount produced. The internal-revenue tax on imports of both colored and uncolored is 15 cents per pound in addition to the duty, and imports in packages containing less than 10 pounds are prohibited.

Production.—The quantity of butter manufactured in factories rose from 420,126,546 pounds in 1899 to 769,809,781 pounds in 1914 and to 938,505,382 in 1919. The leading States in 1914 were Wisconsin (116,149,000 pounds), Minnesota (111,165,000 pounds), and Iowa (92,405,000 pounds). Farm and factory output was about 1,706,000,000 pounds in 1914 and 1,649,000,000 pounds in 1919. The factory output has increased, while the farm production has diminished. Production of butter substitutes was 95,397,000 pounds in 1912 and 370,730,000 pounds in 1920.

Imports of butter and butter substitutes form a small part of our consumption. Normally Canada and Denmark are the chief sources. In 1917, 523,573 pounds, valued at \$197,767, were imported—from Canada, 311,257 pounds; from Denmark, 149,078 pounds; and from New Zealand, 50,400 pounds. Later statistics follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|------------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,479,114 | \$516,175 | \$36,978 | 7.16 |
| 1919..... | 6,961,950 | 3,481,976 | 174,018 | 5.00 |
| 1920..... | 37,626,045 | 18,793,055 | 940,661 | 5.01 |
| 1921 (9 months)..... | 12,006,610 | 5,122,147 | | |

Over 50 per cent of the imports in 1920 came from Denmark. Canada, Argentina, and the Netherlands were the other important sources.

Below are statistics,¹³ by months, for 1920 and 1921 of butter and butter substitutes provided for in paragraph 21 of the emergency tariff act of 1921:

| Month. | Quantity. | | Value. | |
|----------------|----------------|----------------|-----------|-------------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 334,135 | 3,811,905 | \$194,643 | \$1,631,708 |
| February..... | 1,095,813 | 1,896,938 | 633,162 | 867,893 |
| March..... | 3,161,640 | 4,265,531 | 1,764,935 | 1,796,751 |
| April..... | 5,065,020 | 1,370,222 | 2,666,339 | 356,944 |
| May..... | 1,710,519 | 54,637 | 797,700 | 17,973 |
| June..... | 3,186,559 | 33,884 | 1,565,911 | 18,750 |
| July..... | 3,311,404 | 191,748 | 4,166,032 | 60,996 |
| August..... | 2,737,265 | 149,886 | 1,253,427 | 65,211 |
| September..... | 2,674,064 | 397,929 | 1,125,445 | 142,950 |
| October..... | 2,455,315 | 1,858,409 | 1,104,944 | 695,982 |
| November..... | 2,798,684 | 1,925,560 | 1,419,528 | 711,008 |
| December..... | 4,033,764 | 2,601,689 | 1,955,393 | 827,162 |

Exports.—From 1909 to 1913 this country ranked twelfth among exporting countries. Denmark averaged 195,530,000; Russia, 150,294,000; Australia, 77,859,000; the Netherlands, 75,133,000; and the United States, 4,125,000 pounds. Exports increased greatly

¹³ Figures are for butter only, beginning July, 1921.

during the war, being 26,835,092 pounds in 1917, of which 20,839,000 pounds went to the United Kingdom and 1,323,653 to Canada. Exports of oleomargarine increased from 2,967,000 pounds in 1913 to 5,561,000 pounds in 1917, with the British West Indies the best customer. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|--------------|--------------|--------------|---------------------|
| Butter: | | | | |
| Quantity.....pounds.. | 26,794,415 | 24,556,485 | 17,487,735 | 6,636,749 |
| Value..... | \$10,868,963 | \$17,504,446 | \$10,142,403 | \$2,679,809 |
| Oleomargarine: | | | | |
| Quantity.....pounds.. | 8,909,108 | 22,939,589 | 16,557,746 | 2,642,036 |
| Value..... | \$2,393,908 | \$6,576,760 | \$4,567,120 | \$542,503 |

Important changes in classification.—"Oleomargarine" is used instead of "butter substitutes."

Suggested changes.—In order to assure the classification of all butter substitutes under this paragraph, the words "and other butter substitutes" should be added after "oleomargarine."

PARAGRAPH 710.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 710. Cheese, valued at less than 30 cents per pound, 5 cents per pound; valued at 30 cents or more per pound, 25 per centum ad valorem; cheese substitutes, 5 cents per pound.

ACT OF 1909.

ACT OF 1913

PAR. 246. Cheese, and substitutes therefor, six cents per pound.

PAR. 196.—Cheese and substitutes therefor, 20 per centum ad valorem.¹⁴

CHEESE.

(See Survey G-7.)

Description and uses.—Cheese is made by separating the curd or casein and portions of the fat and other constituents of milk from the whey. There are more than 150 varieties. The principal kinds of hard cheese are Cheddar, English Cheshire and Stilton, the Dutch Edam and Gonda, the Schweitzer (Swiss), and the Italian Parmesan and Gorgonzola. Of the soft cheeses, the principal are Brie, Camembert, Neufchâtel, Limberger, Philadelphia cream, and cottage. Some fancy brands of cheese are made by mixing with cream, butter, or oils. Many foreign cheeses are now successfully made here, but more than nine-tenths is the familiar standard variety, Cheddar, of which there are three grades—"full cream," from whole milk; "skims," from skimmed or partly skimmed milk; and "filled," in which oleo or neutral lard is substituted for butter fat.

¹⁴ Cheese, and substitutes therefor, 23 per centum ad valorem. (Par. 22, emergency tariff act of 1921.)

Filled cheese, marketed as full-cream cheese, was formerly a serious form of adulteration or substitution. An internal-revenue tax of 1 cent per pound is now levied on the manufacture of filled cheese and 8 cents per pound on imports. At present practically none is produced here, and none is imported.

Production in 1914 was 370,278,599 pounds of factory cheese, valued at \$50,377,018. Of this, 332,690,891 pounds were "full cream" and 18,318,437 pounds "part cream." In 1909, 97.1 per cent of the product was made in factories; in 1914 there were 2,843 factories. Wisconsin produced 55.6 per cent of the total in 1914 and New York 26.4 per cent. During 1909-1914 the total production increased by 59,152,282 pounds or 19.01 per cent; the increase in Wisconsin was 39.07 per cent and the decrease in New York was 7.2 per cent. In 1919, factory production amounted to 475,331,000 pounds, valued at \$137,281,000, while the amount produced on farms amounted to only 6,600,000 pounds, valued at \$2,300,000.

Imports of cheese from 1911 to 1915 averaged 50,499,356 pounds per annum. In 1918 (fiscal year) Argentina supplied 83.9 per cent, whereas before the war Italy and Switzerland led, nearly one-half coming from the former (Parmesan and Gorgonzola) and one-third from the latter (Schweitzer). A large proportion of these imports are fancy foreign varieties not extensively manufactured here. Imports increased from 48,449,902 pounds in 1913 to 64,497,471 pounds in 1914, with duties of \$2,906,947 and \$2,532,742, respectively. Later imports of cheese and substitutes therefor have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-------------|-----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 6,931,975 | \$2,740,146 | \$547,995 | 20 |
| 1919..... | 7,399,520 | 3,005,420 | 600,504 | 20 |
| 1920..... | 14,592,403 | 5,237,844 | 1,047,564 | 20 |
| 1921 (9 months)..... | 15,510,764 | 5,196,274 | | |

In 1920, 62 per cent came from Argentina, 10 per cent from France, and smaller amounts from Italy, Switzerland, and Canada.

Below is given a comparison¹⁵ by months for 1920 and 1921 of cheese and substitutes therefor, provided for in paragraph 22 of the emergency tariff act of 1921:

| Month. | Quantity. | | Value. | |
|----------------|----------------|----------------|-----------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 1,155,278 | 1,844,115 | \$458,429 | \$661,438 |
| February..... | 667,497 | 713,324 | 221,492 | 226,668 |
| March..... | 1,335,924 | 1,342,192 | 483,155 | 466,874 |
| April..... | 740,158 | 1,558,123 | 187,130 | 505,871 |
| May..... | 2,307,554 | 1,469,677 | 810,282 | 465,717 |
| June..... | 1,822,027 | 1,691,860 | 661,205 | 528,964 |
| July..... | 1,042,791 | 1,253,505 | 381,514 | 353,666 |
| August..... | 660,963 | 3,091,008 | 241,689 | 1,057,019 |
| September..... | 961,450 | 2,570,827 | 323,180 | 847,963 |
| October..... | 1,780,698 | 3,952,650 | 629,866 | 1,203,140 |
| November..... | 1,739,351 | 3,980,147 | 640,186 | 1,215,689 |
| December..... | 1,780,034 | 3,398,876 | 618,607 | 1,144,207 |

¹⁵ Figures are for cheese only, beginning July, 1921.

Exports increased from an average of 4,915,501 pounds for 1910-1914 to 52,527,576 pounds for 1915-1918. In 1912, an average year, the United Kingdom took 3,822,735 out of a total of 6,337,559 pounds. Other important purchasers were Canada, the British West Indies, Panama, Mexico, and Cuba. During the war most of the large increases went to the United Kingdom—55,399,101 out of 66,050,013 pounds in 1917. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 48,404,672 | 14,159,721 | 16,291,529 | 10,437,719 |
| Value..... | \$11,735,266 | \$5,349,577 | \$5,094,253 | \$2,363,072 |

Important changes in classification.—A specific duty is imposed on the cheaper varieties of cheese. Imports valued at less than 30 cents per pound are those which compete with the great bulk of domestic production. The many varieties of imported cheese have so wide a range in value that a simple specific duty might bear lightly on the most expensive and heavily on the cheapest. The method of different specific rates on different classes of cheese can not well be applied because there is no way of definitely classifying the varieties according to value.

PARAGRAPH 711.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 711. Birds, live: Poultry, 2 cents per pound; all other, valued at \$5 or less each, 50 cents each; valued at more than \$5 each, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 289. Poultry, live, three cents per pound; * * *

PAR. 229. Poultry, live, 1 cent per pound; * * *.

PAR. 510. Birds and land and water fowls [Free].

PAR. 416. Birds and land and water fowls, not specially provided for in this section [Free].

POULTRY.

Description and uses.—Most of the specialized poultry farms are in the Atlantic and Pacific coast sections, near the great centers of population. The demand is largely supplied by general farms, where poultry-raising is incidental to other farm operations. Cold-storage facilities and rapid transit have greatly influenced the poultry industry, in equalizing prices and making possible the importation of foreign products.

Production of poultry has increased but little in recent years. In 1909, 488,468,364 fowls of all kinds were raised. Of these 461,000,000, or 94 per cent, were chickens; the rest consisted of geese, ducks, turkeys, and pigeons. In 1920, 474,000,000 chickens were raised, which would indicate about 500,000,000 fowls of all kinds. About

half of the chickens were raised in the North Central States, i. e., in or adjacent to the corn belt. Four times as many chickens were raised in this region as in the North Atlantic and Pacific States, where the greater number of the specialized poultry farms are located.

Imports.—Following the reduction of the duty on live poultry from 3 cents to 1 cent, imports of live poultry in 1914 were 954,624 pounds compared with 366,854 pounds in 1913. There were large increases during the war. The annual receipt of live poultry during 1911–1914 averaged 602,418 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-----------|---------|
| | <i>Pounds.</i> | | |
| 1918..... | 676,765 | \$160,842 | \$6,768 |
| 1919..... | 1,328,440 | 315,710 | 13,261 |
| 1920..... | 1,592,952 | 425,222 | 15,929 |
| 1921 (9 months)..... | 373,498 | 89,267 | ..... |

Exports of poultry and game (not segregated) amounted to 1,241,144 pounds in 1918 (fiscal year)—1,090,288 pounds of which went to the United Kingdom, 71,091 pounds to Panama, and 23,861 pounds to Canada. The value of exports for later calendar years was as follows: 1919, \$4,560,278; 1920, \$756,748; 1921 (9 months), \$936,873.

Important changes in classification.—See General Note on Paragraph below.

BIRDS, OTHER THAN POULTRY.

Description and uses.—The principal birds coming under this provision are canary birds, the imports of which are of relatively small value, and also some high-priced birds such as parrots.

Production.—No statistics available.

Imports have ranged in normal years from 300,000 to 500,000. About 60 per cent of these have been canary birds. Some of these birds are of so little value that it would be difficult to determine the basis for an ad valorem rate. Others are rare birds which are sold at high prices. Import values for recent calendar years have been as follows: Birds—1918, \$16,387; 1919, \$47,599; 1920, \$244,432; 1921 (9 months), \$182,253. Fowls, land and water—1918, \$507; 1919, \$4,762; 1920, \$9,217; 1921 (9 months), \$4,153.

Exports are not separately stated.

Important changes in classification.—See below.

GENERAL NOTE ON PARAGRAPH.

Important changes in classification.—A dutiable provision for live poultry (par. 229, act of 1913) has been combined with the free-list provision for "birds and land and water fowls" (par. 416 of the act of 1913) and the heading "Birds, live" added.

PARAGRAPH 712.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 712. Birds, dead, dressed or undressed: Poultry, 4 cents per pound; all other, 20 per centum ad valorem; all the foregoing, prepared or preserved in any manner and not specially provided for, 22 per centum ad valorem.

ACT OF 1909.

PAR. 289. Poultry, * * * dead, five cents per pound.

[No corresponding provision for the other commodities.]

ACT OF 1913.

PAR. 227. * * * game birds, dressed, 30 per centum ad valorem.

PAR. 229. Poultry, * * * dead, or prepared in any manner, including the weight of the immediate coverings or containers, 2 cents per pound.

[No corresponding provision for the other commodities.]

BIRDS, DEAD.

Description, uses, and production.—See paragraph 711.

Imports of dressed poultry during 1911–1914 averaged 419,940 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------|-----------|--------|-------|--------------------------------|
|----------------|-----------|--------|-------|--------------------------------|

POULTRY, DEAD OR PREPARED IN ANY MANNER.

| | Pounds. | | | Per cent. |
|----------------------|-----------|-----------|---------|-----------|
| 1918..... | 391,633 | \$177,846 | \$7,833 | 4.40 |
| 1919..... | 412,297 | 230,771 | 8,246 | 3.57 |
| 1920..... | 2,867,097 | 1,200,483 | 57,342 | 4.78 |
| 1921 (9 months)..... | 1,994,666 | 745,291 | | |

GAME BIRDS, DRESSED.

| | | | | |
|----------------------|--------|---------|-------|-------|
| 1918..... | | \$1,047 | \$314 | 30.00 |
| 1919..... | 7,091 | 3,952 | 1,186 | 30.00 |
| 1920..... | 14,413 | 9,871 | 2,961 | 30.00 |
| 1921 (9 months)..... | 9,634 | 3,194 | | |

Exports are not separately stated.

Important changes in classification.—Parts of two paragraphs of the act of 1913 (227 and 229) have been combined, to avoid uncertainty with respect to the scope of "game" birds; the clause regarding containers has been eliminated as unnecessary and a separate provision has been made for poultry, etc., prepared or preserved, to take care of a wide range of high-priced specialties such as *pâté de foie gras*, and also such products as canned chicken, goose liver paste, etc.

PARAGRAPH 713.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 713. Eggs of poultry, in the shell, 6 cents per dozen; whole eggs, egg yolk, and egg albumen, frozen or otherwise prepared or preserved, and not specially provided for, 4 cents per pound; dried whole eggs, dried egg yolk, and dried egg albumen, 15 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 256. Eggs, not specially provided for in this section, five cents per dozen.

PAR. 257. Eggs, dried, fifteen cents per pound; eggs, yolk of, twenty-five per centum ad valorem; albumen, egg or blood, three cents per pound; * * *.

PAR. 4. Dried egg albumen, 3 cents per pound.

PAR. 203. Eggs frozen or otherwise prepared or preserved in tins or other packages, not specially provided for in this section, including the weight of the immediate coverings or containers, 2 cents per pound; frozen or liquid egg albumen, 1 cent per pound.

PAR. 204. Eggs, dried, 10 cents per pound; eggs, yolk of, 10 per centum ad valorem.

PAR. 478. Eggs of poultry, * * * [Free].

EGGS OF POULTRY.

Production.—The domestic production of eggs reaches enormous figures: In 1909, 1,575,000,000 dozen were reported, valued at \$281,000,000. Farm sales amounted to \$150,000,000. In 1919 production amounted to 1,654,000,000 dozens. Although egg production is usually a by-product enterprise, there are large numbers of poultry farms and ranches in regions climatically and economically favorable, and especially near dense populations, as in New Jersey, the southeastern counties of Pennsylvania, and at Petaluma, near San Francisco. Cold storage and refrigeration in transit have revolutionized the business, making possible the commercial shipment of eggs from Hungary, California, and even China, to Atlantic markets. Production is largely seasonal; a surplus is produced during the four months beginning with April, placed in cold storage, and marketed during the succeeding months of comparative scarcity and higher prices. The annual receipts of cities such as New York and Chicago approximate 150,000,000 dozens, and of St. Louis and Cincinnati 50,000,000 dozens.

Imports of eggs in the shell during 1911–1913 averaged about 1,000,000 dozens. The removal of the duty of 5 cents per dozen in 1913 was followed by a great increase in imports from Hungary, from Russia (via Germany), and especially from China, which subsequently became the chief source of foreign supplies with the loss of European sources during the war. From 1914 to 1921, inclusive, the average annual importation amounted to 1,906,000 dozens. In China 2 to 3 dozens can be bought at seaports for the price of 1 dozen here; when carefully selected and handled, these eggs can be placed on the American market and sold to bakers, who use principally cheaper grades known as "seconds." Chinese

eggs are marketed chiefly at New York. Since 1917 imports of eggs in the shell have been, by calendar years, as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (dozens)..... | 1,244,728 | 1,247,355 | 1,708,701 | 2,707,923 |
| Value..... | \$362,685 | \$394,629 | \$617,909 | \$794,352 |

Exports.—The annual exports of eggs of poultry have varied from 15,400,000 dozens to 38,327,000 dozens between 1912 and 1921, and have averaged 28,600,000 dozens. Previous to the war they went principally to Cuba, Mexico, Panama, and Canada. A part of the exports to Canada were regraded and forwarded to England. During the war heavy shipments were made direct to England, but during 1921 these virtually ceased; Cuba, Mexico, and Canada again are the chief customers. Exports of eggs since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|--------------|--------------|---------------------|
| Quantity (dozens)..... | 20,938,278 | 38,789,470 | 26,841,772 | 21,195,249 |
| Value..... | \$8,428,214 | \$18,812,231 | \$13,569,144 | \$6,735,772 |

Important changes in classification.—See General Notes on Paragraph, page 664.

FROZEN EGGS.

Description and uses.—Of the three methods of preserving eggs removed from the shell—(1) freezing, (2) drying or desiccating, and (3) adding preservatives—the first two produce food if the material used is wholesome, while the third gives a product known as “liquid” eggs or liquid albumen and yolk, which, under the pure food and drugs act, must be denatured, or rendered unfit for other than industrial purposes.

Commercial frozen eggs, frozen albumen and yolk (eggs that are graded, broken, and frozen in large containers, the whites and yolk being first either mixed, when whole eggs are desired, or separated in the case of the other products) are extensively used by establishments (principally cake bakers) which consume large quantities of eggs. There is a large demand for the separated albumen and yolk, as well as for the whole egg. Apart from being cheaper, the frozen product has advantages over the shell egg in long distance transportation; its importation in this form saves space and storage, and eliminates breakage and other waste.

Liquid eggs, liquid yolk, and especially liquid and dried albumen are used in the industries, the first two in tanning leather, while albumen is extensively used in the textile industries, in finishing paper, sensitizing photographic plates, and thickening inks.

Production.—Most of the “egg-breaking” plants are located near the important sources of raw materials, chiefly in the Middle West. In manufacture, the commercial grade of “seconds” is employed.

The industry furnishes an outlet for, and prevents the loss of, millions of dozens of inferior eggs, which, though still wholesome, often may not be profitably transported or stored. Indicative of the importance of this industry may be cited the fact that 15,800,000 pounds of frozen eggs, equivalent to about 14,000,000 dozen fresh eggs, were reported in cold storage in September, 1918, at the close of the principal breaking season.

Imports of frozen eggs were negligible prior to 1914; in that year those of frozen eggs amounted to 2,647,974 pounds, valued at \$305,232, and of frozen albumen to 259,587 pounds, valued at \$4,067. Imports increased steadily thereafter until their prohibition effective from June, 1918, to February, 1919. After the removal of the prohibition the volume of imports again increased. Egg products are imported almost exclusively from China, where the industry has rapidly developed under American, European, and Japanese capital. England, the center of the egg trade, usually has taken the greater part of Chinese exports. American receipts are chiefly at New York, Seattle, and San Francisco.

Statistics of imports of eggs and egg products follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

WHOLE EGGS, FROZEN.

| | Pounds. | | | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | 1,099,251 | \$142,296 | \$21,985 | 15.45 |
| 1919..... | 3,104,687 | 519,784 | 62,094 | 11.95 |
| 1920..... | 9,187,355 | 1,503,932 | 183,747 | 12.22 |
| 1921 (9 months)..... | 6,707,659 | 982,284 | | |

YOLK OF EGGS, FROZEN OR DRIED.

| | | | | |
|----------------------|-----------|-------------|-----------|-------|
| 1918..... | 7,132,207 | \$2,204,140 | \$220,309 | |
| 1919..... | 6,737,847 | 2,649,259 | 264,926 | 10.00 |
| 1920..... | 9,109,774 | 3,443,048 | 344,305 | 10.00 |
| 1921 (9 months)..... | 9,017,652 | 2,472,128 | | |

EGG ALBUMEN, FROZEN OR LIQUID.

| | | | | |
|----------------------|-----------|-----------|----------|------|
| 1918..... | 1,424,128 | \$150,189 | \$14,241 | 9.45 |
| 1919..... | 2,573,271 | 399,643 | 25,733 | 6.44 |
| 1920..... | 3,113,008 | 582,426 | 31,130 | 5.34 |
| 1921 (9 months)..... | 4,004,356 | 523,997 | | |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 664.

DRIED EGGS.

Description and uses.—Either the whole egg broken out of the shell, or the white and yolk separated, on being subjected to the application of heat, have the water content (about 73 per cent) reduced by more than 90 per cent; thus a pound of the dried product equals from 36 to 40 eggs in the shell.

From 10 to 11 eggs in the shell will make 1 pound of frozen or one-third pound dried egg. One pound of dried egg equals 3.5 pounds of

frozen or liquid whole egg, or 3 dozen shell eggs. One pound of dried albumen is equivalent to about 7 pounds of frozen or liquid albumen. One pound of dried yolk is equivalent to about 2 pounds of frozen or liquid yolk.

Dried eggs have a wider range of usefulness than frozen eggs, since the dried product can be used in the household, and in camps, etc., where fresh eggs and refrigerating facilities are not available. Dried eggs are also used somewhat in hospitals and other institutions. Dried whole eggs and yolks are mainly consumed by pie and pastry bakers; dried albumen by cake, pie, and pastry bakers and confectioners. Quantities are also used in the arts.

Production.—In the United States the drying industry is of little importance as compared with that of freezing eggs. It has virtually ceased since 1916 owing to competition with China.

Imports of dried-egg products, almost exclusively from China, increased enormously after the reduction of the import duties. American plants operating in China supply only a small part of domestic consumption. Prior to 1914 imports were negligible, the domestic demand being supplied by domestic manufacturers. In 1914 the total imports of dried-egg products amounted to about 1,700,000 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

DRIED EGGS.

| | Pounds. | | | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | 366,189 | \$124,785 | \$36,619 | 29.34 |
| 1919..... | 2,643,302 | 1,562,587 | 264,330 | 16.92 |
| 1920..... | 2,719,276 | 1,251,843 | 271,928 | 21.72 |
| 1921 (9 months)..... | 1,420,802 | 599,271 | ..... | ..... |

DRIED EGG ALBUMEN.

| | | | | |
|----------------------|-----------|-------------|----------|-------|
| 1918..... | 2,311,979 | \$1,533,107 | \$69,359 | 4.52 |
| 1919..... | 4,080,361 | 4,148,522 | 121,811 | 2.94 |
| 1920..... | 2,719,582 | 3,041,968 | 81,587 | 2.68 |
| 1921 (9 months)..... | 1,958,609 | 1,626,199 | ..... | ..... |

Exports of yolk and canned eggs have never been of more than slight importance. They were valued at less than \$50,000 in prewar years. Recent exports, which have gone largely to Great Britain, have been valued by calendar years as follows: 1918, \$718,066; 1919, \$131,747; 1920, \$309,651; 1921 (nine months), \$126,575.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Paragraphs 4 (chemical schedule), 203 and 204 (agricultural schedule), and 478 (free list) of the act of 1913, all relating to eggs and egg products, have been combined in one dutiable paragraph in the agricultural schedule of H. R. 7456. This combination is warranted by the nature and uses of these products. The more definite term "eggs of poultry, in the shell" has been substituted for "eggs of poultry" (par. 478, act of 1913) or

"eggs, not specially provided for in this section" (act of 1909), in order definitely to include all eggs in the shell, whether or not treated by a preservative. The adjective "whole" has been added to the provisions for dried and frozen eggs to differentiate them from the separated yolk and albumen; separate provision has been made for dried and frozen egg yolk, and the clause with respect to containers has been dropped as unnecessary.

PARAGRAPH 714.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 714. Horses and mules, valued at not more than \$150 per head, \$30 per head; valued at more than \$150 per head, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 227. Horses and mules, valued at one hundred and fifty dollars or less per head, thirty dollars per head; if valued at over one hundred and fifty dollars, twenty-five per centum ad valorem.

PAR. 186. Horses and mules, 10 per centum ad valorem.

HORSES.

Description and uses.—This paragraph applies only to horses of common stock. Animals of recognized breed, immigrants' teams, and animals imported temporarily for show purposes are free. (See pars. 1507 and 1508.) The average farm price of horses reached \$104 in 1918, but declined to \$82 in 1921. Prices of five or six classes are quoted on the Chicago market, in 1920 ranging from an average of \$88 for "southern chunks" to \$242 for "drafters."

Production.—The total number of horses on farms and elsewhere declined from 23,016,000 in 1910 to 21,492,000 in 1920. Most of this decline was in the number not on farms. The decrease was no doubt chiefly due to the increased competition of motor cars, trucks, and tractors. The registration of motor cars in 1920 was 8,370,000 and of trucks 842,000, while in the same year 163,000 tractors were sold in the country.

Imports of horses, principally from Mexico, Canada, France, and Belgium, reached the maximum in 1914, after the reduction of the duty from 25 per cent to 10 per cent. In that year a total dutiable import of 23,866 horses was valued at \$924,417, producing a revenue of \$107,191. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | 3,376 | \$432,221 | \$43,214 | ..... |
| 1919..... | 4,188 | 500,964 | 50,084 | 10 |
| 1920..... | 3,835 | 562,036 | 56,131 | ..... |
| 1921 (9 months)..... | 2,237 | 348,346 | ..... | ..... |

Exports reached 357,553 head in 1916. In that year France received 52.4 per cent of the horses, the United Kingdom, 13.6 per cent, and Canada, 23 per cent. The exports to France and Italy were large

during the war. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------|-------------|-------------|-------------|---------------------|
| Number..... | 51,170 | 19,691 | 14,338 | 10,180 |
| Value..... | \$9,858,475 | \$2,856,896 | \$2,716,400 | \$1,365,620 |

In 1920, half of the exports went to Canada. Other important destinations were Mexico, Cuba, and the United Kingdom.

MULES.

Production.—Statistics show a steady increment in the number of mules on farms, the increase being from 4,210,000 in 1910 to 5,451,000 in 1920. The average farm value in January, 1921, was \$116. Texas has 792,000, and Missouri, Georgia, Mississippi, Arkansas, and Alabama each have over 300,000 mules.

Imports reached their maximum in 1914 after the reduction of duty, numbering 16,992, with a value of \$428,380. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,426 | \$41,946 | \$4,195 | 10 |
| 1919..... | 560 | 24,446 | 2,295 | |
| 1920..... | 490 | 43,226 | 4,275 | |
| 1921 (9 months)..... | 132 | 16,245 | | |

Exports increased from an average of 5,125 for the years 1910-1914 to 136,689 in 1917. Canada, Cuba, and Mexico were the important destinations before the war, but in 1915 the United Kingdom received 61,160. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------|-------------|-------------|-------------|---------------------|
| Number..... | 17,319 | 7,122 | 9,089 | 5,015 |
| Value..... | \$3,360,653 | \$1,189,180 | \$1,866,343 | \$383,513 |

In 1920, of the total number exported, Mexico received 57 per cent and Cuba, 22 per cent.

PARAGRAPH 715.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 715. Black or silver foxes, \$350 per head.

ACT OF 1909.

ACT OF 1913.

PAR. 229. All other live animals, not specially provided for in this section, twenty per centum ad valorem.

PAR. 187. All live animals not specially provided for in this section, 10 per centum ad valorem.

BLACK OR SILVER FOXES.

Description and uses.—The black or silver fox is raised in captivity for its beautiful and valuable pelt. The fur is especially prized for neckpieces and muffs. Only in recent years has the industry been developed in Michigan, Wisconsin, Minnesota, New York, Massachusetts, and other northern States, but it has flourished in Canada, especially in Prince Edward Island, Nova Scotia, New Brunswick, and Quebec for the last 40 years.

Ordinary pelts range in price from \$50 to \$200 or \$300, while the better pelts bring as much as \$1,000 to \$1,200. A common price for a pair of good breeding animals is \$2,500, although poorer animals are sold as low as \$500 per pair.

Production.—In April, 1921, there were over 200 fox farms in the United States, having about 5,000 breeding animals. The number was doubtless considerably increased during the year. In Canada there were 424 fox farms in 1919, possessing 7,181 silver foxes, valued at \$3,111,000.

Imports consist mostly of breeding animals from the eastern Provinces of Canada, where the breeders' association has established a stud book for pure-bred animals. No separate statistics of imports are available.

Exports.—None recorded.

Important changes in classification.—New specific provision.

PARAGRAPH 716.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 716. Live animals, vertebrate and invertebrate, not specially provided for, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 229. All other live animals, not specially provided for in this section, twenty per centum ad valorem.

PAR. 187. All live animals not specially provided for in this section, 10 per centum ad valorem.

PAR. 619. * * * all other domestic live animals suitable for human food not otherwise provided for in this section [Free].

LIVE ANIMALS, N. S. P. F.

Production figures are not available.

Imports were valued at \$153,373 in 1916 and \$152,983 in 1917, yielding revenues of \$15,337 and \$15,272, respectively. Detailed statistics for later years follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|-------------------|----------------|---------|-------|------------------|
| ASSES AND BURROS. | | | | |
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | 236 | \$9,370 | \$937 | 10 |
| 1919..... | 45 | 361 | 9 | ..... |
| 1920..... | 39 | 616 | 34 | ..... |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|---------|-------|------------------|
| DOGS. | | | | |
| 1918..... | 197 | \$5,917 | \$592 | 10 |
| 1919..... | 840 | 28,489 | 2,849 | 10 |
| 1920..... | 1,235 | 46,850 | 4,685 | 10 |
| 1921 (9 months)..... | 1,059 | 38,892 | ..... | ..... |

ALL ANIMALS NOT SPECIALLY PROVIDED FOR.

| | | | | |
|----------------------|-------|----------|---------|-------|
| 1918..... | ..... | \$91,316 | \$9,132 | 10 |
| 1919..... | 5,135 | 208,592 | 20,846 | ..... |
| 1920..... | 5,436 | 861,424 | 35,142 | 10 |
| 1921 (9 months)..... | 4,931 | 89,033 | ..... | ..... |

Exports of all other animals (including fowls), for calendar years, have been as follows: 1918, \$288,645; 1919, \$464,702; 1920, \$702,218; 1921 (9 months), \$797,318.

Important changes in classification.—The words “vertebrate and invertebrate” have been added to make the provision applicable to bees, snails, frogs, lizards, etc., as well as to quadruped animals. Domestic live animals for food are exempt from duty under paragraph 619 of the act of 1913.

PARAGRAPH 717.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 717. Honey, 2½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 259. Honey, twenty cents per gallon. PAR. 206. Honey, 10 cents per gallon.

HONEY.

Description and uses.—Commercial honey is divided into two classes—comb and extracted. Comb honey and the better grades of extracted honey are used for table purposes, while the darker and the poorer grades of extracted honey are used in the manufacture of fancy cakes and biscuits. Honey possesses a special property which preserves and extends the keeping qualities of foodstuffs. Invert sugar is the baker's substitute for honey.

Production on farms was 61,099,290 pounds in 1899, 54,814,890 pounds in 1909, and 55,224,061 pounds in 1919. These figures include only the farm production. If the production in small towns and on small farms be included, the total would approximate 150,000,000 to 200,000,000 pounds. Beekeeping is a side line with many farmers and gardeners, but is gradually becoming more important as a main enterprise.

Imports of honey for 1910–1914 averaged 104,517 gallons, valued at \$57,195, principally from Cuba, Mexico, and Haiti. Following the reduction of the duty from 20 cents to 10 cents per gallon,

imports in 1914 declined to 75,079 gallons, valued at \$38,665. They increased greatly during the war, but were in large part reexported. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|-----------------|-----------|----------|
| | <i>Gallons.</i> | | |
| 1918..... | 151,834 | \$237,820 | \$14,340 |
| 1919..... | 211,346 | 279,860 | 19,304 |
| 1920..... | 933,215 | 1,235,759 | 85,037 |
| 1921 (9 months)..... | 111,767 | 76,696 | ..... |

In 1920, imports from Cuba amounted to over 40 per cent of the total; those from the Dominican Republic, to 16 per cent; from Haiti, to about 10 per cent.

Exports for 1910-1914 averaged \$154,325. They were \$135,669 in 1914, over 55 per cent going to Germany. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-----------|---------------------|
| Quantity (pounds)..... | 11,598,857 | 9,075,602 | 1,539,878 | 1,147,049 |
| Value..... | \$2,223,396 | \$1,955,091 | \$265,352 | \$141,100 |

In 1920 the United Kingdom received 28 per cent of our exports; the Netherlands, 21 per cent.

Important changes in classification.—The unit for levying duty has been changed from "gallon" to "pound."

PARAGRAPH 718.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 718. All fish, fresh, frozen, or packed in ice, not specially provided for, 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 271. Fresh-water fish not specially provided for in this section, one-fourth of one cent per pound.

PAR. 483. Fresh-water fish, and all other fish not otherwise specially provided for in this section [Free].

PAR. 272. * * *; herrings, fresh, one-fourth of one cent per pound; eels and smelts, fresh or frozen, three-fourths of one cent per pound.

PAR. 273. Fish, fresh, * * * frozen, packed in ice or otherwise prepared for preservation, not specially provided for in this section, three-fourths of one cent per pound; * * * mackerel, halibut, or salmon, fresh, * * * one cent per pound.

FISH, FRESH, FROZEN, OR PACKED IN ICE.

Description and uses.—Under this paragraph are included all fresh fish except shellfish, sea herring, and tuna. Because of the variable

habitat of many fish it is difficult to classify them, except arbitrarily, into the groupings of fresh-water or salt-water fish. The places of capture will, in a general way, determine whether they are of the fresh or salt-water varieties. Herring and cod are the world's most important fish.

The average consumption of fish per capita in various countries is as follows: The United States, about 20 pounds; Japan, 200; the United Kingdom, 65; Canada, 57; Sweden, 52; Norway, 44; and Denmark, 39 pounds. The United Kingdom leads the world in the amount and value of fisheries products; Japan, Norway, the United States, Canada, and France follow.

Production statistics are not uniformly available for recent years. It is estimated, however, that the present annual catch of United States fisheries amounts to 2,500,000,000 pounds, with a value of at least \$85,000,000. In 1908, the latest year for which detailed statistics have been obtained, the total was 1,893,454,000 pounds, valued at \$54,031,000. Oysters ranked first, comprising 29 per cent of the total value of the 1908 catch; the fish next in importance were salmon, cod, shad, lobsters, clams, squeteague, and halibut. The fisheries of the Atlantic coast division contributed nearly two-thirds of the value of products, an output which corresponds to the proportion credited to this division of the total national capital invested in fishing vessels and boats and to the number of persons engaged. Of the domestic fresh-water fish the more important are the carp, lake herring, catfish, trout, pike perch, yellow perch, and white fish. The lake herring or ciscoe is the most important fish of the Great Lakes region, the catch in 1908 being 41,118,000 pounds, valued at \$989,000. The carp led the fresh-water fish, with 42,763,000 pounds, valued at \$1,135,000.

In 1908 the catch of cod was 110,054,000 pounds, valued at \$2,914,000; of shad 27,641,000 pounds worth \$2,113,000; of the common weakfish or squeteague, which is abundant along the Atlantic coast, 49,869,000 pounds, valued at \$1,776,000. Halibut is found in the North Atlantic and Pacific Oceans, the 1908 catch being 34,441,000 pounds, valued at \$1,562,000. Menhaden, the most abundant fish found in domestic waters is valued mainly for oil and guano; the catch in 1908 was 394,776,000 pounds, valued at \$893,000. The mackerel catch was 12,103,000 pounds, valued at \$848,000; that of herring, 125,050,000 pounds, valued at \$796,000.

Imports of all fish, in the fiscal years 1913 and 1914, were valued at \$15,330,280 and \$18,758,743. In the calendar year 1920 the imports were 262,671,266 pounds, valued in foreign markets at \$34,122,423. Of this total, shellfish (chiefly crab meat from Japan and lobster from Canada) constituted \$6,345,233. Cured or preserved fish amounted to 168,723,182 pounds, valued at \$17,241,478, the principal items in this group consisting of cod, haddock, hake, and pollock, chiefly from Canada and Newfoundland; sardines, chiefly from Norway, Portugal, and France; herring and mackerel, chiefly from the United Kingdom, Canada, Newfoundland, and Holland. Fresh fish, exclusive of shellfish, amounted to 113,174,345 pounds, valued at \$10,535,712, and were received mostly from Canada. The great bulk of the imported salmon, halibut, and smelts are received in the fresh state; most of the imported cod, haddock, hake, and pollock are cured or preserved, and the herring and mackerel are pickled or salted.

More detailed information concerning imports since 1917 of fresh fish are given by calendar years in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-------------|--------------|--------------|---------------------|
| Fresh-water fish: | | | | |
| Quantity (pounds)..... | 41,442,824 | 46,790,144 | 46,316,440 | 33,395,968 |
| Value..... | \$3,200,435 | \$3,818,607 | \$4,486,248 | \$2,801,917 |
| Halibut, fresh, frozen, or packed in ice: | | | | |
| Quantity (pounds)..... | 16,783,580 | 17,471,860 | 17,585,564 | 16,636,092 |
| Value..... | \$2,079,694 | \$2,335,086 | \$2,604,813 | \$2,181,532 |
| Cod, haddock, hake, and pollock, fresh, frozen, or packed in ice: | | | | |
| Quantity (pounds)..... | 11,350,424 | 9,146,618 | 8,301,218 | 7,294,426 |
| Value..... | \$723,513 | \$468,187 | \$449,176 | \$321,011 |
| Smelts, fresh or frozen: | | | | |
| Quantity (pounds)..... | 5,154,783 | 6,202,946 | 3,284,641 | 4,357,995 |
| Value..... | \$637,506 | \$755,696 | \$747,152 | \$573,814 |
| Salmon, fresh, frozen, or packed in ice: | | | | |
| Quantity (pounds)..... | 15,192,708 | 13,746,948 | 5,649,599 | 9,401,631 |
| Value..... | \$916,707 | \$826,067 | \$664,216 | \$979,237 |
| Mackerel, fresh, frozen, or packed in ice: | | | | |
| Quantity (pounds)..... | 6,067,238 | 6,073,698 | 5,378,544 | 4,315,860 |
| Value..... | \$656,107 | \$548,874 | \$543,807 | \$400,910 |
| Eels, fresh or frozen: | | | | |
| Quantity (pounds)..... | 388,049 | 459,059 | 665,270 | 140,787 |
| Value..... | \$43,206 | \$47,632 | \$69,058 | \$14,288 |
| Other fish, n. s. p. f.—fresh, frozen, or packed in ice: | | | | |
| Quantity (pounds)..... | 6,910,936 | 30,086,176 | 14,973,555 | 7,108,789 |
| Value..... | \$538,256 | \$1,206,696 | \$812,651 | \$586,406 |
| Total fresh fish (except shellfish): | | | | |
| Quantity (pounds)..... | 113,060,793 | 135,605,168 | 113,174,345 | 87,231,399 |
| Value..... | \$9,073,944 | \$10,129,719 | \$10,535,712 | \$7,964,517 |

Of the 1920 imports of "fish, fresh, frozen, or packed in ice," fresh-water fish amounted to 41 per cent in quantity and 43 per cent in value. The following fish amounted to the specified percentages of quantity and value, respectively: Halibut, 16 and 25 per cent; cod, haddock, hake, and pollock, 7 and 4 per cent; herring, 7 and 2 per cent; smelts, 6 and 7 per cent; salmon, 5 and 6 per cent; mackerel, 5 and 5 per cent; and all other, n. s. p. f., 13 and 8 per cent.

Exports of all fish in the year 1914 amounted to \$12,842,173, of which salmon, chiefly canned and cured, constituted about 80 per cent and oysters 5 per cent. In 1920, exports were \$31,498,507, of which salmon was less than half. Between 1914 and 1920 a large export trade developed in other canned and cured fish, such as canned tuna and sardines, and cured or preserved cod, hake, haddock, and pollock, the prewar exports of which had been small.

Our exports of fresh fish have been relatively small. Exports of "fresh fish, except salmon" in 1914 were 6,534,460 pounds, valued at \$366,871, most of the shipments going to Canada and Cuba. Unknown quantities of fresh salmon are included in the export classification "salmon, except canned and pickled," under which was recorded in 1914 a total value of \$2,195,309. Later export returns, for fresh fish, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-----------|------------|-----------|---------------------|
| Fresh fish, except salmon: | | | | |
| Quantity (pounds)..... | 8,922,815 | 10,162,596 | 9,624,692 | 7,451,706 |
| Value..... | \$832,968 | \$919,093 | \$840,641 | \$575,623 |
| Salmon (except canned and pickled): | | | | |
| Value..... | \$313,637 | \$842,464 | \$359,364 | \$320,568 |

Important changes in classification.—The fish covered by this paragraph are exempt from duty under paragraph 483 of the act of 1913.

With a view to simplification, all fresh fish (except shellfish, sea herring, and tuna), whether fresh water or salt water varieties, have been provided for in this paragraph.

PARAGRAPH 719.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 719. Salmon, pickled, salted, smoked, kippered, or otherwise prepared or preserved, 25 per centum ad valorem; finnan haddie, 25 per centum ad valorem; fish, dried, salted or unsalted, 1½ cents per pound; fish, skinned or boned, including herring skinned, in bulk, or in immediate containers weighing with their contents more than thirty pounds each, 2½ cents per pound, including the weight of the immediate container with the contents.

ACT OF 1909.

ACT OF 1913.

PAR. 273. Fish, * * * smoked, dried, salted, pickled, * * * or otherwise prepared for preservation, not specially provided for in this section, three-fourths of one cent per pound; fish, skinned or boned, one and one-fourth cents per pound; * * * salmon, * * * pickled, or salted, one cent per pound.

PAR. 216. * * * all other fish, except shellfish, in tin packages, not specially provided for in this section, 15 per centum ad valorem; * * * fish, skinned or boned, ¾ of 1 cent per pound.

PAR. 483. * * * all other fish not otherwise specially provided for in this section [Free].

SALMON.

(See Survey G-19.)

Description and uses.—Salmon, finnan haddie, herring, mackerel, cod, haddock, hake, and pollock, and other fish, dried, salted or unsalted, skinned or boned, and prepared or preserved, are included under this heading. The salmon is preeminent among canned fish, sardines and tuna ranking next. The two last named are dutiable under paragraph 721.

Production.—The salmon is caught in immense quantities in the rivers emptying into the Pacific, from San Francisco to the straits in Alaska, the industry centering in Alaska and on the Columbia River and Puget Sound. Five general species are packed, varying in size, in color and texture of the flesh, and in flavor. The red or sockeye and humpback or pink comprise over half of the canned salmon. Other brands are chum or keta, coho or silver, and king or spring. The prejudice against the paler varieties arises from appearance rather than quality.

In 1918 the domestic catch of salmon was 613,910,343 pounds, of which Alaska contributed 516,723,167 pounds and the Pacific coast States the remainder. The products of the salmon fisheries are either canned or mild cured, smoked, pickled, or sold fresh or frozen. The great bulk of the catch is canned, and of this canned salmon the United States packs about 90 per cent of the world's output. In the census year 1919, the domestic pack of canned salmon was approximately

300,000,000 pounds, valued at \$56,467,000; the production of mild cured salmon was about 13,747,000 pounds, and of smoked and dried salmon 5,574,273 pounds. The Alaskan output of pickled salmon in 1918 was about 11,370,000 pounds.

Imports in 1914 of salmon other than fresh, were 1,173,261 pounds, valued at \$90,783. Practically all of such imports were of pickled or salted salmon from Canada. Imports since 1917 by calendar years follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

SALMON, PICKLED OR SALTED.

| | Pounds. | | | Per cent. |
|----------------------|-----------|----------|--|-----------|
| 1918..... | 637,622 | \$81,984 | | |
| 1919..... | 1,004,978 | 163,350 | | |
| 1920..... | 718,570 | 117,248 | | |
| 1921 (9 months)..... | 505,808 | 97,279 | | |

SALMON IN TIN PACKAGES.

| | | | | |
|----------------------|-----------|-----------|----------|----|
| 1918..... | 2,393,566 | \$346,556 | \$51,983 | 15 |
| 1919..... | 2,740,572 | 348,708 | 52,306 | 15 |
| 1920..... | 1,509,319 | 237,026 | 35,554 | 15 |
| 1921 (9 months)..... | 80,160 | 19,896 | | |

SALMON, DRIED OR SMOKED.

| | | | | |
|----------------------|---------|----------|--|--|
| 1918..... | 179,555 | \$28,101 | | |
| 1919..... | 139,736 | 27,161 | | |
| 1920..... | 306,364 | 56,755 | | |
| 1921 (9 months)..... | 183,279 | 47,556 | | |

Exports of canned salmon in 1914 were 87,750,920 pounds, valued at \$7,799,293; and of all other salmon, fresh or cured, \$2,195,309. Later statistics of exports for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|--------------|---------------------|
| Salmon, canned: | | | | |
| Quantity (pounds)..... | 91,101,734 | 169,750,672 | 64,832,363 | 28,402,776 |
| Value..... | \$13,149,307 | \$23,644,706 | \$12,186,733 | \$4,287,849 |
| Salmon, pickled: | | | | |
| Quantity (barrels)..... | 2,185 | 22,256 | 28,636 | 22,305 |
| Value..... | \$55,097 | \$947,694 | \$1,402,681 | \$1,155,011 |
| All other salmon..... | \$313,637 | \$442,464 | \$359,364 | \$320,568 |

Important changes in classification.—See General Notes on Paragraph, page 675.

FINNAN HADDIE.

Description and uses.—Finnan haddie is a lightly pickled and lightly smoked product of the haddock.

Production in 1919 was 6,707,687 pounds, valued at \$579,000, compared with 4,095,693 pounds, valued at \$2,759,000 in 1914.

Imports and exports.—Not separately stated.

FISH, DRIED, SALTED, OR UNSALTED.

Description and uses.—This group includes chiefly the cod, haddock, hake, pollock, and cusk; they are generally known as ground fish, and are characterized by a low percentage of oil in the tissues, the oil being stored in the livers. Large quantities are further prepared by skinning and boning.

Production of all smoked or dried fish amounted in 1919 to 39,362,345 pounds, with a value of \$5,733,000. This census classification, however, appears chiefly to include smoked fish. The bulk of the dry salted fish seems to have been reported under "salted or pickled fish" (see Production, p. 679).

Import returns do not segregate dried and other cured forms. The chief items in the imports of dried fish, however, appear to be the cod and related fish, and herring. The following table gives a comparison for the fiscal year 1914 and for later calendar years of imports of dried fish, exclusive of salmon. (In a number of instances the import returns do not separate dried from other cured forms.)

| | 1914 | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|-------------|------------------|
| Cod, haddock, hake, and pollock, dried, smoked, salted, or pickled: | | | | | |
| Quantity (pounds)..... | 38,446,163 | 83,458,448 | 79,460,202 | 49,141,413 | 32,465,066 |
| Value..... | \$1,988,970 | \$7,020,357 | \$7,157,834 | \$4,229,638 | \$2,157,743 |
| Hallbut, dried or smoked: | | | | | |
| Quantity (pounds)..... | 36,683 | 40,565 | 74,348 | 97,231 | 85,514 |
| Value..... | \$1,930 | \$3,086 | \$9,783 | \$11,375 | \$10,899 |
| Herring, dried or smoked: | | | | | |
| Quantity (pounds)..... | 8,002,304 | 4,378,849 | 6,120,915 | 10,122,475 | 5,179,197 |
| Value..... | \$218,897 | \$297,044 | \$397,265 | \$626,168 | \$160,735 |
| Other fish, dried or smoked: | | | | | |
| Quantity (pounds)..... | 7,679,010 | 4,592,212 | 6,126,691 | 4,941,279 | 2,173,130 |
| Value..... | \$517,150 | \$589,966 | \$1,066,587 | \$723,300 | \$1,342,246 |

Exports, likewise, do not segregate dried fish. The available data for recent years are quoted below:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|------------------|
| Cod, haddock, hake, and pollock, dried, smoked, or cured: | | | | |
| Quantity (pounds)..... | 31,404,648 | 42,058,547 | 33,768,409 | 14,799,291 |
| Value..... | \$4,221,858 | \$6,560,673 | \$4,818,693 | \$1,427,698 |
| Herring, dried, smoked, or cured: | | | | |
| Quantity (pounds)..... | 4,295,251 | 5,164,727 | 7,863,518 | 3,469,290 |
| Value..... | \$437,991 | \$502,416 | \$600,328 | \$199,618 |

Important changes in classification.—See General Notes on Paragraph, page 675.

FISH, SKINNED OR BONED.

Description and uses.—Fish falling under this class represent an advanced state of preparation, chiefly of the group cod, haddock, hake, and pollock. It is probable that the item of greatest importance under "fish, skinned or boned," is the cod.

Production of boned fish in 1908 amounted to 38,307,000 pounds, valued at \$3,526,000. The output of cod, boned, was 90 per cent in value and 84 per cent in quantity of the total. Herring and haddock

were the other two fish of some importance; pollock, hake, and cusk were reported in small amounts.

Imports increased from 2,382,914 pounds in 1913 to 3,154,899 pounds in 1914, and in value from \$176,742 to \$244,775, respectively, the greater part probably coming from Canada. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem |
|----------------------|----------------|-----------|----------|-----------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 2,374,938 | \$354,188 | \$17,812 | 5.03 |
| 1919..... | 2,871,551 | 436,442 | 21,537 | 4.93 |
| 1920..... | 3,177,318 | 442,362 | 23,830 | 5.39 |
| 1921 (9 months)..... | 2,028,404 | 285,605 | | |

Exports.—None recorded.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Most of the fish enumerated in this paragraph come within paragraph 483 of the free list of the act of 1913. The provision for salmon is intended to include salmon, whether canned, smoked, or prepared or preserved in any manner, except when packed in oil or oil and other substances (see par. 721). Fresh salmon is included in paragraph 718, with all other fresh fish n. s. p. f.

A new provision has been outlined for finnan haddie. This fish has not been specially provided for in former tariff acts.

The clause "fish, dried, salted or unsalted," is intended to cover the group, cod, haddock, pollock, hake, cusk, and stock fish (a Norwegian dried, unsalted product) and any other fish similarly prepared.

The clause "fish, skinned or boned, including herring skinned, in bulk, or in immediate containers weighing * * *," includes fish listed in paragraph 718, in an advanced state of preparation. When packed in containers of 30 pounds or less, they would be dutiable under the second provision in paragraph 721; and when green or wet salted, under the last provision of paragraph 721.

Suggested changes.—The new plan of fixing duties upon gross weight may avoid some losses to importers through the occasional opening of barrels to verify the net weights stamped thereon. It has been represented to the Commission, however, that assessment of duty upon brine would tend to reduce the quantity of brine and impair the quality of the imported product.

PARAGRAPH 720.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 720. Herring and mackerel, pickled or salted, whether or not boned, when in bulk, or in immediate containers weighing with their contents more than thirty pounds each, 1½ cents per pound, including the weight of the immediate container and the brine, pickle, and salt.

ACT OF 1909.

PAR. 272. Herrings, pickled or salted,
* * * one-half of one cent per pound;
* * *

PAR. 273. * * * mackerel, * * *
pickled, or salted, one cent per pound.

ACT OF 1913.

PAR. 483. * * * all other fish not
otherwise specially provided for in this
section [Free].

HERRING AND MACKEREL.

Description and uses.—Herring is sold fresh to a limited extent, only. The bulk of the catch is salted or pickled, and smoked, sold as bloaters, or hard smoked and dried. The last named are further prepared by skinning and boning. A small quantity is preserved by canning. The immature herring is the fish used for sardines in the Maine sardine industry. A cured herring industry using the Scotch method of salt curing has been developed in Alaska during the past few years. The product is the equal of the Scotch cured herring.

Mackerel, taken on the North Atlantic Coast, are extensively marketed as fresh fish. The surplus, after the fresh fish markets of this country are supplied, goes to the salters for preparation as salt mackerel. In localities remote from fresh fish markets the catches are generally salted. A relatively small quantity of mackerel is preserved by canning.

Production.—Herring are taken in greatest abundance on the North Atlantic coast and on the Pacific Northwest coast from Puget Sound to Alaska. Fresh herring taken off the New England coast in 1919 amounted to 97,630,195 pounds, valued at \$589,093. The catch off the Pacific coast was 2,906,033 pounds in 1915. The products of the herring fisheries in Alaska in 1917 amounted to \$562,002. The domestic catch of mackerel is taken chiefly off the New England coast. In 1919 the fresh mackerel from this region amounted to 14,527,950 pounds, valued at \$1,451,490.

The total production of salted or pickled herring for continental United States and Alaska in 1919 amounted to 18,823,979 pounds, valued at \$1,101,000, compared with 22,150,974 pounds, valued at \$669,000 in 1914. The total production of salted and pickled mackerel in 1919 amounted to 5,162,900 pounds, valued at \$1,006,000, compared with 6,224,313 pounds, valued at \$520,000 in 1914.

Imports in 1914 of herring, pickled or salted, amounted to 93,769,564 pounds, valued at \$3,373,249. In the same year imports of mackerel, pickled or salted, amounted to 31,496,847 pounds, valued at \$1,729,718. Later statistics, for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------------|-------------|-------------|-------------|---------------------|
| Herring, pickled or salted: | | | | |
| Quantity (pounds)..... | 66,564,421 | 68,024,884 | 50,449,414 | 30,588,329 |
| Value..... | \$3,761,616 | \$4,663,693 | \$3,157,010 | \$1,929,169 |
| Mackerel, pickled or salted: | | | | |
| Quantity (pounds)..... | 15,086,402 | 19,129,330 | 19,864,291 | 6,330,533 |
| Value..... | \$1,894,765 | \$2,389,769 | \$1,868,540 | \$440,305 |

Exports.—Not shown separately. See "Fish, n. s. p. f. pickled or salted" (par. 721).

Important changes in classification.—Fish covered by this paragraph are exempt from duty (unless boned) under paragraph 483 of the act of 1913. Paragraph 720 includes salt and pickled herring and mackerel, when in packages weighing more than 30 pounds each; these are usually packed commercially in half barrels and barrels, as the Scotch-cured herring. Herring and mackerel in barrels and half barrels also come from Norway and Holland. The paragraph is so worded as to obviate the necessity, in determining the dutiable weight, of opening the packages in order to weigh the fish, exclusive of the container, brine, pickle, and salt.

“Whether or not boned” has been added in order to include in this provision, rather than in paragraph 719, such products as Bismarck herring, rollmops, roulade, etc., in pickle or spiced pickle, when in packages conforming to the sizes specified.

When herring and mackerel of the above descriptions are imported in containers weighing 30 pounds or less, they are intended to come within paragraph 721.

Suggested changes.—The fish paragraphs have in general been arranged according to the degree of advancement in the preparation of the products. For this reason paragraphs 719 and 720 should be transposed. (See also *Suggested changes* on page 675.)

PARAGRAPH 721.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 721. Fish (except shellfish), by whatever name known, packed in oil or in oil and other substances, 26 per centum ad valorem; all fish (except shellfish), pickled, salted, smoked, kippered, or otherwise prepared or preserved (except in oil or in oil and other substances), in immediate containers weighing with their contents not more than thirty pounds each, 20 per centum ad valorem; in bulk or in immediate containers weighing with their contents more than thirty pounds each, 1½ cents per pound, including the weight of the immediate container with the contents.

ACT OF 1909.

PAR. 270. Fish (except shellfish) by whatever name known, packed in oil, in bottles, jars, kegs, tin boxes, or cans, shall be dutiable as follows: When in packages containing seven and one-half cubic inches or less, one and one-half cents per bottle, jar, keg, box, or can; containing more than seven and one-half and not more than twenty-one cubic inches, two and one-half cents per bottle, jar, keg, box, or can; containing more than twenty-one and not more than thirty-three cubic inches, five cents per bottle, jar, keg, box, or can; containing more than thirty-three and not more than seventy cubic inches, ten cents per bottle, jar, keg, box, or can; all other fish (ex-

ACT OF 1913.

PAR. 216. Fish, except shellfish, by whatever name known, packed in oil or in oil and other substances, in bottles, jars, kegs, tin boxes, or cans, 25 per centum ad valorem; all other fish, except shellfish, in tin packages, not specially provided for in this section, 15 per centum ad valorem; * * *

PAR. 483. * * * all other fish not otherwise specially provided for in this section [Free].

ACT OF 1909.

ACT OF 1913.

cept shellfish) in tin packages, thirty per centum ad valorem; fish in packages, containing less than one-half barrel, and not specially provided for in this section, thirty per centum ad valorem; * * *

PAR. 272. Herrings, pickled or salted, smoked or kippered, one-half of one cent per pound; * * *

PAR. 273. Fish, * * * smoked, dried, salted, pickled, * * * or otherwise prepared for preservation, not specially provided for in this section, three-fourths of one cent per pound; * * * mackerel, halibut, or salmon, * * * pickled or salted, one cent per pound.

CANNED FISH, EXCEPT SHELLFISH.

(See Survey G-19.)

Description and uses.—Sardines, tuna, and anchovies make up nearly all of the total of fish packed in oil, or in oil and other substances. The sardine is by far the most important. The Maine sardine is prepared from the small herring; the California sardine from the pilchard, a fish closely resembling the French pilchard. The sprat, pilchard, and brisling, used in Europe for sardines, are usually imported canned in oil. Anchovies packed in oil are imported in small amounts. The tuna is the only important American fish, except sardines canned in oil.

Olive oil, peanut oil, and cottonseed oil are used in the preparation of the sardine, either as a frying substance or for canning. The variation in prices of sardines is largely due to varying methods of preparation, and to different costs of cottonseed oil and olive oils. Various sauces are also often added to impart flavoring.

Production.—The output of domestic sardines amounted to 5,012,199 cases in 1914, valued at \$6,238,933. In 1919 the output was 5,777,935 cases, valued at \$20,258,565. A small amount of the sardines is not canned in oil, the fish being smoked and prepared with sauces, usually mustard and tomato. The canning of tuna fish in oil has assumed considerable proportions recently, in 1914 amounting to 437,090 cases, valued at \$1,638,675, and in 1919, 874,380 cases, valued at \$5,710,188. About 63 per cent of the sardines were packed in Maine and the rest in California. All of the tuna is packed in California. Anchovies in oil are not packed in this country.

In 1919 the output of other canned fish (excluding clams, oysters, salmon, sardines, shrimp, and tuna, elsewhere separately given), was valued at \$2,234,000. Among the more important items in this group are canned shad and canned roe, mackerel, and herring.

Imports in 1914, of canned "fish in oil, or in oil and other substances" were \$3,220,696. These consisted largely of sardines from Norway, Portugal, France, and Spain, and of relatively small quantities of tuna and anchovies in oil.

Of other canned fish, imports in 1914 were: Canned herring, 4,643,158 pounds, \$373,648; canned mackerel, 579,239 pounds, \$41,514; other canned fish (excluding the fish above enumerated, as well as salmon and shellfish), \$761,100. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

CANNED SARDINES, TUNA, AND ANCHOVIES.

| | Pounds. | | | Per cent. |
|----------------------|------------|-----------|----------|-----------|
| 1918..... | | \$183,419 | \$45,855 | 25 |
| 1919..... | 5,408,454 | 1,946,154 | 486,538 | 25 |
| 1920..... | 11,734,613 | 3,316,022 | 829,005 | 25 |
| 1921 (9 months)..... | 12,827,424 | 2,708,163 | | |

CANNED HERRING.

| | | | | |
|----------------------|-----------|----------|---------|----|
| 1918..... | 343,468 | \$30,172 | \$4,526 | 15 |
| 1919..... | 1,089,820 | 147,414 | 22,112 | 16 |
| 1920..... | 2,963,701 | 434,731 | 65,210 | 15 |
| 1921 (9 months)..... | 1,256,927 | 167,031 | | |

CANNED MACKEREL.

| | | | | |
|----------------------|---------|---------|---------|----|
| 1918..... | 77,508 | \$8,473 | \$1,271 | 15 |
| 1919..... | 78,563 | 11,656 | 1,748 | 15 |
| 1920..... | 372,200 | 54,916 | 8,237 | 15 |
| 1921 (9 months)..... | 257,794 | 46,068 | | |

CANNED FISH, N. S. P. F.

| | | | | |
|----------------------|-----------|-----------|----------|----|
| 1918..... | | \$246,976 | \$37,046 | 15 |
| 1919..... | 9,148,355 | 1,496,771 | 224,516 | 15 |
| 1920..... | 7,920,204 | 1,462,441 | 219,366 | 15 |
| 1921 (9 months)..... | 3,091,694 | 509,767 | | |

Export statistics are not available for fish packed in oil. Canned fish (except salmon and shellfish) were valued at \$118,836 in 1914. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|------------------|
| Canned fish, except salmon and shellfish: Value..... | \$3,609,313 | \$6,755,074 | \$8,183,729 | \$1,043,276 |

ALL FISH, PREPARED OR PRESERVED, N. S. P. F., IN BULK, ETC.

Description and uses.—This is a catch-all clause for such prepared or preserved fish, shipped in bulk, as do not fall under the more specific provisions of other paragraphs relating to fish. Among the chief items under this general provision are pickled or salted cod, hake, haddock, and pollock, as well as halibut similarly prepared.

Production of salted or pickled fish in 1919 was 119,613,388 pounds. Two of the largest items therein, herring and mackerel, are provided for in other sections (see pars. 720 and 721, fish in containers of less than 30 pounds); the production of cod was 63,551,903 pounds, valued at \$12,687,000; haddock, 7,491,146 pounds, \$815,000; and a group designated as "all other" 24,583,460 pounds, \$3,628,000. A large proportion of the fish classified as "salted or pickled" by the

Census appears to be of dry salted fish, especially cod, haddock, hake, and pollock. These are included under paragraph 719 on page 674.

Import statistics are not sufficiently detailed to segregate such fish as would fall under this provision. Recent statistics for some kinds of pickled fish follow:

| Calendar year. | Quantity. | Value. |
|--|----------------|-----------|
| ALL FISH, N. S. P. F., PICKLED OR SALTED. | | |
| | <i>Pounds.</i> | |
| 1918 | 4,470,352 | \$272,523 |
| 1919 | 7,823,567 | 696,478 |
| 1920 | 4,995,532 | 389,040 |
| 1921 (9 months)..... | 1,164,777 | 105,798 |
| HALIBUT, PICKLED OR SALTED. | | |
| 1918 | 630 | \$106 |
| 1919 | 70,316 | 8,030 |
| 1920 | 246,678 | 17,016 |
| 1921 (9 months)..... | 6,400 | 1,249 |

Exports are combined with other classifications.

Important changes in classification.—The words “in bottles, jars, kegs, tin boxes, or cans” have been omitted, since mention of the method of putting up “in oil, or in oil and other substances,” appears sufficient without specification of containers.

The clause “all fish (except shellfish), pickled, salted, smoked, kippered, or otherwise prepared or preserved (except in oil or in oil and other substances), * * * is intended to include all fish not specially provided for.

Use of the term “canned” has been avoided because of possible difficulties of interpretation. A division at 30 pounds has been made, for the reason that while many of these products are packed in small containers, others, such as anchovies and herring, are packed in large hermetically sealed cans, and sold in such large cans to the retail trade, to grocers, etc.

The provision for fish in containers weighing over 30 pounds is intended to include fish in bulk, bundles, and large containers, and avoids the necessity of determining what weights constitute a half barrel or a barrel. Cod, hake, haddock, pollock, and cusk when green or wet salted, in bulk, come within this general provision.

Suggested changes.—See under *Suggested changes* on page 675.

PARAGRAPH 722.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 722. Crab meat, packed in ice or frozen, or prepared or preserved in any manner, 26 per centum ad valorem; fish paste and fish sauce, 28 per centum ad valorem; caviar and other fish roe for food purposes, packed in ice or frozen, prepared or preserved, by the addition of salt in any amount, or by other means, 28 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 253. * * * fish paste or sauce, forty per centum ad valorem.

PAR. 270. * * * caviar, and other preserved roe of fish, thirty per centum ad valorem.

[No corresponding provision for crab meat.]

PAR. 201. * * * fish paste or sauce, 25 per centum ad valorem.

PAR. 216. * * * caviar and other preserved roe of fish, 30 per centum ad valorem; * * *

[No corresponding provision for crab meat.]

CRAB MEAT.

Description and uses.—The demand for fresh crab meat, such as the lobster, has become so great that now only a limited quantity is canned. A few canneries are located around Norfolk, Va. The crab is first boiled, then the shells are cracked and the meat removed by picking, by centrifugal force, or by compressed air. It is packed in two grades, the large clear white meat and the mixture of small bits and of dark meat.

Production of canned crab meat in 1908 was 789,000 pounds, valued at \$166,000. The crab catch off the Pacific Coast States was 3,563,837 pounds, valued at \$196,715, in 1915; the South Atlantic catch was 458,065 pounds, valued at \$28,583, in 1918; and the New England catch was 1,869,866 pounds, valued at \$54,821, in 1919.

Imports of crab meat in 1913 amounted to 2,819,752 pounds, valued at \$448,247. Practically all crab meat now comes from Japan. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 3,154,183 | 2,689,915 | 4,078,980 | 1,723,719 |
| Value..... | \$1,029,413 | \$1,066,248 | \$2,166,068 | \$748,773 |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 682.

FISH PASTE AND FISH SAUCE.

Description, uses, and production.—Fish paste and sauce are condiments especially prepared as a seasoning or dressing for fish. Production statistics are not available.

Imports since 1917 have been as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------|
| | | | Per cent. |
| 1918..... | \$16,009 | \$3,941 | 25 |
| 1919..... | 31,597 | 7,993 | 25 |
| 1920..... | 54,105 | 13,526 | 25 |
| 1921 (9 months)..... | 32,792 | | |

Exports.—Not separately recorded.

Important changes in classification.—See General Notes on Paragraph, page 682.

CAVIAR, AND OTHER FISH ROE FOR FOOD PURPOSES.

Description and uses.—Caviar is the roe of the sturgeon and other large fish, prepared in several grades as a food. Next to the sturgeon, the spoonbill catfish or paddlefish yields the highest grade of caviar. The large demand has led to the use of the roe of other fish, principally the shad and herring. Many of these preserved roes resemble sturgeon caviar in color and texture, but are not labeled and sold as caviar without qualifying names to indicate their source. A product similar to caviar from the roe of pollock has recently been marketed.

Production statistics are not available for recent years. The sturgeon found in the Mississippi Valley, in the Great Lakes region, and on the Atlantic seaboard being almost extinct, the greater part of American "caviar" is necessarily the roe of other fish. In 1908 the domestic output amounted to 217,000 pounds, valued at \$95,000. Florida reported 135,000 pounds, valued at \$16,000. In 1919 a total of 26,768 cases of fish roe valued at \$174,268 was canned in this country.

Of foreign production the highest grades and the largest quantities of the cheaper grades have in the past been manufactured in Russia, principally on the Volga River. Besides the several varieties of sturgeon utilized, the roe of the pike perch is used in the manufacture of a red caviar, and of the dog salmon for what is known as keta caviar.

Imports of caviar in 1913 were valued at \$184,745 and of other preserved roes, \$13,180; they increased to \$213,320 and \$27,182 in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|------------------------------|----------------|----------|----------|------------------|
| CAVIAR. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$34,097 | \$10,229 | 30 |
| 1919..... | 4,961 | 7,715 | 2,314 | 30 |
| 1920..... | 41,601 | 65,793 | 19,738 | 30 |
| 1921 (9 months)..... | 12,288 | 26,755 | | |
| OTHER PRESERVED ROE OF FISH. | | | | |
| 1918..... | | \$8,524 | \$2,557 | 30 |
| 1919..... | 131,966 | 35,804 | 10,741 | 30 |
| 1920..... | 120,979 | 32,097 | 9,629 | 30 |
| 1921 (9 months)..... | 38,795 | 8,233 | | |

Exports of caviar and other preserved roe of fish in 1909 (the last year they were separately given) were valued at \$14,883, and went mostly to Canada, Cuba, and Central American States.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—A new specific provision has been added for crab meat. This product is imported in large quantities, chiefly from Japan and from Norway.

"Fish paste and fish sauce" have been transferred from paragraph 253 of the act of 1909 (par. 201, act of 1913) with a view to including in this section of the tariff all dutiable fish and fish products.

The portion of the paragraph relating to caviar has been so worded as to include roe of fish other than the sturgeon, which is entitled to be called "caviar" without a qualifying name. It will include "Tarama" (Russian for red caviar, made from roe of the pike-perch), "Glossar" (name applied to fish roe preserved with the sac intact), and other fish roe, qualified by the name of the fish from which taken, when prepared or preserved for food purposes by any manner or means. The clause "by the addition of salt in any amount" in connection with the preparation and preservation of fish roe has been inserted to include cases where it has been held that 10 per cent of salt must be present to constitute preservation by salt (T. D. 37701, of 1918), and where the presence of a quantity of salt sufficient to preserve in New York during the winter but not during the summer was held not to constitute "preservation" (*Mascahledes v. United States*, 6 Ct. Cust. Appls. 399, of 1915).

PARAGRAPH 723.

H. R. 7456.

SENATE AMENDMENTS

PAR. 723. Barley, hulled or unhulled, 15 cents per bushel of forty-eight pounds; barley malt, 40 cents per one hundred pounds; pearl barley and barley flour, 2 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 230. Barley, thirty cents per bushel of forty-eight pounds.

PAR. 188. Barley, 15 cents per bushel of forty-eight pounds.

PAR. 231. Barley malt, forty-five cents per bushel of thirty-four pounds.

PAR. 189. Barley malt, 25 cents per bushel of thirty-four pounds.

PAR. 232. Barley, pearled, patent, or hulled, two cents per pound.

PAR. 190. Barley, pearled, patent, or hulled, 1 cent per pound.

BARLEY.

(See Report T. I. S.-20.)

Description and uses.—The better grades of barley are required for malting purposes, and, to a small extent, in the manufacture of products such as pearl barley; the lower grades, which constitute the bulk of the crop, are largely fed on the farms where grown. While the malsters have taken most of the commercial crop, the great increase in barley production is due to its use as a feedstuff on farms.

Production.—The barley crop increased nearly threefold from 1891 to 1920 (average per annum, 1891-1895, 77,000,000 bushels; 1916-1920, 203,000,000 bushels). The 1921 production was 151,181,000 bushels. The principal producing regions, which also yield the best brewing barley, are the Dakotas, Wisconsin, Minnesota, and California.

Imports of barley are insignificant except when the domestic crop is short or of poor quality. Ontario produces a superior grade of

brewing barley, and formerly supplied us annually from 8,000,000 to 11,000,000 bushels; but the American tariff of 15 cents per bushel, being higher than the normal ocean freight, the Canadian surplus usually moves to England. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-----------|----------|------------------------|
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 368,170 | \$605,669 | \$55,225 | 9.12 |
| 1919..... | 14,941 | 17,296 | 2,241 | 12.96 |
| 1920..... | 347,897 | 527,772 | 52,185 | 9.89 |
| 1921 (9 months)..... | 2,414 | 2,266 | | |

Exports of barley for 1909-1918 ranged from 1,500,000 to 27,000,000 bushels. Ordinarily over 90 per cent of these exports originate in the Pacific States. These produce excellent brewing barley, but the rail rates prevent a large eastern movement, except when prices are unusually high. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|--------------|---------------------|
| Quantity (bushels)..... | 18,805,219 | 37,611,840 | 17,854,227 | 20,410,876 |
| Value..... | \$30,563,377 | \$53,832,319 | \$27,165,189 | \$16,836,595 |

In 1920, the United Kingdom received about 80 per cent; Belgium, 8 per cent.

Important changes in classification.—See General Notes on Paragraph, page 686.

BARLEY MALT.

(See Report T. I. S.-20.)

Description and uses.—Barley malt is prepared by steeping the grain in water; this causes it to soften and swell. It is then allowed to germinate or grow sprouts, the germination being arrested by drying and curing in kilns. During germination the enzyme diastase is developed, the final malt being to some extent soluble. In the subsequent brewing processes the crushed malt is attacked by the enzymes and converted into soluble compounds. From 1 bushel of barley are produced 1.1 bushels of malt. Malt sprouts, a by-product, are used as a feedstuff.

Malt is used chiefly in the brewing of fermented liquors, and to a smaller extent in the manufacture of distilled liquors. Since the enactment of prohibition legislation it is finding a large and rapidly increasing outlet in the manufacture of near-beer and other non-intoxicating beverages. Small quantities are used in making various breakfast foods and malt preparations. The consumption in 1915-16 of malt and its equivalent in barley was as follows:

| | Malt. | Equivalent in barley. |
|---------------------------------------|------------------------|------------------------|
| Manufacture of fermented liquors..... | Bushels. 57,683,970 | Bushels. 52,439,920 |
| Manufacture of distilled liquors..... | 4,480,588 | 4,073,258 |
| Total..... | 62,164,558 | 56,513,178 |

Production.—Imports being negligible (less than \$20,000), these 62,164,558 bushels of malt plus exports amounting to about 2,000,000 bushels may be assumed to represent the domestic production. While the greater part was made from barley, use was also made of corn, rye, wheat, and other cereals. In 1914 there were 97 malting establishments, whose materials cost \$39,000,000, and the value of whose products reached \$48,000,000. A considerable production of malt by brewers is not reported. In 1919, production of all malt (chiefly barley) was valued at \$39,340,000.

Imports.—No imports are recorded for 1919 and 1920. In 1918 and the first nine months of 1921 they were as follows: 10,847 bushels, valued at \$19,212, and 3,580 bushels, valued at \$2,026.

Exports of malt averaged about 210,000 bushels annually during 1910-1914 and moved chiefly to Canada. During the war the exports rose over tenfold. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|--------------|-------------|---------------------|
| Quantity (bushels)..... | 896,307 | 10,045,941 | 4,250,627 | 7,859,360 |
| Value..... | \$1,694,651 | \$16,694,614 | \$7,595,398 | \$10,206,564 |

In 1920, Argentina received 19 per cent; Brazil, 15 per cent; the Netherlands, 8 per cent; Italy, 8 per cent.

Important changes in classification.—See General Notes on Paragraph, page 686.

BARLEY, PEARLED, PATENT, OR HULLED.

(See Report T. I. S.-20.)

Description and uses.—Hulled or pot barley is prepared by grinding off the outer cuticle or husk. When the grinding is carried further, so that the grain is reduced to small round pellets, it is termed pearl barley. Patent barley is pearled or pot barley reduced to flour. Pearled barley, the most important of these products, demands a high-grade grain—large, spherical, free from weather damage, and unbroken. Large, two-row varieties are grown for pearling.

Production statistics for barley products are not available, but pearled, patent, or hulled barleys amount to an insignificant proportion of the crop. Four bushels of barley (48 pounds per bushel) yield 100 pounds of pearl barley and approximately 90 pounds of feed.

Imports of pearled, patent, or hulled barley have increased steadily, coming from Europe, especially from Germany. From 489,244 pounds in 1907 they rose to 1,826,213 pounds in 1914. During the

war imports dropped to about one-half the prewar level. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 113,394 | \$5,608 | \$1,134 | 20.22 |
| 1919..... | 142,819 | 23,639 | 1,428 | 5.00 |
| 1920..... | 974,896 | 205,480 | 9,749 | 4.74 |
| 1921 (9 months)..... | 513,663 | 71,753 | | |

Exports were not separately stated prior to 1918. The following statistics for barley flour are for the calendar years 1918-1920:

| | 1918 | 1919 | 1920 |
|-------------------------|-------------|-------------|-------|
| Quantity (barrels)..... | 1,960,073 | 255,845 | 20 |
| Value..... | \$3,877,852 | \$2,572,396 | \$280 |

¹ Figures are for the period July 1 to Dec. 31, 1918.

In 1919, the United Kingdom took 62 per cent; Belgium, 19 per cent; Austria-Hungary, 9 per cent.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Three paragraphs of the act of 1913 (188-190) relating to barley and barley products have been combined; the provisions for barley have been extended definitely to include the whole grain, whether unhulled or hulled (pot barley), the husk being of no value; the duty upon barley malt has been changed from the bushel to a weight basis; and "barley flour," the commercial designation, substituted for patent barley.

PARAGRAPH 724.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 724. Buckwheat, hulled or unhulled, 30 cents per one hundred pounds; buckwheat flour and grits or groats, one-half of 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 234. Buckwheat, fifteen cents per bushel of forty-eight pounds; buckwheat flour, twenty-five per centum ad valorem.

PAR. 435. Buckwheat and buckwheat flour [Free].

BUCKWHEAT, BUCKWHEAT FLOUR, ETC.

Description and uses.—Buckwheat is a quick maturing, poor soil crop. The grain is chiefly cultivated as a feed and for the production of buckwheat flour. A by-product in flouring (middlings) is esteemed by dairymen as feed for cows, because of the high protein

content. The plant is sometimes cultivated as a source of nectar for bees.

Production.—Buckwheat is native to Europe and Central Asia. It is found wild in China and Siberia and is grown wherever grain crops are cultivated. In 1908 the domestic yield on 803,000 acres was 15,874,000 bushels, valued at \$12,004,000; in 1921, on 671,000 acres, the yield was 14,079,000 bushels, valued at \$11,438,000.

Imports (grain) in 1913 amounted to 62,979 bushels, valued at \$38,829; in 1914, to 191,396 bushels, valued at \$152,350. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-----------|-----------|-----------|---------------------|
| Quantity (bushels)..... | 403,373 | 322,791 | 227,182 | 190,864 |
| Value..... | \$734,116 | \$450,810 | \$317,389 | \$220,801 |

Exports of buckwheat in 1910 were 158,160 bushels, valued at \$103,138, but declined to practically nothing in 1911–1914. In 1915 exports, going chiefly to the Netherlands, rose to 413,643 bushels, valued at \$396,987. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|---------|-----------|-----------|---------------------|
| Quantity (bushels)..... | 1,420 | 186,074 | 299,693 | 279,249 |
| Value..... | \$3,021 | \$307,454 | \$648,468 | \$411,310 |

Of the 1920 export, 80 per cent went to the Netherlands, 8 per cent to Belgium, and 5 per cent to Canada.

Important changes in classification.—See General Notes on Paragraph, page 688.

BUCKWHEAT FLOUR.

Description and uses.—In Europe buckwheat flour is consumed chiefly by the poor. In America it is generally popular in the form of buckwheat pancakes.

Production of buckwheat flour decreased from 176,081,891 pounds in 1909 to 125,622,189 pounds in 1914, valued at \$4,663,561 and \$3,754,857, respectively. New York and Pennsylvania mill more than two-thirds of the domestic grain. In 1919, buckwheat flour production was 90,137,407 pounds, valued at \$5,244,000.

Imports of flour increased from 35,788 pounds in 1913 to 402,966 pounds in 1914, valued at \$950 and \$10,282, respectively. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|----------|----------|---------------------|
| Quantity (pounds)..... | 233,673 | 280,557 | 751,118 | 195,933 |
| Value..... | \$15,654 | \$10,580 | \$36,911 | \$7,211 |

Exports are not separately stated.

Important changes in classification.—See page 688.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Buckwheat and buckwheat flour are transferred from the free list of the act of 1913 (par. 435). The provision for buckwheat has been extended definitely to include the hulled as well as the unhulled grain upon the same dutiable basis; the unit has been changed from "bushel" to "hundred pounds;" and grits or groats are specifically mentioned.

PARAGRAPH 725.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 725. Corn or maize, including cracked corn, 15 cents per bushel of fifty-six pounds; corn grits, meal, and flour, and similar products, 30 cents per one hundred pounds.

ACT OF 1909.

ACT OF 1913.

PAR. 235. Corn or maize, fifteen cents per bushel of fifty-six pounds.

PAR. 465. Corn or maize [Free].¹⁶

PAR. 236. Corn meal, forty cents per one hundred pounds.

PAR. 466. Corn meal [Free].

CORN.

(See Survey FL-11.)

Uses.—It is estimated that 80 per cent of the domestic corn crop is consumed on farms and does not enter the channels of trade. The commercial crop is distributed in approximately the following proportions: Consumed in flour and grist mills, chiefly for human food, but also for stock feed (census of 1914), about 6.5 per cent (180,000,000 bushels); in glucose and starch factories (census of 1914), 1.6 per cent (44,000,000 bushels); in distilled spirits (1915), 1.2 per cent (32,000,000 bushels); in fermented liquors, 0.5 per cent (14,000,000 bushels); exports (average for 1911-1915), 1.4 per cent (39,000,000 bushels); fed to live stock not on farms, 5.4 per cent (about 150,000,000 bushels).

Production.—The United States produces over 70 per cent (3,000,000,000 bushels) of the corn crop of the world. Domestic consumption takes about 98 per cent of this. The 20 per cent which enters trade represents largely the surplus, over farm consumption, of the North Central States; the great bulk of this moves to the Eastern and Southern States. The eastern seaboard markets receive the imported corn. The commercial supply varies greatly, according to the price and volume of substitute feedstuffs, the merchantable quality of the crop, and the condition of the live-stock markets.

Imports of corn or maize during 1914-1918 (fiscal years) ranged from 2,000,000 to 11,000,000 bushels, almost entirely from Argentina. Later statistics for calendar years follow:

¹⁶ Corn or maize, 15 cents per bushel of 56 pounds. (Par. 4, emergency tariff act of 1921.)

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|---------------|----------------|---------------|---------------------|
| Quantity (bushels)..... | 1, 992, 161 | 11, 212, 717 | 7, 784, 492 | 151, 113 |
| Value..... | \$1, 976, 960 | \$10, 969, 911 | \$9, 290, 991 | \$179, 159 |

In 1920, the imports from Argentina amounted to 90 per cent of the total.

General imports by months for 1920-1921 are as follows:

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|-------------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Bushels.</i> | <i>Bushels.</i> | | |
| January..... | 408, 293 | 8, 226 | \$379, 526 | \$15, 142 |
| February..... | 150, 945 | 3, 266 | 184, 790 | 2, 823 |
| March..... | 189, 429 | 7, 379 | 197, 132 | 8, 862 |
| April..... | 291, 465 | 41, 707 | 295, 170 | 40, 320 |
| May..... | 238, 045 | 52, 100 | 286, 561 | 54, 983 |
| June..... | 937, 204 | 17, 615 | 1, 135, 368 | 29, 751 |
| July..... | 2, 343, 445 | 17, 671 | 3, 045, 534 | 27, 252 |
| August..... | 1, 300, 418 | 5, 366 | 1, 530, 755 | 6, 804 |
| September..... | 1, 066, 449 | 3, 137 | 1, 306, 824 | 3, 488 |
| October..... | 608, 064 | 472 | 640, 798 | 461 |
| November..... | 128, 600 | 1, 086 | 127, 337 | 1, 074 |
| December..... | 166, 126 | 6, 082 | 167, 196 | 5, 112 |

Exports.—Notwithstanding the preeminence of the United States in corn production, exports for 1909-1913 averaged only about 41,000,000 bushels, one-third of the exports of Argentina, which produces only one-sixteenth as much. The American crop influences the meat, rather than the grain, markets of the world. Our exports of pork and lard, which far exceed those of any other country, tend to keep prices of corn upon an export basis. Because of comparative softness and higher moisture content, corn of the United States is inferior in shipping qualities to the Argentine product. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|----------------|----------------|----------------|---------------------|
| Quantity (bushels)..... | 39, 899, 091 | 11, 192, 533 | 17, 761, 420 | 104, 972, 806 |
| Value..... | \$69, 269, 329 | \$18, 624, 396 | \$26, 453, 681 | \$78, 064, 228 |

In 1920, Canada received 57 per cent; Cuba, 11 per cent; and England, 10 per cent.

Important changes in classification.—See General Notes on Paragraph, page 690.

CORN MEAL.

Description and uses.—The character of the several corn products (corn meal, etc.) is affected by the content of the different parts of the kernel as in wheat milling. The skin or hull (about 6 per cent of the corn kernel by weight) contains about 51 per cent of the crude fiber in the kernel; the endosperm (about 84 per cent of the kernel) contains about 90 per cent of the starch; the germ (10 per cent of the kernel) about 80 per cent of the oil.

Production.—By the modern roller process the grain is first freed of chaff and foreign material, then the germ and part of the outer hull are removed, and the degerminated material passes through a series of rollers and screens. The various forms which the product may take as a result of the latter processes are fine flour, corn meal, fine grits, coarse grits, and hominy. The separated germ is crushed for the oil, which has a large and increasing market (see par. 45), and the by-product, germ meal, is a valuable live-stock feed. Owing to its high content of oil, the presence of the germ in corn meal tends to make the product rancid. The United States is by far the largest manufacturer of corn products. The absorption of corn by flour and grist mills in 1919 was 113,768,512 bushels. Among the products separately listed are corn meal, 10,683,878 barrels; hominy and grits, 288,525,592 pounds. The manufacture of fermented and distilled liquors absorbed about 759,000,000 pounds of grits and other corn products in 1916.

Imports of corn meal, prior to 1919, seldom amounted to \$1,000. Since 1917, by calendar years, they have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------------|-------|-----------|----------|---------------------|
| Quantity (100 pounds)..... | 130 | 33,467 | 4,593 | 30,757 |
| Value..... | \$947 | \$117,753 | \$15,436 | \$39,234 |

Exports during 1914–1918 (fiscal years) ranged between \$1,000,000 and \$20,000,000 in value. Later statistics (for calendar years) of "corn meal and corn flour" follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|-------------|---------------------|
| Quantity (barrels)..... | 1,790,616 | 1,302,434 | 807,185 | 640,048 |
| Value..... | \$15,761,103 | \$10,920,487 | \$7,475,393 | \$3,150,545 |

In 1920 Egypt received 48 per cent; England, 7 per cent; and Jamaica, 7 per cent.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Corn or maize exempt from duty under the act of 1913 (par. 465), is dutiable under paragraph 4 of the emergency tariff act. Corn meal is transferred from the free list of the act of 1913 (par. 466). New specific provisions are added for cracked corn and corn grits, flour, and similar products.

PARAGRAPH 726.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 726. Macaroni, vermicelli, noodles, and similar alimentary pastes, 1½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 237. Macaroni, vermicelli, and all similar preparations, one and one-half cents per pound.

PAR. 191. Macaroni, vermicelli, and all similar preparations, 1 cent per pound.

MACARONI, VERMICELLI, NOODLES, ETC.

(See Survey G-3.)

Description and uses.—Macaroni, vermicelli, spaghetti, and similar edible pastes are made from the coarse flour or meal (called semolina) of hard varieties of wheat. As wheat of high gluten content is required, durum or macaroni wheat—grown principally in Russia, Algiers, Montana, and the Dakotas—is preferred. The semolina is mixed with hot water, worked into a stiff paste or dough, kneaded, then placed in a cylinder pierced with holes corresponding to the diameter of the desired product, forced through, cut into suitable lengths, and dried.

Production.—In 1914 there were 373 manufacturers of “macaroni, vermicelli, and noodles,” the output being about 300,000,000 pounds, valued at \$12,884,000, besides \$400,723 reported by bakers and other manufacturers. In 1920 production was estimated at about 450,000,000 pounds, which represented the product of about 500 separate establishments.

The manufacture of edible pastes is greatest in Italy and France. These foods are prepared in most Italian households, but there is a marked trend toward factory production. Durum wheat is imported from the United States and returned as edible paste.

Imports during 1910–1914 (fiscal years) ranged between 100,000,000 and 125,000,000 pounds, valued at from \$4,500,000 to \$5,500,000, with a customs revenue of about \$1,500,000. Over 95 per cent came from Italy, and most of the remainder from France. During the war imports dwindled to less than 1 per cent of the previous volume. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 406,931 | \$41,226 | \$4,099 | 9.87 |
| 1919..... | 903,136 | 101,930 | 9,031 | 8.86 |
| 1920..... | 805,168 | 107,187 | 8,052 | 7.51 |
| 1921 (9 months)..... | 1,079,396 | 122,921 | | |

In 1920 the bulk came from Japan and Hongkong.

Exports are not separately stated.

Important changes in classification.—“Noodles” have been added because they are not prepared in the same manner as the other prod-

ucts enumerated in paragraph 726. "All similar preparations" of the act of 1913 has been changed to "similar alimentary pastes," a term generally applied to such preparations.

PARAGRAPH 727.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 727. Oats, hulled or unhulled, 10 cents per bushel of thirty-two pounds; unhulled ground oats, 32 cents per one hundred pounds; oatmeal, rolled oats, oat grits, and similar oat products, 60 cents per one hundred pounds.

ACT OF 1909.

ACT OF 1913.

PAR. 238. Oats, fifteen cents per bushel.

PAR. 192. Oats, 6 cents per bushel of thirty-two pounds; oatmeal and rolled oats, 30 cents per one hundred pounds;

PAR. 239. Oatmeal and rolled oats, one cent per pound; * * *

* * *

[No corresponding provision for unhulled ground oats.]

[No corresponding provision for unhulled ground oats.]

OATS.

(See Report T. I. S.-20.)

Description and uses.—Approximately 85 per cent of our oat crop is fed to live stock, principally horses; 4 per cent becomes oatmeal or some similar product; and the remainder is sown or exported. Oat straw is used for feeding purposes. The oat crop is sometimes cut for hay, or is pastured, or turned under for green manure. Nearly 70 per cent of the grain is consumed on the farm where produced; but the remaining 30 per cent, the commercial crop, exceeds in volume the world trade in oats. Its markets are very elastic, being dependent upon live-stock conditions and prices of corn, hay, and other competing feedstuffs.

Production.—The American crop is normally around 1,500,000,000 bushels, exceeding that of any other country; 75 per cent is grown in the North Central States, whose surplus, with the small excess grown in the Pacific Northwest, supplies the deficiencies of the South and East as well as the exports. In foreign countries oats are used to a larger extent for human food.

Imports for 1897-1913, principally from Canada, under a duty of 15 cents per bushel, exceeded 1,000,000 bushels only in years of domestic crop shortage. In 1914, under a duty of 6 cents per bushel, coinciding with a harvest of about 300,000,000 bushels less than the preceding year, about 22,000,000 bushels were imported, chiefly from Canada but also from Argentina. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-------------|----------|------------------------|
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,461,527 | \$1,256,183 | \$87,692 | 6.93 |
| 1919..... | 609,131 | 469,648 | 36,548 | 7.78 |
| 1920..... | 6,728,134 | 6,549,111 | 403,683 | 6.16 |
| 1921 (9 months)..... | 3,081,109 | 1,328,003 | | |

In 1920, 95 per cent of the imports came from Canada, and 4 per cent from Argentina.

Exports fluctuate greatly, according to domestic and foreign harvests. Although the domestic crop nearly doubled in 20 years, exports declined from over 40,000,000 bushels in 1900 to less than 3,000,000 bushels in 1914. Considerable exports from the Pacific States went to Europe in 1914. During the war exports increased enormously. Later statistics follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|--------------|---------------------|
| Quantity (bushels)..... | 114,462,932 | 55,294,479 | 12,877,874 | 2,474,201 |
| Value..... | \$98,221,637 | \$46,435,294 | \$12,338,104 | \$1,286,941 |

In 1920, France received 49 per cent; Belgium, 20 per cent; Cuba, 12 per cent; and Canada, 10 per cent.

Important changes in classification.—See General Notes on Paragraph, page 694.

OATMEAL AND ROLLED OATS.

Description and uses.—Oatmeal, rolled oats, and similar preparations are milled from hulled and kiln-dried oats, 10 bushels producing one barrel (180 pounds) of oatmeal. For these products high-grade, plump, heavy white oats with thin hulls are preferred. Oatmeal and similar products are consumed largely as breakfast foods and are also used for feeding stock.

Production of oatmeal by merchant flour mills in 1914 was 30,451,581 pounds, valued at \$757,804, principally in New York and Wisconsin, and of rolled oats (including other breakfast foods) 92,676,085 pounds, valued at \$2,932,238. In 1914 approximately 50,000,000 bushels of oats went into merchant flour mills manufacturing oatmeal, and 23,000,000 bushels into meals prepared chiefly for live-stock feed; 10,000,000 to 15,000,000 bushels were consumed by custom mills. In 1920, oatmeal production was 28,120,649 pounds, valued at \$1,101,000.

Import values of oatmeal and rolled oats are normally less than \$50,000. Statistics of imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|--------------------|-----------|----------|---------------------------|
| | <i>100 pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 104,217 | \$557,089 | \$31,265 | 5.61 |
| 1919..... | 4,463 | 36,770 | 1,339 | 3.64 |
| 1920..... | 6,812 | 53,958 | 2,044 | 3.79 |
| 1921 (9 months)..... | 3,784 | 30,613 | | |

Exports of oatmeal and rolled oats for 1913-1918 (fiscal years) ranged from 16,000,000 to 347,000,000 pounds, valued at \$569,000 to \$17,500,000, and went principally to the United Kingdom and the Netherlands. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|-------------|---------------------|
| Quantity (pounds)..... | 299,198,015 | 220,966,637 | 65,920,515 | 79,445,963 |
| Value..... | \$17,853,080 | \$11,999,382 | \$3,891,346 | \$2,959,239 |

In 1920, the United Kingdom received 47 per cent; the Netherlands, 18 per cent.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The words "hulled or unhulled" have been added; provisions have also been added for unhulled ground oats, oat grits (Scotch oatmeal) and similar oat products.

PARAGRAPH 728.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 728. Paddy or rough rice, 1 cent per pound; brown rice (hulls removed), $1\frac{1}{4}$ cents per pound; milled rice (bran removed), 2 cents per pound; broken rice, and rice meal, flour, polish, and bran, one-half of 1 cent per pound; all the foregoing not specially provided for.

ACT OF 1909.

PAR. 240. Rice, cleaned, two cents per pound; uncleaned rice, or rice free of the outer hull and still having the inner cuticle on, one and one fourth cents per pound; rice flour, and rice meal, and rice broken which will pass through a number twelve wire sieve of a kind prescribed by the Secretary of the Treasury, one-fourth of one cent per pound; paddy, or rice having the outer hull on, three-fourths of one cent per pound.

ACT OF 1913.

PAR. 193. Rice, cleaned, 1 cent per pound; uncleaned rice, or rice free of the outer hull and still having the inner cuticle on, $\frac{1}{4}$ of 1 cent per pound; rice flour, and rice meal, and rice broken which will pass through a number twelve sieve of a kind prescribed by the Secretary of the Treasury, $\frac{1}{4}$ cent per pound; paddy, or rice having the outer hull on, $\frac{3}{4}$ of 1 cent per pound.¹⁷

RIE.

(See Survey G-5.)

Production.—The domestic rice crop nearly doubled between the years 1908 and 1918. Of the 40,000,000 bushels harvested in 1918, Louisiana produced 18,000,000, and Texas, Arkansas, and California each more than 7,000,000 bushels. Rice culture has developed rapidly in these States, especially in California, but has been nearly discontinued in the South Atlantic division, where once was grown nearly all the domestic supply. It is a special form of agriculture, requiring unusual equipment and a considerable plant investment. Because of overproduction and low prices, the crop of 1921 was reduced to 35,105,000 bushels.

Growers generally market the product as "rough rice," that is, in the condition it leaves the thresher, retaining dirt and other foreign substances. Specially equipped mills in the growing regions take this rough rice, clean it, remove the outer shell or hull, the inner

¹⁷ Rice, cleaned, 2 cents per pound, except rice cleaned for use in the manufacture of canned foods, on which the rate of duty shall be 1 cent per pound; uncleaned rice, or rice free of the outer hull and still having the inner cuticle on, $1\frac{1}{4}$ cents per pound; rice flour, and rice meal, and rice broken which will pass through a number twelve wire sieve of the kind prescribed by the Secretary of the Treasury, one-fourth of 1 cent per pound; paddy, or rice having the outer hull on, three-fourths of 1 cent per pound. (Par. 9, emergency tariff act of 1921.)

cuticle or bran, and sometimes polish the grain. Table rice is usually retailed at standard prices which do not fluctuate with the price changes of rough rice. In 1914, 59 rice-cleaning establishments, capitalized at \$12,000,000, produced to the value of \$23,000,000. A bushel (45 pounds) of rough rice yields 28 or 30 pounds of clean or hulled rice; the remainder consists of chaff, polish or flour, bran, and other by-products. About 20 per cent of the grain weight is hull.

Compared with the enormous crops and exports of the Orient, the domestic production is insignificant. However, with the exception of certain kinds imported to meet special requirements, the American output supplies substantially the entire domestic demand, and permits an export of over 400,000,000 pounds.

Imports.—Of the 269,125,342 pounds imported for consumption in the fiscal year 1914, over one-half (140,649,985 pounds) falls under the tariff classification of "flour, meal, and broken rice, which will pass through a No. 12 wire sieve." This is known as brewers' rice, and was received, not from the growing regions, but principally from the rice mills of Germany and the Netherlands. This grade is a by-product of rice milling, the domestic production in 1914 being only 70,373,855 pounds (about 10 per cent of the total clean rice), the 1916 consumption reported by brewers being 141,219,292 pounds.

Imports of clean or table rice in 1914, following the reduction of the duty from 2 cents to 1 cent per pound, were 73,744,997 pounds, about four times those of the preceding year. They came largely from the Netherlands and China. The imports were due, in some degree, to the demands of our foreign population. Imports in 1914 of "uncleaned rice, or rice free of the outer hull and still having the inner cuticle on" (brown rice), totaled 52,677,863 pounds, and of "paddy, or rice having the outer hull on," 2,052,497 pounds, a large part going to Hawaii. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

PADDY, OR RICE HAVING THE OUTER HULL ON.

| | Pounds. | | | Per cent. |
|----------------------|---------|----------|-------|-----------|
| 1918..... | 219,381 | \$19,460 | \$528 | 4.23 |
| 1919..... | 155,610 | 11,979 | 584 | 4.57 |
| 1920..... | 143,295 | 12,681 | 537 | 4.24 |
| 1921 (9 months)..... | 19,510 | 824 | | |

UNCLEANED RICE, OR RICE FREE OF THE OUTER HULL, ETC.

| | | | | |
|----------------------|------------|-------------|----------|-------|
| 1918..... | 58,250,000 | \$3,024,574 | \$86,066 | 12.04 |
| 1919..... | 28,956,225 | 2,189,888 | 180,976 | 8.26 |
| 1920..... | 28,555,537 | 2,400,299 | 178,472 | 7.44 |
| 1921 (9 months)..... | 17,045,430 | 846,921 | | |

CLEANED RICE.

| | | | | |
|----------------------|------------|-------------|-----------|-------|
| 1918..... | 88,579,582 | \$3,986,575 | \$885,796 | 22.22 |
| 1919..... | 28,443,098 | 1,933,129 | 284,431 | 14.71 |
| 1920..... | 21,540,543 | 2,240,103 | 215,405 | 9.62 |
| 1921 (9 months)..... | 15,993,353 | 758,610 | | |

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-------------|-----------|------------------------|
| BROKEN RICE. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 73,485,014 | \$2,424,823 | \$183,713 | 7.58 |
| 1919..... | 290,834 | 10,576 | 727 | 6.87 |
| 1920..... | 776,798 | 41,660 | 1,942 | 4.66 |
| 1921 (9 months)..... | 300 | 43 | | |

| RICE MEAL. | | | | |
|----------------------|---------|---------|-------|------|
| 1918..... | 94,827 | \$2,844 | \$237 | 8.34 |
| 1919..... | 313 | 34 | 1 | 2.29 |
| 1920..... | 194,073 | 10,916 | 485 | 4.44 |
| 1921 (9 months)..... | 114,748 | 1,926 | | |

| RICE FLOUR. | | | | |
|----------------------|-----------|----------|---------|------|
| 1918..... | 1,703,519 | \$92,888 | \$4,259 | 4.58 |
| 1919..... | 735,397 | 72,907 | 1,838 | 2.52 |
| 1920..... | 564,469 | 55,405 | 1,411 | 2.55 |
| 1921 (9 months)..... | 432,896 | 32,999 | | |

General imports of rice are given by months for 1920 and 1921 as follows:

| Month. | Quantity. | | Value. | |
|---|-----------|------|--------|------|
| | 1920 | 1921 | 1920 | 1921 |
| UNCLEANED RICE, INCLUDING PADDY. | | | | |

| | | | | |
|----------------|---------------------------|-----------------------------|----------|-----------|
| January..... | <i>Pounds.</i> 749,765 | <i>Pounds.</i> 4,232,780 | \$72,387 | \$251,380 |
| February..... | 998,436 | 1,160,042 | 95,205 | 62,282 |
| March..... | 3,312,873 | 1,336,761 | 315,833 | 68,189 |
| April..... | 3,567,159 | 3,362,860 | 334,926 | 151,886 |
| May..... | 1,137,500 | 3,837,220 | 101,787 | 170,041 |
| June..... | 2,049,400 | 1,567,844 | 179,926 | 69,271 |
| July..... | 3,552,796 | 758,344 | 800,898 | 34,894 |
| August..... | 3,269,815 | 594,550 | 267,706 | 29,284 |
| September..... | 2,574,350 | 318,272 | 206,874 | 17,147 |
| October..... | 985,250 | 826,704 | 75,196 | 47,012 |
| November..... | 4,051,094 | 1,175,393 | 305,342 | 94,879 |
| December..... | 3,307,110 | 788,524 | 227,308 | 63,213 |

CLEANED RICE.

| | | | | |
|----------------|------------|------------|-----------|-----------|
| January..... | 6,023,271 | 3,096,151 | \$656,948 | \$143,776 |
| February..... | 8,659,641 | 4,187,917 | 958,778 | 190,214 |
| March..... | 3,557,413 | 3,793,276 | 946,997 | 150,528 |
| April..... | 23,155,069 | 5,492,668 | 2,435,758 | 194,241 |
| May..... | 18,990,572 | 5,160,522 | 2,078,698 | 157,213 |
| June..... | 14,220,054 | 8,390,116 | 1,458,237 | 233,281 |
| July..... | 9,511,661 | 1,407,850 | 952,855 | 71,398 |
| August..... | 15,264,050 | 6,567,780 | 1,463,704 | 190,719 |
| September..... | 4,108,324 | 2,275,283 | 364,828 | 72,612 |
| October..... | 1,139,824 | 11,146,710 | 70,433 | 351,041 |
| November..... | 572,652 | 5,254,289 | 28,656 | 194,320 |
| December..... | 1,206,871 | 6,328,800 | 59,073 | 184,356 |

| Month. | Quantity. | | Value. | |
|--|-------------------|-------------------|--------------------|---------|
| | 1920 | 1921 | 1920 | 1921 |
| RICE FLOUR, RICE MEAL, AND BROKEN RICE. | | | | |
| January..... | Pounds. 44,206 | Pounds. 84,345 | \$5,342 | \$5,988 |
| February..... | 70,106 | 26,832 | 7,545 | 1,970 |
| March..... | 30,098 | 23,282 | 3,799 | 1,740 |
| April..... | 343,592 | 47,707 | 17,467 | 3,740 |
| May..... | 96,156 | 89,065 | 3,415 | 4,431 |
| June..... | 21,644 | 42,129 | 2,718 | 3,180 |
| July..... | 576,079 | 42,213 | 36,5 ^{ac} | 3,450 |
| August..... | 302,442 | 166,816 | 25,1 ^c | 4,922 |
| September..... | 27,187 | 48,372 | 3,000 | 3,744 |
| October..... | 49,172 | 62,038 | 5,511 | 5,202 |
| November..... | 70,846 | 79,100 | 7,521 | 6,640 |
| December..... | 89,572 | 76,453 | 7,623 | 6,655 |

In 1920, the principal country of origin was Japan, which furnished us 93 per cent of our imports of uncleaned rice. The bulk of cleaned rice came from Hongkong (70 per cent); 22 per cent was from French Indo-China. Imports of rice flour, rice meal, and broken rice from Hongkong amounted to 50 per cent, from Canada to 20 per cent, and from Japan to 18 per cent of the total.

Exports of rice for the year 1914 were 18,223,264 pounds, chiefly to Cuba (under a preferential customs treatment) and to Mexico; and of rice bran and polish, 4,191,062 pounds. Toward the close of the war exports of rice rose tenfold. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|---------------------|
| Quantity (pounds)..... | 167,932,775 | 376,875,571 | 392,612,555 | 499,439,850 |
| Value..... | \$13,424,710 | \$34,775,622 | \$37,400,175 | \$16,733,322 |

In 1920, Cuba received 16 per cent of the exports; Germany, 14 per cent; the Dutch East Indies, 8 per cent; and Canada, 7 per cent.

Important changes in classification.—The provision has been shortened, simplified, and made to conform to general usage.

Suggested changes.—“All the foregoing not specially provided for” is an unusual phrase for the conclusion of a paragraph, and is apparently unnecessary in order to exclude from this paragraph rice cleaned for use in the manufacture of canned foods (par. 1643).

PARAGRAPH 729.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 729. Rye, 10 cents per bushel of fifty-six pounds; rye flour and meal, 30 cents per one hundred pounds.

ACT OF 1909.

ACT OF 1913.

PAR. 241. Rye, ten cents per bushel; rye flour, one-half of one cent per pound.

PAR. 589. Rye and rye flour [Free].

RYE.

Description and uses.—Rye is a cereal grain of relative unimportance in the United States compared with wheat, corn, or oats. The grain is used both for human food and for stock feed; the plant for soiling, occasionally as hay, as a cover crop, and for green manure; the straw as bedding for horses, in packing fruit trees, pottery, etc., in making straw articles, and in paper. Rye is often mixed with wheat, bran, or oats as a horse feed, and with dairy by-products as a satisfactory feed for hogs.

Production.—About 96 per cent of the world's rye crop has been produced and consumed in Europe. It is the principal cereal of the more northern regions whose climate is not well suited for wheat. In 1908, 1,948,000 acres, yielding 31,851,000 bushels, valued at \$23,455,000, were under cultivation here; this increased to 6,185,000 acres, yielding 89,103,000 bushels, valued at \$134,947,000, in 1918. In 1921, however, production declined to 57,918,000 bushels, valued at \$40,680,000.

Imports of rye (grain) rose from 45 bushels in 1913 to 36,156 in 1914, valued at \$61 and \$23,223, respectively. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|-------------|---------------------|
| Quantity (bushels)..... | 597,316 | 1,107,487 | 791,220 | 140,253 |
| Value..... | \$1,382,832 | \$1,647,879 | \$1,480,818 | \$182,103 |

Exports of rye were 2,222,934 bushels in 1914. The United Kingdom, Italy, and Norway were the principal buyers. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|---------------|---------------------|
| Quantity (bushels)..... | 7,631,630 | 32,898,166 | 57,070,490 | 25,191,887 |
| Value..... | \$15,615,618 | \$61,786,232 | \$122,239,537 | \$39,769,194 |

In 1920 France purchased 21 per cent; Belgium, 19 per cent; Germany, 12 per cent; Netherlands, 12 per cent; and Canada, 11 per cent.

Important changes in classification.—See General Notes on Paragraph, page 699.

RYE FLOUR.

Description and uses.—Rye constitutes the chief bread grain of over one-third of the inhabitants of Europe. Its use in the United States is relatively small. About one-third of the domestic rye is made into flour.

Production increased from 1,532,139 barrels in 1909 to 1,937,385 barrels in 1914, valued at \$6,383,538 and \$7,845,213, respectively. Wisconsin, Minnesota, New York, Pennsylvania, and Illinois milled about 85 per cent of the output. In 1919, rye-flour production was 2,527,752 barrels, valued at \$21,236,000.

Imports of rye flour were 117 barrels in 1914. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 |
|------------------------|-----------|-------------|-------------|
| Quantity (pounds)..... | 813, 098 | 2, 039, 025 | 1, 845, 944 |
| Value..... | \$61, 458 | \$78, 463 | \$40, 536 |

Exports were 8,293 barrels in 1914. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------|----------------|----------------|---------------|--------------------|
| Quantity (barrels)..... | 1, 446, 075 | 1, 266, 030 | 363, 746 | 47, 825 |
| Value..... | \$15, 449, 730 | \$12, 424, 508 | \$3, 638, 438 | \$331, 930 |

In 1920 Norway received 78 per cent; Germany, 6 per cent; and Belgium, 4 per cent.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Rye and rye flour are transferred from the free list of the act of 1913 (par. 589). Rye meal has been added.

PARAGRAPH 730.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 730. Wheat, 25 cents per bushel of sixty pounds; wheat flour, semolina, crushed or cracked wheat, and similar wheat products not specially provided for, 50 cents per one hundred pounds.

ACT OF 1909.

PAR. 242. Wheat, twenty-five cents per bushel.

PAR. 243. Wheat flour, and semolina, twenty-five per centum ad valorem.

ACT OF 1913.

PAR. 644. Wheat, wheat flour, semolina, and other wheat products, not specially provided for in this section [Free]: *Provided*, That wheat shall be subject to a duty of 10 cents per bushel, that wheat flour shall be subject to a duty of 45 cents per barrel of 196 pounds, and semolina and other products of wheat, not specially provided for in this section, 10 per centum ad valorem, when imported directly or indirectly from a country, dependency, or other subdivision of government which imposes a duty on wheat or wheat flour or semolina imported from the United States.¹⁸

¹⁸ Wheat, 35 cents per bushel, par. 1; wheat flour and semolina, 20 per centum ad valorem. (Par. 2, emergency tariff act of 1921.)

WHEAT.

(See Report T. I. S.-20.)

Description and uses.—Three principal kinds of wheat—hard, soft, and durum—are recognized commercially. Hard wheat is preferred for bread flours; soft wheat for pastry, biscuits, and crackers; and durum wheat, a very hard variety with a high gluten content, for macaroni and other edible pastes. In milling practice it is customary to mix different types of wheat to obtain flour of varying grades. Color, weight, and strength are the principal standards by which wheat is judged. In addition to its familiar uses, wheat is also employed for the edible pastes, in starch manufacture, in various breakfast foods, and especially in semolina; the low grades or "feed wheat" and the by-products of flour milling are used for live-stock feed. About 85,000,000 bushels are required annually for reseeding.

Production.—The average annual wheat crop during 1911-1919 was about 795,000,000 bushels, with a farm value of \$1,085,000,000. The United States is the world's largest wheat producer. Although wheat growing is widely distributed, about half the crop is from the west North Central States. Of the hard wheat, the spring varieties are produced chiefly in the Dakotas, Minnesota, and Montana, and the hard winter varieties largely in Kansas and parts of adjacent States. Durum wheat is grown principally in Montana and the western part of the Dakotas. Elsewhere soft wheats predominate. Of the world production of 3,500,000,000 to 4,000,000,000 bushels, Europe yields about one-half, but it also (excepting Russia, Hungary, and Roumania) absorbs the bulk of world exports. The world crop is largely of the soft varieties, that of the harder wheats being confined chiefly to Russia, Canada, and the United States.

Imports fluctuate greatly. They come almost entirely from Canada, which produces chiefly hard spring wheat of excellent quality. During 1897-1913, with a duty of 25 cents per bushel, imports exceeded 100,000 bushels only in years of shortage or poor quality in the domestic hard-wheat crop. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|-----------------|--------------|-------|
| | <i>Bushels.</i> | | |
| 1918..... | 17,025,947 | \$30,427,417 | \$474 |
| 1919..... | 7,923,825 | 14,935,234 | 1,001 |
| 1920..... | 35,808,668 | 75,359,246 | 9,663 |
| 1921 (9 months)..... | 18,809,264 | 30,868,156 | |

In 1920 imports from Canada amounted to 95 per cent of the total. General imports are given by months for 1920 and 1921:

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|-------------|-------------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Bushels.</i> | <i>Bushels.</i> | | |
| January..... | 756,228 | 4,508,856 | \$1,739,399 | \$7,604,877 |
| February..... | 534,692 | 4,403,712 | 1,672,270 | 7,457,382 |
| March..... | 665,154 | 2,671,043 | 1,528,246 | 4,564,020 |
| April..... | 227,284 | 4,451,304 | 403,665 | 6,825,112 |
| May..... | 474,891 | 1,902,667 | 1,358,871 | 3,018,994 |
| June..... | 283,010 | 89,807 | 611,017 | 132,568 |
| July..... | 100,334 | 713,649 | 200,642 | 1,177,964 |
| August..... | 364,827 | 239,549 | 615,892 | 889,154 |
| September..... | 1,842,397 | 81,031 | 4,672,925 | 113,995 |
| October..... | 9,802,149 | 878,115 | 22,656,037 | 1,091,777 |
| November..... | 9,522,678 | 1,184,776 | 19,561,500 | 1,246,454 |
| December..... | 11,238,112 | 2,062,247 | 20,278,756 | 2,142,868 |

Exports of wheat constitute from 11 to 37 per cent of the domestic production during normal years. An increasing proportion takes the form of wheat flour rather than of grain. Exports of grain move in considerable volume to many countries, chiefly to the United Kingdom, the Netherlands, and Germany. From 1910 to 1918 (fiscal years) they ranged from 34,118,853 to 259,642,533 bushels, valued at \$80,000,000 to \$333,000,000. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|---------------|---------------|---------------|---------------------|
| Quantity (bushels)..... | 111,177,103 | 148,096,470 | 218,287,334 | 237,444,930 |
| Value..... | \$280,612,978 | \$356,898,296 | \$506,975,396 | \$380,556,218 |

Important changes in classification.—See General Notes on Paragraph, page 703.

WHEAT FLOUR.

(See Report T. I. S.-20.)

Description and uses.—In the modern flour mills wheat is first thoroughly cleaned and scoured, and then subjected to a succession of grindings or “breaks” between several sets of rollers (usually four), in which the grain is slowly broken and the outer layers of hull or skin (producing bran, middlings, shorts) sifted away. The flour produced in the various breaks is blended in standard grades. About 72 per cent of the wheat is usually received in the form of flour, 4½ bushels of No. 2 hard wheat (270 pounds) making 1 barrel of “straight” flour (196 pounds) and 70 pounds of feed, with 4 pounds of loss. Two main commercial types of flour are (1) the soft, starchy flours from soft wheats and (2) the granular flour from hard wheats, the latter producing a larger quantity of bread per unit of flour, as well as a lighter loaf. Graham flour is the unbolted wheat meal ground from the whole kernel, while whole-wheat flour contains all of the kernel except the bran.

Production of wheat flour in 1914 was 116,403,770 barrels, valued at \$543,839,090, from 546,000,000 bushels of wheat. The two principal milling States were Minnesota (27,132,153 barrels) and Kansas (12,777,582 barrels). While there were 6,876 wheat-flour mills in 1914, the industry is large-scale, over 60 per cent of the flour output being ground in 218 large mills, each producing 100,000 barrels or more. In 1919, domestic production of wheat flour was 132,478,513 barrels, valued at \$1,436,589,000.

Import values of wheat flour averaged \$500,000 in the years immediately preceding the World War. They were almost exclusively from Canada. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|-----------------|-------------|-------|
| | <i>Barrels.</i> | | |
| 1918..... | 170,962 | \$1,518,027 | \$472 |
| 1919..... | 17,523 | 181,207 | 337 |
| 1920..... | 800,788 | 8,669,300 | 195 |
| 1921 (9 months)..... | 779,764 | 6,708,943 | ..... |

In 1920, imports from Canada amounted to 95 per cent of the total. General imports are shown below by months for 1920 and 1921.

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|-----------|-------------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Barrels.</i> | <i>Barrels.</i> | | |
| January..... | 29,011 | 220,443 | \$305,189 | \$1,979,933 |
| February..... | 27,362 | 202,324 | 294,836 | 1,766,510 |
| March..... | 11,524 | 174,464 | 148,008 | 1,475,533 |
| April..... | 23,044 | 118,944 | 257,246 | 1,022,174 |
| May..... | 20,948 | 47,851 | 237,559 | 347,070 |
| June..... | 39,283 | 6,287 | 474,584 | 48,874 |
| July..... | 26,397 | 2,270 | 244,301 | 17,534 |
| August..... | 17,871 | 3,697 | 229,959 | 27,110 |
| September..... | 14,550 | 3,519 | 175,687 | 24,698 |
| October..... | 163,327 | 45,756 | 1,784,196 | 262,381 |
| November..... | 201,667 | 82,606 | 2,144,866 | 445,624 |
| December..... | 226,798 | 57,839 | 2,272,890 | 287,453 |

Exports of flour for 1910-1918 (fiscal years) ranged from about 9,000,000 to nearly 22,000,000 barrels, valued at \$48,000,000 to \$245,000,000, going to many countries, in largest quantity to the United Kingdom. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|---------------|---------------|---------------|---------------------|
| Quantity (barrels)..... | 21,708,700 | 26,449,881 | 19,853,992 | 12,984,000 |
| Value..... | \$244,653,423 | \$293,453,748 | \$224,472,448 | \$64,808,672 |

In 1920 the United Kingdom received 16 per cent; Poland and Danzig, 11 per cent.

Important changes in classification.—See General Notes on Paragraph, page 703.

SEMOLINA.

(See Survey G-3.)

Description and uses.—Semolina is a coarse, granular meal with the bran removed, made from hard varieties of wheat. It is extensively used in macaroni, spaghetti, and other edible pastes. The term "semolina" is also applied to the particles retained in the bolting machine of the flour mill. Such particles are used in soups, puddings, etc. Some cereal breakfast foods are also made from semolina.

Production statistics are not available. This country is one of the largest producers and exporters of durum and hard wheats, and supplies most of the semolina for domestic use.

Import values of semolina rose from less than \$3,000 prior to 1914 to about \$30,000 in later years. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|-----------------------|----------------|----------|--------|------------------|
| SEMOLINA. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 245,800 | \$18,923 | | |
| 1920..... | 1,778,455 | 104,323 | 870 | |
| 1921 (9 months)..... | 782,235 | 87,641 | | |
| CRUSHED WHEAT. | | | | |
| 1918..... | 75 | \$8 | \$9.30 | 10 |
| 1919..... | 680,351 | 15,132 | 73.00 | |
| 1920..... | 41,474 | 1,153 | 111.00 | |
| 1921 (9 months)..... | 800 | 6 | | |

*Exports are included in "All other breadstuffs."
Important changes in classification.—See below.*

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Wheat, wheat flour, semolina, and other wheat products not specially provided for, were conditionally exempt from duty under paragraph 644 of the act of 1913. The products specifically enumerated are dutiable under paragraphs 1 and 2 of the emergency tariff act of May 27, 1921.

The duty upon wheat flour, semolina, and similar products has been changed to a weight basis.

This paragraph specifically includes crushed or cracked wheat. To avoid possible conflict with by-product feeds (par. 731), with cereal foods and preparations (par. 733), and with biscuits and other baked articles (par. 734), the word "other" before "wheat products" in paragraph 644 of the act of 1913 was changed to "similar" in this paragraph.

PARAGRAPH 731.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 731. Bran, shorts, and other by-product feeds obtained in milling wheat or other cereals, 15 per centum ad valorem per ton; hulls of oats, barley, buckwheat, or other grains, ground or unground, 10 cents per one hundred pounds; dried beet pulp, malt sprouts, and brewers' grains, \$5 per ton; mixed feeds, consisting of an admixture of grains or grain products with oilcake or oilcake meal, or molasses, or other feedstuffs, 8 per centum ad valorem.

ACT OF 1909.

PAR. 239. * * * oat hulls, ten cents per hundred pounds.
[No corresponding provision for the other commodities.]

ACT OF 1913.

PAR. 192. * * * oat hulls, 8 cents per one hundred pounds.
[No corresponding provision for the other commodities.]

BY-PRODUCTS OF MILLING. ETC.

Description and uses.—This provision covers the by-products of milling—such as bran, shorts, middlings—used chiefly as feed for animals; dried beet pulp; malt sprouts and brewers' grains; mixed feeds; and fillers such as hulls. Hulls are used as a filler or roughener in some grades of feed for live stock.

Production of bran and middlings in 1919 was 4,760,957 tons, valued at \$211,467,000; of feed and offal, 4,563,553 tons, valued at \$262,736,000. The domestic production of dried beet pulp in 1919 was 976,501 tons, valued at \$4,829,568.

Import values of bran and middlings from 1914 to 1918 (fiscal years) ranged from \$750,000 to \$2,250,000; imports of oat hulls from \$165,649 to \$220,000; Canada is the chief source of imports. Since 1917, imports of feedstuffs have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

BRAN AND MIDLINGS.

| | Tons. | | | Per cent. |
|----------------------|--------|-----------|---------|-----------|
| 1918..... | 1,157 | \$45,507 | \$1,806 | ..... |
| 1919..... | 59,955 | 2,625,213 | 3,871 | ..... |
| 1920..... | 30,427 | 1,097,917 | 7,533 | ..... |
| 1921 (9 months)..... | 41,806 | 1,052,094 | ..... | ..... |

BREADSTUFFS, NOT SPECIALLY PROVIDED FOR (ANIMAL FOOD).

| | Pounds. | | | |
|----------------------|-----------|----------|---------|-------|
| 1918..... | | \$12,946 | \$1,927 | 15.00 |
| 1919..... | 6,943,270 | 90,120 | 13,446 | 15.00 |
| 1920..... | 2,435,136 | 40,267 | 6,040 | 15.00 |
| 1921 (9 months)..... | 1,358,351 | 10,361 | ..... | ..... |

DRIED BEET PULP.

| | | | | |
|----------------------|------------|----------|---------|-------|
| 1918..... | 2,829,975 | \$47,247 | \$4,725 | 10.00 |
| 1919..... | 23,469,968 | 492,022 | 49,202 | 10.00 |
| 1920..... | 43,153,530 | 894,641 | 89,464 | 10.00 |
| 1921 (9 months)..... | 38,936,051 | 585,188 | ..... | ..... |

OAT HULLS.

| | 100 pounds. | | | |
|----------------------|-------------|-----------|----------|-------|
| 1918..... | 219,973 | \$218,056 | \$17,598 | 8.07 |
| 1919..... | 343,608 | 331,759 | 27,489 | 7.20 |
| 1920..... | 221,167 | 256,214 | 17,663 | 6.85 |
| 1921 (9 months)..... | 150,631 | 62,543 | ..... | ..... |

Exports of mill feed for 1910-1918 ranged between \$1,000,000 and \$4,000,000, in the earlier years going chiefly to Germany. Exports of bran and middlings varied in value from \$70,000 to \$400,000. Later statistics for calendar years follow.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------------------|-----------|-----------|-----------|---------------------|
| Bran and middlings: | | | | |
| Quantity (tons)..... | 7,372 | 4,517 | 3,991 | 5,499 |
| Value..... | \$337,285 | \$223,314 | \$162,933 | \$196,216 |
| Dried grains and malt sprouts: | | | | |
| Quantity (tons)..... | 217 | 1,960 | 401 | 90 |
| Value..... | \$12,364 | \$126,836 | \$23,949 | \$4,852 |
| Mill feed: | | | | |
| Quantity (tons)..... | 9,652 | 12,124 | 10,481 | 9,771 |
| Value..... | \$466,242 | \$784,295 | \$579,914 | \$576,940 |

In 1920 the principal countries of destination for bran and middlings were Cuba (34 per cent), Canada (28 per cent), and Mexico (15 per cent); for dried grains and malt sprouts, Sweden (88 per cent), Denmark (6 per cent), and Canada (2 per cent); for mill feed, Cuba (66 per cent), Canada (13 per cent), and Mexico (6 per cent).

Important changes in classification.—To the present, specific provision for oat hulls, transferred from paragraph 192 of the act of 1913, has been added a clause relating to hulls of other grains. A new specific provision has been made for dried beet pulp, malt sprouts, brewers' grains, mill feeds, and mixed feeds. The substantial extent of the import trade in these products and the fact that it has been difficult to determine their dutiable status, appear to warrant specific provisions.

Suggested changes.—In the clause "bran, shorts * * * 15 per centum ad valorem per ton" the words "per ton" should be omitted.

Page 90, line 11, of H. R. 7456: Put "dried beet pulp." after "brewers' grains" to avoid a construction applying the word "dried" to malt sprouts and brewers' grains as well as to beet pulp. Strike out "and" before "brewers' grains" and insert it before "dried."

Page 90, line 13, of H. R. 7456: "Oilcake" in two places is set up as one word, whereas in paragraph 1623, page 191, line 21, "oil cake" appears as two words, and "oil-cake" qualifying "meal" is a compound word.

Page 90, line 14, of H. R. 7456: The rate upon mixed feeds composed of grain or grain products and other feeds is 6 per cent ad valorem. The rate upon dried beet pulp in the same paragraph is \$5 per ton, or 15 to 20 per cent ad valorem. As a result, it would be possible to mix beet pulp with by-product feeds of barley or other by-product feeds and ship them in at the lower rate.

PARAGRAPH 732.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 732. Screenings, scalplings, chaff, or scourings of wheat, flaxseed, or other grains or seeds: Unground, 75 cents per ton; ground, \$1.50 per ton: *Provided*, That screenings, dirt, and other foreign matter mixed with grains or seeds provided for in this title shall pay the same rate of duty as the grains or seeds: *Provided further*, That when grains or seeds contain more than 5 per centum of any one foreign matter dutiable at a rate higher than that applicable to the grain or seed the entire lot shall be dutiable at such higher rate.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

SCREENINGS, ETC., OF WHEAT, FLAXSEED, ETC.

Description and uses.—Screenings, chaff, and scourings are by-products obtained by grain elevators, millers, and also from the farm thresher. They consist of foreign grains, underdeveloped kernels, weeds, wild buckwheat, flax, etc. They are used principally for live stock and poultry feed, either directly or after going through various stages of separation, or after being mixed with molasses or other feeds. In the large grain centers some companies specialize in the purchase, further separation, and distribution of elevator screenings.

Production statistics are not available.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---------------------------------|----------------|----------|---------|------------------|
| FLAXSEED OR LINSEED SCREENINGS. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 9,049,703 | \$70,902 | \$7,090 | 10 |
| 1919..... | 24,038,061 | 142,579 | 14,258 | 10 |
| 1920..... | 30,612,310 | 163,490 | 16,348 | 10 |
| 1921 (9 months)..... | 12,732,804 | 51,131 | | |

SCREENINGS NOT SPECIALLY PROVIDED FOR.

| | | | | |
|----------------------|-------------|-----------|----------|----|
| 1918..... | 118,686,719 | \$115,149 | \$11,515 | 10 |
| 1919..... | 31,499,446 | 671,393 | 67,139 | 10 |
| 1920..... | 33,144,048 | 278,499 | 27,849 | 10 |
| 1921 (9 months)..... | 11,034,309 | 34,555 | | |

WHEAT SCREENINGS.

| | | | | |
|----------------------|------------|-----------|----------|--|
| 1918..... | 54,933,765 | \$429,521 | \$42,620 | |
| 1919..... | 54,204,646 | 366,557 | 35,542 | |
| 1920..... | 95,538,535 | 574,943 | 56,095 | |
| 1921 (9 months)..... | 35,990,253 | 86,511 | | |

¹ Figures cover period from July 1 to Dec. 31, 1918.

Important changes in classification.—The three clauses in this paragraph are new and designed to meet an increasing trade and certain trade practices that have developed. The provision as to allowance for dirt and impurities is an amplification and extension of a similar provision in paragraph 212 of the act of 1913, and the final provision as to mixed grains was adopted to prevent evasions of the duties in mixing separable grains.

Suggested changes.—Was it the intention in fixing the rate on screenings, etc., to make the rate higher on unground than on ground in order to discourage the importation of injurious weed seeds? If so, should not the rates be reversed?

PARAGRAPH 733.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 733. Cereal breakfast foods, and similar cereal preparations, by whatever name known, processed further than milling, and not specially provided for, 17 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

CEREAL BREAKFAST FOODS.

Description and uses.—This paragraph includes cereal foods processed further than milling. Milled products, such as cracked wheat, oat grits, and corn meal, are dutiable under other provisions. Cereal breakfast foods, in general, consist of an important integral part of the husked kernel or "meat," but in certain cases they may be more or less of a by-product of another preparation, to which heat is applied and slight amounts of seasoning added to give a desired flavor. Examples of the more important cereal breakfast foods are corn flakes and shredded wheat. A large number of cereal preparations are on the market. Usually they are sold under patented trade names.

Production of breakfast foods of all kinds amounted in 1914 to 92,676,085 pounds, valued at \$2,932,238, and in 1919 to 96,501,673 pounds, valued at \$4,350,000.

Imports are not separately stated.

Exports since 1917 by calendar years have been valued as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|---------------------|
| Cereal preparations (other than oatmeal and rolled oats)..... | \$3,854,197 | \$3,819,138 | \$7,189,091 | \$3,020,545 |
| All other breadstuffs..... | 5,761,037 | 3,808,972 | 4,784,460 | 2,097,303 |

In 1920 Germany received 28 per cent of the exports of "cereal preparations, other than oatmeal and rolled oats;" England, 21 per cent; and Canada, 6 per cent. Of "all other breadstuffs," 18 per cent went to Finland; 11 per cent each to Belgium and Canada; and 10 per cent each to England and the Netherlands.

PARAGRAPH 734.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 734. Biscuits, wafers, cake, cakes, and similar baked articles, and puddings, all the foregoing by whatever name known, whether or not containing chocolate, nuts, fruits, or confectionery of any kind, 28 per centum ad valorem.

ACT OF 1909. ACT OF 1913.

PAR. 244. Biscuits, * * * wafers, and similar articles, not specially provided for in this section, twenty per centum ad valorem; biscuits, wafers, cakes, and other baked articles, by whatever name known, composed in whole or in part of eggs, or any kind of flour or meal, or other material, when sweetened with sugar, honey, molasses, or other material, or combined with chocolate, nuts, fruit, or confectionery of any kind, or both so sweetened and combined, and without regard to the component material of chief value, valued at fifteen cents per pound or less, three cents per pound and fifteen per centum ad valorem; valued at more than fifteen cents per pound, fifty per centum ad valorem.

PAR. 708. Wafers, unleavened or not edible [Free].

PAR. 194. Biscuits, * * * wafers, cakes, and other baked articles, and puddings, by whatever name known, containing chocolate, nuts, fruit, or confectionery of any kind, and without regard to the component material of chief value, 25 per centum ad valorem.

PAR. 417. Biscuits, * * * and wafers, not specially provided for in this section [Free].

PAR. 640. Wafers, unleavened or not edible [Free].

BISCUITS, WAFERS, CAKE, ETC.

Description.—This paragraph includes a large number of food specialties. Many of these preparations are not commercially produced in the United States. The statistics do not permit of comparison of the numerous products, nor are competitive and noncompetitive imports differentiated. Wafers, composed of wheat flour and water only, are used as a vehicle for pills and other nauseous medicines, and in sacramental observances.

Production.—In 1914 there were 166 manufacturers of biscuits and crackers, with an output valued at \$89,484,000; 25,797 other establishments, producing "all other bread and bakery products" (bread, pies, cakes, pastry, etc.), reported an output worth \$402,409,000.

Imports of wafers, unleavened or not edible, in 1914 were \$32,816. Previous to the war Germany supplied about 60 per cent of the imports, and the Netherlands, France, and the United Kingdom most of the remainder.

Imports of bread and biscuit before the war ranged in value from \$200,000 to \$300,000, chiefly from the United Kingdom, Germany, and Japan, but declined greatly after 1914. Imports since 1917 have been as follows:

BREAD, BISCUITS, AND WAFERS, N. S. P. P.¹

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|---------|-------|------------------|
| | Pounds. | | | Per cent. |
| 1918..... | | 862,381 | | |
| 1919..... | 879,746 | 175,699 | | |
| 1920..... | 1,218,950 | 283,848 | | |
| 1921 (9 months)..... | 862,861 | 170,656 | | |

¹ This classification includes par. 1522—Bread: *Provided*, That no article shall be exempted from duty as bread unless yeast was the leavening substance used in its preparation.

BREAD, BISCUITS, WAFERS, CAKES, AND OTHER BAKED ARTICLES, AND PUDDINGS, ETC., CONTAINING CHOCOLATE, NUTS, FRUIT, OR CONFECTIONERY OF ANY KIND, ETC.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 46,375 | 89,825 | \$2,456 | 25 |
| 1919..... | 98,146 | 27,821 | 6,964 | 25 |
| 1920..... | 267,101 | 87,030 | 21,757 | 25 |
| 1921 (9 months)..... | 190,138 | 36,966 | | |

In 1920 the imports of "bread, biscuits, and wafers, n. s. p. f.," came principally from England (32 per cent), Canada (31 per cent), and Japan (25 per cent). Imports of "bread, biscuits, wafers, etc., containing chocolate, nuts, fruit, etc." were from England (40 per cent), Japan (23 per cent), and the Netherlands (15 per cent).

Exports in 1914 were valued at \$728,447. They moved to almost every country, but chiefly to Oceania, British Africa, and Canada. Later statistics of bread and biscuit follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 8,585,891 | 12,827,005 | 18,755,498 | 7,504,005 |
| Value..... | \$1,277,704 | \$2,506,447 | \$3,731,879 | \$1,296,138 |

In 1920, the exports went chiefly to Cuba (29 per cent), England (16 per cent), and Mexico (8 per cent).

Important changes in classification.—This paragraph combines three paragraphs of the act of 1913, paragraph 194 covering biscuits, wafers, cakes, etc., when containing chocolate, nuts, and fruit, and paragraphs 417 and 640 of the free list, covering biscuits, bread, and wafers, not specially provided for, and wafers, unleavened. Ordinary commercial bread, however, is kept on the free list (par. 1522).

Suggested changes.—Page 91, line 5, of H. R. 7456: "Fruit" would be better than "fruits" and in accord with prior acts.

FRUIT AND FRUIT PRODUCTS.

GENERAL.

Important changes in classification.—In provisions of the acts of 1909 and 1913 relating to fruits and fruit products, there are duplications and conflicts between provisions of a general character as well as between general and particular provisions. Furthermore, the general character of many of the clauses renders it difficult to obtain statistical information with regard to the conditions and volume of imports.

The reclassification has been made with a view to segregating the principal fruits by giving separate paragraphs to the more important ones; the general or basket clauses have been narrowed, and the wording of the provisions condensed and simplified.

The use of the word "canned" has been avoided throughout this schedule. It is believed that the more inclusive wording "prepared or preserved," adequately describes such products. For most prepared or preserved fruits ad valorem rates have been adopted because of the great variation in their values and because of the fact that when shipped in glass containers such containers would also require appraisal for tariff purposes.

PARAGRAPH 735.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 735. Apples, green or ripe, 25 cents per bushel of 50 pounds; dried, desiccated, or evaporated, 2 cents per pound; otherwise prepared or preserved, and not specially provided for, 2½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 274. Apples, * * * green or ripe, twenty-five cents per bushel; * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, two cents per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; * * *

PAR. 217. Apples, * * * green or ripe, 10 cents per bushel of fifty pounds;¹⁹ * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, 1 cent per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; * * *

APPLES, GREEN OR RIPE.

(See Survey G-20.)

Description and uses.—The apple is by far the most important fruit, being grown practically throughout the country. The cultivation of long-keeping varieties, increased storage facilities, and improved methods of distribution render apples available the entire year. Great quantities are evaporated or canned and a considerable portion is made into unfermented juice, vinegar, apple butter, and other products.

Production.—The estimated annual crop for the years 1910-1914, inclusive, averaged approximately 66,000,000 barrels. The greater part is consumed locally. Western New York, the Pacific Northwest, and the Shenandoah-Cumberland district grow over one-half the commercial crop. Canada is the principal foreign grower, the production of other countries having no important bearing on the world markets. Production since 1917 has been as follows:

¹⁹ Apples, 30 cents per bushel. (Par. 26, emergency tariff act of 1921.)

| Calendar year. | Quantity. | | Value of commercial crop Dec. 1 |
|----------------|------------------------|------------------------|---------------------------------|
| | Total crop | Commercial crop. | |
| 1918..... | Barrels. 55,542,000 | Barrels. 24,743,000 | \$120,684,000 |
| 1919..... | 47,882,000 | 25,159,000 | 139,669,000 |
| 1920..... | 74,556,000 | 33,905,000 | 126,800,000 |
| 1921..... | 32,294,000 | 20,006,000 | 93,008,000 |

Imports for the prewar period 1910-1914, inclusive, amounted annually to about 42,000 barrels, valued at \$41,000. Imports for later years have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|----------|---------|------------------------|
| | Barrels. | | | Per cent. |
| 1918..... | 50,332 | \$90,661 | \$5,083 | 5.24 |
| 1919..... | 464,528 | 710,435 | 45,453 | 6.41 |
| 1920..... | 381,555 | 808,941 | 33,156 | 4.10 |
| 1921 (9 months)..... | 274,642 | 496,973 | | |

Export values up to 1918 ranged between \$5,000,000 and \$8,000,000. Shipments went chiefly to the United Kingdom, Canada, and Norway. The United States is the largest exporter of apples. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|--------------|--------------|---------------------|
| Quantity (barrels)..... | 579,916 | 1,712,367 | 1,797,711 | 1,417,518 |
| Value..... | \$3,135,203 | \$14,471,282 | \$14,085,733 | \$9,006,657 |

Important changes in classification.—See General Notes on Paragraph, page 712.

APPLES, DRIED, DESICCATED, OR EVAPORATED.

(See Survey G-20.)

Description and uses.—Both the drying and canning of fruits are seasonal industries, and local in the sense that, owing to transportation charges, and the perishable character of fruit, factories are located in the producing sections and specialize in certain types of fruit. The preserving industries, whose output has doubled within the past 10 years, have helped to stabilize the market conditions for these fruits and have exerted a powerful influence in increasing the volume, improving the character, and enlarging our international trade in fruit. The basic principles of canning are sterilization, to kill decay germs, and sealing, to prevent contamination. Usually only the best grades of fruits are canned.

Apples are preserved extensively by various processes of drying and evaporating, the dried fruit being used largely by bakers and also in home consumption.

Production in 1914 was 54,957,003 pounds, valued at \$2,889,406, and in 1919, 50,309,702 pounds, valued at \$7,082,125. New York and California lead in output of dried apples.

Imports are usually insignificant in quantity and come almost entirely from Canada. Owing to a short domestic crop in 1921, imports were larger than usual. Figures for the years 1918-1921 follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 527 | \$75 | \$5 | 7.03 |
| 1919..... | 158,085 | 27,942 | 1,581 | 5.68 |
| 1920..... | 818,229 | 82,952 | 5,189 | 9.87 |
| 1921 (9 months)..... | 1,501,800 | 95,257 | | |

Exports go chiefly to the United Kingdom and the countries of northern Europe. Statistics of exports since 1917 by calendar years follow:

| | 1918. | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 2,209,489 | 24,704,359 | 8,827,866 | 14,802,611 |
| Value..... | \$311,890 | \$4,109,828 | \$1,808,987 | \$1,478,336 |

Important changes in classification.—See General Notes on Paragraph below.

APPLES, PREPARED OR PRESERVED.

Description and uses.—Apples are preserved in large quantities by canning. The fruit is used for baking and as a desert.

Production.—New York, Maine, and the Pacific Coast States lead in the production of canned apples. In 1914 production was 1,514,939 cases, valued at \$2,392,289, and in 1919, 2,447,927 cases, valued at \$9,081,598. (The standard case contains 24 No. 3 cans, the net weight of the contents of the case being 44½ pounds.)

Imports are unimportant and come mostly from Canada.

Export figures are not available, being included with all other canned fruits.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Apples have been provided for in a separate paragraph, to which has been added specific provision for dried apples and for apples otherwise prepared or preserved, now dutiable as "all edible fruits when dried, desiccated, or prepared in any manner, or as fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices." The phrase "otherwise prepared or preserved" is especially designed to include canned apples. Fruit butter, jams, etc., of all kinds are specially provided for in paragraph 748.

PARAGRAPH 736.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 736. Bananas, 2 cents per bunch; dried, desiccated, or evaporated, and banana flour, 4 cents per one hundred pounds.

ACT OF 1909.

PAR. 571. Fruits * * * green, ripe, or dried, * * * not specially provided for in this section [Free].

ACT OF 1913.

PAR. 488. Fruits * * * green, ripe, or dried, * * * not specially provided for in this section [Free].

PAR. 217. * * * all edible fruits * * * when dried, desiccated, evaporated, * * * not specially provided for in this section, 1 cent per pound; * * *

BANANAS.

Description and uses.—The banana is imported almost entirely in its natural state and may be eaten raw or cooked. Usually it is the underripe fruit which is cooked before the starch has been converted wholly into sugar. The Martinique is the most common variety. Banana flour, meal, and dried banana are used to a limited extent. As most bananas are grown in the Tropics, the success of the industry is largely a question of transportation.

Production.—A few bananas are grown in Florida, Louisiana, and California; Florida produced 10,048 bunches, valued at \$5,638, in 1909, and 6,405 bunches, valued at \$8,010, in 1919. Statistics for the other States are not available. The great sources of supply are Central America, Jamaica, Mexico, Cuba, and Colombia. No figures are available for dried bananas or banana flour.

Imports in 1914 were 48,691,224 bunches, valued at \$16,397,623. Nearly one-third of the imports now comes from Honduras; Jamaica, Costa Rica, and Panama furnish nearly one-half; Colombia and Guatemala are also heavy exporters; Cuba furnishes about 5 per cent. Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|--------------|---------------------|
| Quantity (bunches)..... | 32,137,683 | 36,993,095 | 39,319,562 | 33,702,910 |
| Value..... | \$15,438,491 | \$15,984,590 | \$19,087,927 | \$15,077,628 |

Exports.—None.

Important changes in classification.—Bananas were exempt from duty as fruit not specially provided for under the acts of 1909 and 1913 (pars. 571 and 488). New provisions have been added for dried bananas and banana flour.

Suggested changes.—Specific provision might be made for plantains, a species of banana, but commercially a different fruit. (See par. 749, p. 742.)

PARAGRAPH 737.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 737. Berries, edible, in their natural condition or in brine, 1 cent per pound; dried, desiccated, or evaporated, 2½ cents per pound; otherwise prepared or preserved, and, not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

PAR. 274. * * * berries, edible, in their natural condition, one cent per quart; cranberries, twenty-five per centum ad valorem; all edible * * * berries, when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, two cents per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol; one cent per pound and thirty-five per centum ad valorem; * * *.

ACT OF 1913.

PAR. 217. * * * berries, edible, in their natural condition, ½ cent per quart; cranberries, 10 per centum ad valorem; all edible * * * berries, when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, 1 cent per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; * * *.

BERRIES EDIBLE IN THEIR NATURAL CONDITION.

Description, uses, and production.—Strawberries are extensively used as a fresh fruit, for canning, and in making preserves and marmalade. The fruit is kept frozen for use as flavoring in ice creams and at soda fountains. The juice is also used as a beverage, for flavoring, etc. The very perishable nature of the fruit necessitates quick utilization after it ripens. No other berry is so widely grown in America. The crop of 1909 amounted to over 255,000,000 quarts, valued at about \$18,000,000. In 1919 production was only 177,000,000 quarts. Maryland, New York, New Jersey, Missouri, Michigan, Tennessee, Arkansas, and California are the principal producing States. The commercial crop follows rather definite channels; thus, strawberries from Florida move northward during winter, but later are supplanted by the crop produced farther north.

The term "blackberry" usually includes, for market purposes, the dewberry, an early ripening variety. These berries are used primarily fresh, though considerable quantities are canned and made into jam, preserves, etc. They are widely grown, there being a number of centers of commercial production. The crop of 1909 amounted to over 55,000,000 quarts, valued at nearly \$4,000,000. In 1919 about 40,000,000 quarts were grown.

Three general types of raspberries are recognized—the red, black, and purple. They are used in the fresh state, for canning, and in making preserves, jams, etc. Black varieties are dried. Purple varieties are of particular value for canning, because they retain their form and color longer. The crop of 1919 amounted to nearly 50,000,000 quarts.

The loganberry is a hybrid between the Pacific coast trailing blackberry and the raspberry. It is too acid for use in the fresh state, but loses much of its acidity when cooked, and therefore is used in pies, etc. It is extensively canned and dried, and increasingly large quan-

ties are consumed in the manufacture of unfermented juice. The commercial culture of the loganberry is confined to the Pacific Coast States. In 1909 the production, including raspberries, was about 61,000,000 quarts, valued at over \$5,000,000. The production of loganberries alone in 1919 was about 12,000,000 quarts.

There are two types of gooseberries, the English varieties and those from the native wild species. The latter are superior in flavor, but the English berries, on account of their larger size, meet with greater favor in the market. The susceptibility of the English varieties to mildew has largely restricted their growth here. Gooseberries are used principally for the making of jelly, conserves, as pie filling, etc. The English berries, when fully ripe, are prized as a fresh fruit. (For quarantine regulations see "Currants, p. 716.") In 1909 the crop amounted to over 5,000,000 bushels, valued at \$417,000. The gooseberry is better adapted to the northern and middle latitudes; it does not thrive where the summer season is long and hot. There are some centers of commercial production in New York, at various points in the Northern States, and on the Pacific coast. The fruit is more widely grown for home uses than for commercial purposes.

Imports of this group of berries for 1911-1918 ranged from 1,000,000 to 2,000,000 quarts, valued at \$100,000 to \$150,000. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|----------|---------|------------------------|
| | Quarts. | | | Per cent. |
| 1918..... | 772,144 | \$83,704 | \$3,861 | 4.61 |
| 1919..... | 1,829,823 | 249,371 | 9,149 | 3.67 |
| 1920..... | 2,578,554 | 364,009 | 12,893 | 3.54 |
| 1921 (9 months)..... | 1,538,389 | 217,938 | | |

Exports prior to 1918 were between \$500,000 and \$800,000, and went chiefly to Canada. Exports since 1917 by calendar years have been as follows: 1918, \$887,561; 1919, \$1,181,742; 1920, \$791,555; 1921 (9 months), \$621,504.

Important changes in classification.—See General Notes on Paragraph, page 717.

BERRIES, DRIED, DESICCATED, EVAPORATED, OR OTHERWISE PREPARED OR PRESERVED.

Description, uses, and production.—Statistics as to the quantities of berries dried are not available. In comparison with other dried fruits the amount is not large. Berries are usually preserved by canning. The States of California, Oregon, Washington, New York, and Michigan lead in this industry. Census returns for 1914 and 1919 show production figures as follows:

| Canned berries. | 1919 | | 1914 | |
|-------------------|---------------------|-------------|---------------------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| | Cases. ¹ | | Cases. ¹ | |
| Blackberries..... | 910,657 | \$5,080,397 | 452,161 | \$788,614 |
| Blueberries..... | 180,350 | 913,821 | 151,636 | 320,508 |
| Gooseberries..... | 87,028 | 343,504 | 89,593 | 142,576 |
| Loganberries..... | 273,684 | 2,138,817 | 89,598 | ..... |
| Raspberries..... | 551,419 | 4,278,939 | 414,632 | 1,137,207 |
| Strawberries..... | 374,097 | 3,393,648 | 185,919 | 557,519 |
| Total..... | 2,347,213 | 16,449,126 | 1,333,449 | 2,946,724 |

¹ Standard case contains 24 No. 2 cans and the net weight of contents is approximately 30 pounds.

Imports of canned berries are insignificant and not separately shown. Imports of dried berries are likewise small; detailed figures for the latter are given below:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|--------|-------|------------------------|
| | Pounds. | | | Per cent. |
| 1918..... | 1,800 | \$377 | \$18 | 4.77 |
| 1919..... | 33,577 | 5,506 | 330 | 6.10 |
| 1920..... | 177,095 | 28,822 | 1,771 | 6.14 |
| 1921 (9 months)..... | 15,005 | 2,007 | | |

Exports of dried and canned berries are not shown.

Important changes in classification.—See General Notes on Paragraph, page 717.

CRANBERRIES.

Description and uses.—The cranberry is the fruit of a low bush growing naturally in moist locations, frequently in decidedly boggy regions. Commercial production is restricted to the North. It is used primarily for sauce or jelly.

Production centers chiefly in three districts—the Cape Cod region of Massachusetts, the eastern part of New Jersey, and central Wisconsin. Statistics of production for the years 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 |
|-------------------------|-------------|-------------|-------------|-------------|
| Quantity (barrels)..... | 352,000 | 549,000 | 449,000 | 373,000 |
| Value..... | \$3,791,000 | \$4,597,000 | \$5,514,600 | \$0,192,000 |

Imports are extremely small in amount, being only \$4 in 1918, \$177 in 1919, and \$299 in 1920.

Exports are not separately shown.

Important changes in classification.—See General Notes on Paragraph, page 717.

CURRANTS.

Description and uses.—Currants are used principally in making jelly and small quantities are employed in making conserves. Spiced currants are used for pie filling, etc. Few are consumed fresh because of their sharp acidity. Because of the relation which currant and gooseberry plants of all varieties bear to the white-pine blister rust, stringent quarantine regulations limit the regions for growing currants or gooseberries. In the absence of these plants the disease is not perpetuated.

Production in 1909 was over 10,000,000 quarts, valued at \$790,000, and chiefly in the Central and Northern States. Production in 1919 amounted to about 7,700,000 quarts. The currant grows farther north than many other small fruits. It withstands drought fairly well, and is a home-garden fruit in the Great Plains area where lack of moisture restricts many other fruits and berries.

Imports and exports are not separately shown.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Berries, green, ripe, or dried, have been transferred from the free list (par. 488, act of 1913). The rate upon the fresh berries has been changed from the quart to the pound basis in accordance with common usage in the trade.

Imports have been so small that the specific provision for cranberries has been dropped.

PARAGRAPH 738.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 738. Cherries, in their natural state or in brine, 1½ cents per pound; maraschino cherries and cherries prepared or preserved in any manner, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 274. * * * cherries, * * * green or ripe, twenty-five cents per bushel; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; * * *

PAR. 217. * * * cherries, * * * green or ripe, 10 cents per bushel of fifty pounds; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; * * *

PAR. 571. * * * fruits in brine, not specially provided for in this section [Free].

PAR. 488. * * * fruits in brine, not specially provided for in this section [Free].

CHERRIES.

Description and uses.—Two distinct types of cherries are grown—the sweet and the sour. Too acid to be pleasing in the fresh state, the sour cherries are principally used for culinary purposes, for sauces, and especially for pies. A considerable portion of the crop is canned and distributed to restaurants, pie bakers, hotels, etc. Sweet cherries are consumed fresh, but large quantities are used in canning and in making maraschino cherries. Both sweet and sour cherries have various other food uses, as in ice creams, icings, and soda-fountain products. Food-preserving companies operate large plants in some of the cherry-growing regions.

Production, while extensive for home use, is restricted commercially to a few sections. The sour cherry, being hardier, is more largely grown. The crop in 1909 was about 4,126,099 bushels. Commercial production is now largely in New York, Ohio, Michigan, Wisconsin, Colorado, and the Pacific Coast States. In the Pacific States the crop is mostly sweet; elsewhere chiefly sour. In 1919 the domestic production of cherries was 3,945,749 bushels, valued at \$14,166,176.

The production of canned cherries in 1919 was 1,362,832 cases, valued at \$8,451,029; in 1914 production was 543,213 cases, valued

* Cherries in a raw state, preserved in brine or otherwise, 3 cents per pound. (Par. 27, emergency tariff act of 1921.)

at \$1,628,975. (A case consists of 24 No. 2 cans, the average weight of contents being about 31 pounds.)

Imports of fresh cherries are small and come chiefly from Canada. Cherries are usually imported in brine and such cherries constitute substantially all of the fruit in brine for which statistics for calendar years are given below. Exact quantities of glacé, candied, and maraschino cherries imported are likewise not separately shown, but it is estimated that approximately 2,500 tons are annually imported from Italy and Spain.

Imports of fruits in brine (except citron) have been, in calendar years, as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | | 28,722,608 | 24,712,178 | 1,317,824 |
| Value..... | \$945,326 | \$2,677,868 | \$1,877,201 | \$52,534 |

Under the emergency tariff act (May 27, 1921) "cherries in a raw state, preserved in brine or otherwise," were made dutiable separately from all other fruits. From May 28 to September 30, 1921, 1,570,768 pounds, valued at \$285,585, were entered for consumption.

Exports.—None recorded.

Important changes in classification.—All the provisions for cherries have been combined in one paragraph. The provisions for "fruits in brine" (par. 488, act of 1913), rather than that for "cherries, green or ripe" (par. 217, act of 1913), has been held to be the proper classification for cherries in brine. There is, moreover, doubt concerning the percentage of brine under such classification. For these reasons specific provision is made for cherries in brine. A special provision is also included for maraschino cherries, dutiable under the act of 1913 (par. 217) as fruits preserved or packed in spirits.

Suggested changes.—Specific provision might be made for sulphured cherries, some of which are imported. The first bracket of paragraph 738 might be amended to read, "Cherries, in their natural state, sulphured, or in brine, [rate]."

PARAGRAPH 739.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 739. Cider, 10 cents per gallon; vinegar, 6 cents per proof gallon: *Provided*, That the standard proof for vinegar shall be 4 per centum by weight of acetic acid.

ACT OF 1909.

ACT OF 1913.

PAR. 255. Cider, five cents per gallon.

PAR. 299. Vinegar, seven and one-half cents per proof gallon. The standard proof for vinegar shall be taken to be that strength which requires thirty-five grains of bicarbonate of potash to neutralize one ounce troy of vinegar.

PAR. 202. Cider, 2 cents per gallon.

PAR. 236. Vinegar, 4 cents per proof gallon. The standard proof for vinegar shall be taken to be that strength which requires thirty-five grains of bicarbonate of potash to neutralize one ounce troy of vinegar.

CIDER.

Description and uses.—Cider is the juice of apples or other fruit, obtained by grinding the fruit to a pulp and pressing in a mill. It is chiefly used as a beverage and in the making of vinegar.

Production.—In 1914 there were 430 manufacturers of cider in the United States, with a product valued at \$2,244,618. New York, Illinois, and Kentucky lead in its manufacture. In 1919 a total of 522 establishments reported a product valued at \$7,243,000. Besides this, 19,400,000 gallons, valued at \$9,700,000, were made on farms. Many households manufacture for consumption or sale, but there has been a marked trend toward factory production.

Imports of cider since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------------|-----------------|---------|-------|--------------------------------|
| | <i>Gallons.</i> | | | <i>Per cent.</i> |
| 1918..... | 2,737 | \$2,852 | \$56 | 1.92 |
| 1919..... | 3,281 | 4,137 | 66 | 1.59 |
| 1920..... | 99,525 | 116,148 | 1,997 | 1.81 |
| 1921 (9 months)..... | 14,197 | 2,890 | | |

Exports in 1912 (the last year in which they were separately given) were 63,882 gallons, valued at \$10,460. About 90 per cent went to the United Kingdom.

Important changes in classification.—See General Notes on Paragraph, page 720.

VINEGAR.

Description and uses.—Vinegar is usually derived from beer, cider, malt, glucose, sugar, or wine, through bacterial action and the removal of the alcohol by oxidation. It consists essentially of dilute acetic acid and is used chiefly as a temporary preservative.

Production on farms in 1909 was 7,246,632 gallons. Factory production was reported as worth \$5,566,274 in 1914. In 1919 vinegar made on farms amounted to 8,600,000 gallons, valued at \$2,600,000. There were 198 establishments engaged in factory production of vinegar in 1919 with a total output valued at \$17,437,000.

Imports in 1913 were 303,376 gallons, valued at \$84,855. In 1920 over 40 per cent came from Great Britain, the other most important sources being Canada, Japan, and Hongkong. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------------|---------------------|----------|---------|--------------------------------|
| | <i>Pf. gallons.</i> | | | <i>Per cent.</i> |
| 1918..... | 53,323 | \$30,401 | \$2,133 | 7.02 |
| 1919..... | 99,463 | 58,614 | 3,979 | 6.79 |
| 1920..... | 192,638 | 96,626 | 7,706 | 8.60 |
| 1921 (9 months)..... | 104,381 | 52,048 | | |

Exports in 1914 were 125,666 gallons, valued at \$25,112. They go chiefly to Canada, Panama, Mexico, the Philippine Islands, and the United Kingdom. Later export figures for calendar years are tabulated as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|----------|-----------|-----------|---------------------|
| Quantity (gallons)..... | 318,976 | 469,316 | 300,912 | 137,350 |
| Value..... | \$30,000 | \$135,869 | \$113,020 | \$44,780 |

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The two paragraphs relating to cider and vinegar have been combined. The standard proof for vinegar, as given in the acts of 1909 and 1913, is antiquated. In the proposed substitute the present method of determining the strength of vinegar is utilized, and the standard given corresponds to that of the Department of Agriculture.

PARAGRAPH 740.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 740. Citrons and citron peel, crude, or in brine, 2 cents per pound; candied or otherwise prepared or preserved, 4 cents per pound; orange and lemon peel, crude, or in brine, candied, or otherwise prepared or preserved, 2 cents per pound.

ACT OF 1909.

PAR. 278. Orange peel or lemon peel, preserved, candied, or dried, * * * two cents per pound; citron or citron peel, preserved, candied, or dried, four cents per pound.

PAR. 571. * * * fruits in brine, not specially provided for in this section [Free].

PAR. 641. Orange and lemon peel, not preserved, candied, or dried [Free].

ACT OF 1913.

PAR. 221. Orange peel or lemon peel, preserved, candied, or dried, 1 cent per pound; * * * citron or citron peel, preserved, candied, or dried, 2 cents per pound.

PAR. 488. * * * fruits in brine, not specially provided for in this section [Free].

PAR. 563. Orange and lemon peel, not preserved, candied, or dried [Free].

CITRON OR CITRON PEEL, PRESERVED OR CANDIED.

Description and uses.—The citron is a lemonlike fruit, with rind thick and tender, and is preserved or candied for confectionery and for culinary purposes. The term "citron" is also applied to a variety of melon, the rind of which is used for preserves.

Production.—Citrons are grown in California and Florida, but more extensively in the West Indies and southern Europe. California produced 2,002 boxes of citrons, valued at \$8,008, in 1919. Production figures for Florida are not shown. Most of the candied citron comes from Mediterranean countries.

Imports in 1914 of citron in brine amounted to 2,482,940 pounds, valued at \$106,677; and of candied citron, 849,557 pounds, valued at \$66,849. Later figures follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|-------------------------|----------------|-----------|-------|------------------------|
| CITRON IN BRINE. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 3,021,983 | \$171,214 | | |
| 1919..... | 2,845,763 | 262,152 | | |
| 1920..... | 3,342,624 | 566,112 | | |
| 1921 (9 months)..... | 2,514,767 | 246,363 | | |

CITRON OR CITRON PEEL, PRESERVED, CANDIED, OR DRIED.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|----------|---------|------------------------|
| 1918..... | 421,681 | \$86,221 | \$3,434 | 9.78 |
| 1919..... | 400,245 | 106,407 | 8,005 | 7.52 |
| 1920..... | 875,653 | 314,618 | 17,513 | 5.57 |
| 1921 (9 months)..... | 237,446 | 53,480 | | |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 722.

ORANGE AND LEMON PEEL.

Description and uses.—Orange and lemon peels are used in a candied or preserved state for confectionery and culinary purposes. The United States Pharmacopœia recognizes two varieties of orange peel. (1) Bitter, the dried rind of a sour, inedible fruit, deep orange in color, and with a thick and spongy rind. It is not grown here. The bitter orange peel is used for flavoring medicines. (2) Sweet, the outer rind of the ripe edible fruit. When dried it resembles bitter orange peel and it is used principally as an aromatic and as a source of essential oils. Lemon peel is also from the fresh fruit; it is usually not dried, but is valued for its oils and for its flavoring properties.

Production.—The domestic lemon and orange growing industries do not recover the by-products as extensively as in European practice; the peel is preserved to some extent in California and Florida, but statistics are not available.

Imports of dried orange and lemon peel were 563,666 pounds, valued at \$34,004 in 1914. Later statistics follow.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|----------------|----------|-------|------------------------|
| ORANGE AND LEMON PEEL, NOT PRESERVED, CANDIED, OR DRIED. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$31,037 | | |
| 1919..... | 1,046,429 | 45,138 | | |
| 1920..... | 875,700 | 54,903 | | |
| 1921 (9 months)..... | 321,461 | 10,630 | | |

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|-----------|-----------|--------|------------------------|
| ORANGE AND LEMON PEEL, PRESERVED, CANDIED, OR DRIED. | | | | |
| | Pounds. | | | Per cent. |
| 1918..... | 83, 584 | \$13, 194 | \$636 | 6.34 |
| 1919..... | 193, 724 | 31, 463 | 1, 937 | 6.16 |
| 1920..... | 351, 547 | 70, 182 | 3, 515 | 5.01 |
| 1921 (9 months)..... | 141, 277 | 17, 521 | | |

Exports.—None recorded.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The acts of 1909 and 1913 contain provisions for unprepared orange and lemon peel (par. 641, act of 1909, and par. 563, act of 1913), as well as provisions for prepared orange, lemon and citron peel, and citron (par. 278, act of 1909, and par. 221, act of 1913). Furthermore considerable quantities have been imported under the provision for "fruits in brine" (par. 571, act of 1909, and par. 488, act of 1913). The several paragraphs relating to peels have been combined, and duties imposed upon the crude peel and peels in brine as well as upon the prepared product.

Suggested changes.—Page 91, line 24; page 92, line 1: Insert "or dried" after "in brine."

PARAGRAPH 741.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 741. Figs, fresh or dried, 2 cents per pound; prepared or preserved in any manner, 20 per centum ad valorem; dates, 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 274. * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; * * *

PAR. 275. Figs, two and one-half cents per pound; * * * dates, one cent per pound; * * *

PAR. 217. * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; * * *

PAR. 218. Figs, 2 cents per pound; * * * dates, 1 cent per pound; * * *

FIGS.

Description and uses.—Two types of figs are grown—the Adriatic, chiefly in the South Atlantic and Gulf States, and the Smyrna, in California. The Adriatic is also grown in California and is still a large proportion of the crop; the Smyrna, planted only in recent years, is becoming increasingly important. Small quantities, commercially negligible, are also grown in Arizona. The humid climatic conditions of the South Atlantic and Gulf States produce a very perishable fruit, fermentation setting in within a few hours after picking, unless

special precautions are taken. As it has been impracticable to ship the fresh fruit long distances except under effective refrigeration, it is used in the home or in near-by markets, large quantities being canned or otherwise preserved. In the Southern States east of Texas there is little orchard planting, but almost every rural and urban home raises a family supply, some of which is canned locally. In the Gulf coast region of Texas there are many fig orchards, the fruit of which is practically all canned. In California the crop is largely dried and packed for the trade.

Production.—California produces practically all of the figs grown commercially in this country. In 1909 her production amounted to 33,000,000 pounds, valued at \$716,000. In 1919 it was about 26,460,000 pounds, valued at \$2,762,000.

Imports for 1915–1918 (fiscal years) averaged 12,103,184 pounds, valued at \$612,432, considerably less than the prewar average. Before the war most of the dried figs came from Smyrna in Asiatic Turkey. Large quantities are still received from Smyrna and also from Greece, Spain, Italy, and Portugal. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 9,913,732 | \$702,368 | \$198,275 | 28.23 |
| 1919..... | 18,011,655 | 3,210,649 | 380,233 | 11.32 |
| 1920..... | 31,074,933 | 3,890,782 | 621,499 | 15.97 |
| 1921 (9 months)..... | 9,246,157 | 875,476 | | |

Exports.—None.

Important changes in classification.—See General Notes on Paragraph, page 724.

DATES.

Description and uses.—Dates are raised in the warm, dry, interior valleys of California and Arizona, important producing sections being the Coachella and Imperial Valleys in California, and localities in the vicinity of Phoenix, Ariz. This is an infant industry and development is relatively slow, because of the difficulty in securing offshoots from desirable varieties.

Production does not justify shipments in carload lots. In 1919 California produced 144,992 pounds, valued at \$28,998. Arizona produced 42,812 pounds, valued at \$10,703.

Imports during 1913–1917 averaged 28,066,867 pounds. Asiatic Turkey has always been the chief source, supplying in 1920 about 75 per cent of the imports. Statistics of imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 10,024,916 | \$487,886 | \$100,249 | 20.55 |
| 1919..... | 20,606,206 | 989,970 | 206,062 | 20.81 |
| 1920..... | 28,562,114 | 1,823,223 | 285,621 | 15.67 |
| 1921 (9 months)..... | 23,325,689 | 1,340,843 | | |

Exports.—None reported.

Important changes in classification.—See General Notes on Paragraph, page 724.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Figs and dates have been brought together in one paragraph. The provision for figs has been made more specific to accord with the character of the trade and more nearly to reflect variations in value.

Suggested changes.—For dates, as in the case of figs, provision might be made for the fruit fresh or dried, and prepared or preserved.

PARAGRAPH 742.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 742. Grapes in barrels or other packages, 25 cents per cubic foot of the capacity of the packages; raisins, 2 cents per pound; dried currants and other dried grapes, 2½ cents per pound.

ACT OF 1909.

PAR. 275. * * * raisins and other dried grapes, two and one-half cents per pound; * * * currants, Zante or other, two cents per pound; * * *

PAR. 276. Grapes in barrels or other packages, twenty-five cents per cubic foot of capacity of barrels or packages.

ACT OF 1913.

PAR. 218. * * * raisins and other dried grapes, 2 cents per pound; * * * currants, Zante or other, 1½ cents per pound; * * *

PAR. 219. Grapes in barrels or other packages, 25 cents per cubic foot of the capacity of the barrels or packages.

GRAPES.

Description and uses.—The grapes produced in the United States are of three types. (1) Native bunch grapes, the most widely distributed; (2) the vinifera or European grapes, confined chiefly to California; (3) the muscadine grapes, raised principally in the South Atlantic and Gulf States. Growing the muscadine is primarily a home industry although some commercial vineyards have been maintained in the past for making wine. The regional distribution of these different types is determined by climatic adaptations.

Production.—The native American bunch grapes are widely grown outside of California and the South Atlantic and Gulf States, where the other types are chiefly produced. There are commercial producing centers, such as the Hudson River Valley, the lake region in central and western New York, northwestern Pennsylvania, northern Ohio, southwestern Michigan, and smaller districts elsewhere. Home vineyards are general. There are no adequate statistics of the native bunch grapes or the muscadine. The vinifera represent a large investment in California. Data of acreage are difficult to secure, but the best estimates indicate about 50,000 acres of table grapes, 230,000 acres of raisin grapes, and 140,000 acres of wine grapes in California alone. Estimates of returns to the grape industry of California for the year 1919 are: Wine grapes, \$15,000,000; table grapes, \$18,000,000; raisin grapes, \$42,500,000; total, \$75,500,000. Shipments of fresh grapes from California were about 6,360 cars in 1913 and more than 22,068 in 1919. The total domestic production of all

kinds of grapes in 1919 was 1,258,420 tons, valued at \$95,586,021. Of this amount California produced 1,027,822 tons, valued at \$65,780,628. In 1919 a total of 87,644 cases of grapes, valued at \$514,219, were canned, mostly in California.

Imports of grapes amounted to an annual average of 1,048,815 cubic feet (packed in barrels), valued at \$1,227,171 for 1914-1918 (fiscal years). They have ranged from 2,237,730 pounds in 1908 to 533,599 pounds in 1919. These are largely late-ripening, long-keeping, European varieties, mostly from Spain. Some quantities are also brought in from Canada and the West Indies. Statistics of imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|--------------------|-----------|-----------|------------------------|
| | <i>Cubic feet.</i> | | | <i>Per cent.</i> |
| 1918..... | 667,851 | \$922,747 | \$186,963 | 16.82 |
| 1919..... | 533,599 | 843,629 | 133,400 | 15.81 |
| 1920..... | 991,654 | 1,484,568 | 247,889 | 16.70 |
| 1921 (9 months)..... | 191,489 | 376,431 | | |

Exports.—Not recorded separately.

Important changes in classification.—See General Notes on Paragraph, page 726.

RAISINS.

Description and uses.—Raisins are dried grapes of certain varieties of the vinifera or European type. While producible from many kinds of grapes, particular qualities are required for raisins of high grade, and few varieties possess these qualities in a sufficient degree. The raisins most prized are the Alexandria and the Sultanina.

Production is confined, commercially, to California, where conditions are favorable to desirable raisin varieties and where sun drying is feasible. Output has steadily increased for several years. The pack has ranged from 254,000,000 pounds in 1915 to 395,000,000 pounds in 1919. Production varied from 125,000,000 pounds in 1910 to 196,000,000 pounds in 1914. California produced 293,300,581 pounds in 1919 valued at \$35,544,262.

Imports in 1918 were only 949,285 pounds, valued at \$157,486, with an average of about 3,500,000 pounds during 1910-1914. Normally the imports, mostly from Spain and Asiatic Turkey, are unimportant compared with production or exports. In 1920 imports were unusually large; over 55 per cent came from Spain. Statistics of imports of raisins and other dried grapes follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 202,672 | \$26,965 | \$4,058 | 15.03 |
| 1919..... | 1,357,545 | 391,018 | 27,141 | 6.94 |
| 1920..... | 40,538,807 | 6,792,197 | 810,488 | 11.94 |
| 1921 (9 months)..... | 12,863,067 | 1,782,704 | | |

Exports rapidly increased, up to the enactment of the Federal prohibition law, reaching a maximum of 110,183,033 pounds in 1919.

Canada, the United Kingdom, Japan, and Australasia were the principal countries of destination. Exports of raisins and other dried grapes since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|--------------|-------------|---------------------|
| Quantity (pounds)..... | 32,657,814 | 110,193,033 | 53,312,125 | 10,580,200 |
| Value..... | \$4,668,021 | \$13,080,306 | \$9,505,202 | \$1,979,691 |

Important changes in classification.—See General Notes on Paragraph below.

DRIED CURRANTS, ZANTE OR OTHER.

Description and uses.—The Zante or currants of commerce are in fact the dried product of certain varieties of European grapes, domestic production of which has been negligible. Recent experiments indicate that this type of grape can be grown commercially in California. The dried currant is used for culinary purposes.

Production has been inconsiderable, but small commercial plantings are being made.

Imports from 1907 to 1917 have ranged from about 80,000,000 pounds to 39,000,000 pounds. These imports came almost entirely from Greece. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|---------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 3,987,411 | \$503,537 | \$59,511 | 11.82 |
| 1919..... | 13,567,066 | 2,108,482 | 203,506 | 9.65 |
| 1920..... | 55,560,624 | 6,073,481 | 833,409 | 13.72 |
| 1921 (9 months)..... | 26,244,044 | 2,426,767 | | |

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Fresh grapes have been combined with dried grapes, raisins, and dried currants.

The provision here for dried currants covers only dried currant grapes of the Zante and other varieties, which are similar in nature to raisins. Garden currants are a different fruit, being more nearly related to berries. Trade in garden currants is unimportant. Such currants, in the absence of specific provision therefor, have been held to come within the provision for berries in their natural condition.

"Other dried grapes" consist mostly of wine grapes, imports of which have recently much increased.

The provision for assessing duty on grapes per cubic foot of the capacity of the package has been retained, because most of the imported grapes are packed in cork dust, making difficult the determination of the actual weight of fruit without spoiling the fruit.

PARAGRAPH 743.

H. R. 7466.

SENATE AMENDMENTS.

PAR. 743. Lemons, 2 cents per pound; limes, oranges, and grapefruit, 1 cent per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 277. Lemons, one and one-half cents per pound; oranges, limes, grapefruit, shaddocks, or pomelos, one cent per pound.

PAR. 220. Lemons,¹¹ limes, oranges, grapefruit, shaddocks, and pomelos in packages of a capacity of one and one-fourth cubic feet or less, 18 cents per package; in packages of capacity exceeding one and one-fourth cubic feet and not exceeding two and one-half cubic feet, 35 cents per package; in packages exceeding two and one-half and not exceeding five cubic feet, 70 cents per package; in packages exceeding five cubic feet or in bulk, $\frac{1}{4}$ of 1 cent per pound.

LEMONS.

Description and uses.—The lemon, even more than the orange, requires a warm climate, relatively free from frost. Lemons are picked at a certain size, varying from $2\frac{1}{4}$ to $2\frac{1}{2}$ inches in diameter, and stored in curing rooms, sometimes two or three months, until a typical yellow color is acquired. Great care must be exercised in picking, packing, and marketing. Besides the familiar uses of the fresh fruit, there are important by-products, including citrate of lime, and citric acid.

Production.—Commercial cultivation of the lemon is confined to California, where production increased from 2,756,000 boxes in 1909 to 6,551,000 boxes valued at \$19,000,000 in 1919. Florida also grows some lemons, chiefly for home use. Production in this State amounted in 1919 to 31,204 boxes valued at \$93,612.

Imports for 1913-1917 (chiefly from Sicily) fluctuated from 100,000,000 to 175,000,000 pounds, with values from \$2,062,030 to \$5,981,635. Lemons are entered in packages of varying size, but most of the imports are received in boxes whose contents exceed $1\frac{1}{4}$ but do not exceed $2\frac{1}{4}$ cubic feet. Statistics of imports since 1917 by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|-------------|-------------|-------------|---------------------|
| Value..... | \$1,857,598 | \$2,437,802 | \$2,604,529 | \$1,944,872 |
| Duty..... | 300,819 | 352,586 | 542,076 | |

The following statistics show the value of lemons imported by months for 1920 and 1921 under the operation of the emergency tariff act.

¹¹ Lemons, 2 cents per pound. (Par. 10, emergency tariff act of 1921.)

| Month. | 1920 | 1921 | Month. | 1920 | 1921 |
|---------------|-----------|----------|----------------|-----------|-----------|
| January..... | \$156,229 | \$67,232 | July..... | \$137,543 | \$304,058 |
| February..... | 82,261 | 32,369 | August..... | 486,387 | 242,440 |
| March..... | 348,626 | 85,768 | September..... | 67,754 | 100,116 |
| April..... | 308,747 | 38,517 | October..... | 131,635 | 108,639 |
| May..... | 357,670 | 78,678 | November..... | 44,142 | 84,669 |
| June..... | 587,102 | 94,630 | December..... | 84,343 | 24,491 |

Exports for 1914-1918 (fiscal years) ranged from 70,000 to 193,000 boxes, valued at \$308,707 to \$1,088,000. Over 85 per cent go to Canada. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-------------|-------------|-------------|---------------------|
| Quantity (boxes)..... | 193,347 | 306,916 | 283,050 | 242,959 |
| Value..... | \$1,068,823 | \$1,371,848 | \$1,188,053 | \$1,023,908 |

Important changes in classification.—See General Notes on Paragraph, page 730.

LIMES.

Description and uses.—Limes are a variety of citron, and are used for the same purposes as the lemon. They also yield citrate of lime and citric acid. The trade demands sizes from 1½ to 1¼ inches in diameter.

Production.—The tree, less hardy than the lemon tree, is commercially restricted to warm localities in Florida. California has successfully cultivated some home orchards, but produced only 136 boxes in 1919. Production in Florida for 1909 and 1919 was 11,302 and 27,725 boxes, valued at \$12,457 and \$97,040, respectively.

Imports, largely from the West Indies, are shown for calendar years in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|----------|----------|----------|---------------------|
| Value..... | \$98,754 | \$98,598 | \$84,240 | \$91,789 |
| Duty..... | 6,628 | 17,224 | 16,747 | ..... |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 730.

ORANGES.

Description and uses.—The important orange-growing sections of this country are in California and Florida; smaller areas are in Arizona, Texas, Louisiana, Alabama, and Mississippi. The crop requires a warm climate, relatively free from frost. The trees begin to bear the third year, but not in commercial quantities until the fifth or sixth year; they bear profitably from 20 to 40 years. The industry is highly specialized. The fruit is picked very carefully, to avoid bruising, and is assorted into several grades in packing houses. By means of mechanical sizers the fruits of each grade are divided into the different commercial sizes. There are by-products, including orange marmalade, candied orange peel, orange vinegar, etc.

Production of oranges in recent years has varied from approximately 10,000,000 to 24,000,000 boxes—7,000,000 to 17,000,000 boxes in California, 3,000,000 to 6,000,000 boxes in Florida; the remainder in Arizona, Texas, Louisiana, Mississippi, and Alabama. The quantity and value of the crop in the two States of California and Florida for later calendar years follow:

| | 1919 | 1920 | 1921 |
|-------------------------|-------------|-------------|-------------|
| Quantity (boxes)..... | 24,200,000 | 22,528,000 | 29,700,000 |
| Farm value, Dec. 1..... | 184,480,000 | 220,202,000 | 264,908,000 |

Imports of oranges for 1914-1917 varied from approximately \$50,000 to \$100,000. The heaviest shipments came from the West Indies and Japan. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|-----------|---------|----------|---------------------|
| Value..... | \$107,208 | \$2,790 | \$58,371 | \$3,389 |
| Duty..... | 23,691 | 12,359 | 12,256 | ..... |

Exports for 1914-1918 ranged from 1,500,000 to 1,800,000 boxes, valued at \$3,800,000 to \$4,480,000. The larger shipments were to Canada. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-------------|-------------|-------------|---------------------|
| Quantity (boxes)..... | 857,159 | 1,777,468 | 1,517,994 | 1,828,70 |
| Value..... | \$4,279,429 | \$7,638,450 | \$7,518,638 | \$6,644,21 |

Important changes in classification.—See General Notes on Paragraph, page 730.

GRAPEFRUIT.

Description and uses.—Florida is the most important grapefruit producer. This fruit is also raised commercially in California, but is of minor importance compared with orange and lemon holdings. It is grown commercially in Arizona to a small extent, and is also found in home orchards in Texas, Louisiana, Mississippi, and Alabama. Its important use is as a breakfast fruit.

Production in Florida has increased from 1,061,537 boxes in 1909 to 3,158,431 boxes in 1919, the latter crop being valued at \$6,158,941. California produced 122,515 boxes in 1909 and 465,085 boxes valued at \$930,170 in 1919.

Imports, practically all from Cuba, are shown for calendar years in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|-----------|-----------|-----------|---------------------|
| Value..... | \$323,007 | \$611,129 | \$627,726 | \$398,798 |
| Duty..... | 53,198 | 81,851 | 60,597 | ..... |

Exports.—None recorded.

Important changes in classification.—See below.

GENERAL NOTE ON PARAGRAPH

Important changes in classification.—The duty has been simplified by changing from the complicated package to the pound basis. The terms "shaddocks" and "pomelos" have been dropped because they are merely synonyms for grapefruit.

PARAGRAPH 744.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 744. Olives in brine, green, 20 cents per gallon; ripe, 20 cents per gallon; pitted or stuffed, 30 cents per gallon; dried ripe olives, 4 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 275. * * * olives, in bottles, jars, kegs, tins, or other packages, containing less than five gallons each, twenty-five cents per gallon; otherwise, fifteen cents per gallon.

PAR. 218. * * * olives, 15 cents per gallon.²²

OLIVES.

Description and uses.—The products of the industry relating to this fruit are pickled olives (green or ripe), salt-cured olives, pitted or stuffed olives, and olive oil.

Production.—The fruit is grown in a warm, dry climate, free from frost, and its production requires skill and long experience in culture. The tree begins to bear commercially when 5 to 7 years old, and may be productive for several centuries.

Domestic olive culture is confined to California and small areas in Arizona, with a total acreage of about 1 per cent of the Spanish or Italian crop. Only recently has the industry been firmly placed, and its present status is due largely to improvements in growing and handling, especially in pickling the ripe olive, in which the United States has virtually a monopoly. Competing countries have not produced ripe olives, partly because of the presence of the olive fly, which honeycombs the ripe fruit. Domestic producers have had little success in pickling green olives.

Spain, the principal source of our imported olives, grows chiefly those used for pickling, while those grown for oil predominate in Italy, whence is normally derived most of the olive oil. In the domestic industry, pickles and oil are largely joint products, the culls and injured ripe olives being processed for oil and the better grades pickled. Olives for oil, usually grown without irrigation, are being abandoned for the more profitable ripe olives. The competition of foreign oils is a strong trade factor.

²² Olives, in solutions, 25 cents per gallon; olives, not in solutions, 3 cents per pound. (Par. 23, emergency tariff act of 1921.)

In 1921 there were in the United States about 40,000 acres in olives, of which between 20,000 and 30,000 acres were bearing. About 50 per cent of the olives were pickled, and the remainder were salt-cured, pickled green, or crushed for oil. The pickled ripe olives amount to over 1,000,000 gallons annually. The output varies with fluctuations in yield and in the percentage suitable for pickling. In California production in 1909 was 16,132,412 pounds, valued at \$401,277, and in 1919, 17,564,020 pounds, valued at \$1,405,121. According to the California Olive Association production of pickled ripe olives and salt-cured olives for the last three calendar years was as follows:

| | 1918 | 1919 | 1920 ¹ |
|----------------------------------|-----------|------------|-------------------|
| Pickled ripe olives.....pounds.. | 8,910,000 | 10,791,000 | 6,930,000 |
| Salt-cured olives.....do..... | 2,247,000 | 1,198,000 | 1,498,000 |

¹ Estimated.

Growers estimate the average value of present bearing lands, both good and bad, at \$750 per acre (for 1921) and nonbearing lands at \$500.

Both the pickling and the oil processing are performed in specially equipped packing plants, sometimes in connection with olive groves. There were 26 commercial processing plants in California and Arizona in 1921, and half of these were equipped for making olive oil. As the packing season lasts only three or four months, these establishments usually engage in canning other products. In the Mediterranean countries olives are generally grown and processed as a family enterprise, and brokers buy, assemble, and grade the product at gathering stations. The pickling process consists in first neutralizing with an alkali (usually lye) the tannic acid of the olive, after which the product is aerated to "settle" the color and impart the characteristic black tinge. The lye is then washed off, the olives placed in brine solutions, and later canned. The price varies with the size of the olives.

Imports, principally from Spain, ranged during 1910-1917 between 3,000,000 and 5,000,000 gallons, about five times the domestic crop. They consisted of the highest-priced product, green olives, mostly "queens" or large-sized olives, and included relatively but a small amount of the lower-priced Manzanilla or small olives. The shipments are largely in bulk, being bottled or packed here. The bottling and packing and the pitting and stuffing of imported olives is a considerable industry. The revenue ranged from \$500,000 to \$860,000 during 1910-1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-------------|-----------|------------------------|
| | <i>Gallons.</i> | | | <i>Per cent.</i> |
| 1918..... | 2,558,245 | \$1,207,475 | \$383,704 | 32 |
| 1919..... | 3,960,253 | 2,348,680 | 594,033 | 25 |
| 1920..... | 4,196,394 | 4,296,244 | 629,307 | 15 |
| 1921 (9 months)..... | 3,374,000 | 2,249,597 | | |

The following statistics show the quantity and value of olives imported by months for 1920 and 1921 under the operation of the emergency tariff act:

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|-----------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Gallons.</i> | <i>Gallons.</i> | | |
| January..... | 512,888 | 561,497 | \$408,233 | \$269,898 |
| February..... | 344,875 | 217,617 | 326,538 | 151,096 |
| March..... | 422,264 | 217,740 | 496,065 | 160,940 |
| April..... | 737,603 | 401,804 | 771,401 | 266,508 |
| May..... | 640,641 | 588,167 | 746,461 | 336,450 |
| June..... | 431,096 | 378,496 | 563,839 | 176,207 |
| July..... | 232,705 | | 266,784 | 254,217 |
| August..... | 619,745 | | 755,027 | 63,137 |
| September..... | 180,767 | | 207,762 | 270,697 |
| October..... | 154,820 | | 142,721 | 115,015 |
| November..... | 155,644 | | 112,631 | 94,114 |
| December..... | 335,937 | | 186,712 | 124,408 |

Exports.—None recorded.

Important changes in classification.—Because of the distinctive trade in ripe, green, and pitted or stuffed olives, special provision has been made for each of these classes.

PARAGRAPH 745.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 745. Peaches and pears, green or ripe, one-half of 1 per cent per pound; dried, desiccated, or evaporated, 1 cent per pound; otherwise prepared or preserved, and not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 274. * * * peaches, * * * and pears, green or ripe, twenty-five cents per bushel; * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, two cents per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; * * *

PAR. 217. * * * peaches, * * * and pears, green or ripe, 10 cents per bushel of fifty pounds; * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, 1 cent per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; * * *

PEACHES, GREEN OR RIPE, DRIED AND CANNED.

Description and uses.—Peaches are dried and canned in large quantities, are used fresh, and are made into marmalade and other products. In California, the State of largest production, about 90 per cent of the crop is canned or dried.

Production.—The annual peach crop, about one-half of which is commercial, ranges between 35,000,000 and 53,000,000 bushels. Al-

though centers of production are widely distributed, California produces a much larger proportion of the commercial crop than any other one State; New York, Georgia, Arkansas, and Washington are also important peach-growing States. Canada, Argentina, and Germany are large producers. In 1919 production of canned peaches reached a total of 7,706,855 cases, valued at \$46,516,225, compared with 3,407,906 cases in 1914, valued at \$9,585,773. California produced practically all of the domestic dried peaches in 1919, the total output amounting to 73,379,193 pounds, valued at \$12,109,624.

Production figures by calendar years for peaches, green or ripe, are as follows:

| | 1918 | 1919 | 1920 | 1921 |
|-------------------------|--------------|---------------|--------------|--------------|
| Quantity (bushels)..... | 34,133,000 | 53,178,000 | 45,620,000 | 22,783,000 |
| Farm value, Dec. 1..... | \$55,092,000 | \$100,485,000 | \$96,970,000 | \$52,176,000 |

Imports of fresh peaches are not separately shown. The geographical distribution and nature of the fruit make the Lake Ontario district in Canada the only source of import; but as the Ontario fruit ripens at a time when our markets are usually fully supplied, there is normally little to induce importation. Statistics of imports of peaches, quinces, cherries, plums, and pears, green or ripe, follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|----------|-------|------------------------|
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 4,633 | \$13,639 | \$463 | 3.40 |
| 1919..... | 21,602 | 119,806 | 2,169 | 1.81 |
| 1920..... | 43,380 | 281,183 | 4,338 | 1.54 |
| 1921 (9 months)..... | 118,068 | 172,338 | | |

¹ Cherries in a raw state were provided for in the emergency tariff act; hence are not included here from May 29 to Sept. 30, inclusive.

Imports of the various kinds of dried fruits, never large, have not been separately reported. Statistics for the group follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 69,139 | \$11,868 | \$691 | 5.83 |
| 1919..... | 548,645 | 101,077 | 5,456 | 5.40 |
| 1920..... | 947,088 | 162,266 | 9,471 | 5.84 |
| 1921 (9 months)..... | 784,804 | 108,900 | | |

Exports of fresh peaches are insignificant, because of their perishable nature. However, dried and canned peaches are exported in considerable amount to the United Kingdom and in lesser amounts to Canada, France, and Cuba. Export statistics by calendar years for each follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Peaches, dried: | | | | |
| Quantity (pounds)..... | 4,530,508 | 9,022,334 | 7,924,831 | 4,188,603 |
| Value..... | \$544,455 | \$1,550,878 | \$1,465,609 | \$472,984 |
| Peaches, canned: | | | | |
| Value..... | \$1,178,647 | \$9,480,850 | \$6,342,319 | \$2,487,604 |

Important changes in classification.—See General Notes on Paragraph below.

PEARS.

Description and uses.—The pear is used principally fresh, although large quantities are canned or dried, the latter operation being conducted commercially only in California. Pear blight, a serious tree disease which can not be controlled by spraying, prevents the domestic cultivation of pears in considerable areas.

Production.—While pear trees are widely planted for home use, important commercial production is confined to about 11 States, nearly one-half of this crop being grown in California. Although the pear is grown throughout the world, it is produced primarily for domestic consumption. In 1919 production of canned pears reached a total of 1,951,374 cases, valued at \$14,202,963. California produced 5,750 tons of dried pears in 1919 and about 2,500 tons in 1920.

Production of pears, green or ripe, is given, for calendar years, in the following table:

| | 1918 | 1919 | 1920 | 1921 |
|-------------------------|--------------|--------------|--------------|--------------|
| Quantity (bushels)..... | 12,983,000 | 15,101,000 | 16,805,000 | 10,705,000 |
| Farm value, Dec. 1..... | \$17,902,000 | \$27,852,000 | \$27,865,000 | \$18,342,000 |

Imports.—Not separately shown. (See p. 733.)

Exports, largely the Kieffer variety, now chiefly grown in New Jersey, Delaware, and some other sections, amount to about \$1,000,000, and go principally to the United Kingdom and Canada. Exports of green and ripe pears since 1917 by calendar years have been valued as follows: 1918, \$928,841; 1919, \$1,764,671; 1920, \$2,202,121; 1921 (9 months), \$1,134,223.

Canned pears to the value of \$5,113,738 were exported in 1920, and to the value of \$2,696,223 during the first nine months of 1921. Over half went to the United Kingdom; Cuba and Canada were the next largest purchasers.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The specific provision for quinces has been eliminated. The total imports of the group—peaches, plums, cherries, and pears, green or ripe—are not large, and quinces are believed to constitute an insignificant proportion of the total.

A new provision is here made for dried peaches and pears, and for peaches and pears otherwise prepared or preserved, now dutiable under the provisions in paragraph 217 of the act of 1913 for fruits, dried, preserved or packed in sugar, etc.

PARAGRAPH 746.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 746. Pineapples, three-fourths of 1 cent each; pineapples, prepared or preserved in any manner, 3½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 274. * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; * * * pineapples preserved in their own juice, not having sugar, spirits, or molasses added thereto, twenty-five per centum ad valorem.

PAR. 279. Pineapples, in barrels and other packages, eight cents per cubic foot of the capacity of barrels or packages; in bulk, eight dollars per thousand.

PAR. 217. * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; * * * pineapples preserved in their own juice, 20 per centum ad valorem.

PAR. 222. Pineapples, in barrels or other packages, 6 cents per cubic foot of the capacity of the barrels or packages; in bulk, \$5 per thousand.

PINEAPPLES.

Description and uses.—Pineapple is used as fresh fruit, as a canned product and in several fruit drinks. It is usually packed in slices, chunks, or in crushed or grated form, with a sirup or with the juice of the fruit alone. The ordinary canned pineapple of commerce has water added to the juice and sugar. The cores are preserved and used by confectioners. The fruit varies greatly in size, flavor, and value.

Production commercially is in Hawaii, in Porto Rico, and in Florida. The cold weather of 1917-18 and a disease known as "pineapple wilt" reduced Florida's crop from 400,300 crates, valued at \$499,118 in 1914, to 26,016 crates, valued at \$110,569 in 1919. The planting of pineapple slips on virgin soil where possible, and the use of better cultural methods are gradually restoring the industry. Since 1900 production in Hawaii has rapidly increased. Beginning in 1901 with 2,000 cases of canned pineapple the output expanded to 5,071,976 cases, valued at \$18,997,975 in 1919. The value of the Porto Rico crop in 1919 was \$319,493. In 1919 a total of 156,755 cases of pineapple valued at \$1,365,484 were canned in continental United States, practically the entire amount being packed in Maryland. The largest foreign canning center is Singapore. The pineapple industry is also important in the Philippine Islands, Siam, and the West Indies.

Import values of fresh pineapple amounted to \$1,220,571 in 1913. Fresh fruit is received chiefly from Cuba. Imports of pineapples preserved in their own juices averaged \$112,354 from 1909 to 1913; in 1914 they were \$206,736. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|----------|------------------|
| FRESH PINEAPPLES. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$845,905 | \$98,002 | 12 |
| 1919..... | | 1,045,883 | 110,126 | 11 |
| 1920..... | | 1,422,600 | 99,373 | 7 |
| 1921 (9 months)..... | | 1,541,425 | | |
| PINEAPPLES PRESERVED IN THEIR OWN JUICE. | | | | |
| 1918..... | | \$25,176 | \$1,035 | 20 |
| 1919..... | 215,293 | 10,717 | 2,143 | 20 |
| 1920..... | 905,158 | 127,285 | 25,322 | 20 |
| 1921 (9 months)..... | 814,832 | 69,791 | | |

It should be noted that the bulk of the preserved pineapples are imported under the classification "fruits preserved in sugar," etc. (see p. 741), which are not subdivided as to the various fruits.

Exports in 1920 were valued at \$3,025,522, and went chiefly to Canada, the United Kingdom, France, and Belgium.

Cannery waste (pulp, cores, etc.) consists of a variety of fruits, but is largely pineapple. In 1920 exports of this product amounted to 1,248,320 pounds, valued at \$76,634; these went chiefly to the United Kingdom, Canada, and the Netherlands.

Important changes in classification.—The two provisions of the act of 1913 relating to pineapples have been combined, the dutiable basis for fresh pineapples placed on a piece basis, and the descriptive provisions for the preserved fruit shortened and simplified.

Suggested changes.—At the hearings before the Finance Committee (vol. 7, pp. 3103 and 3107) it was stated that pineapples not in bulk are imported in standard crates of 1.96 cubic feet, containing from 18 to 48 pineapples. The larger pineapples are more valuable, sometimes selling for two or three times as much as the smaller sizes; a rate per pineapple therefore, bears more heavily upon the lower priced product. This paragraph might accordingly be changed to read—

Pineapples, [rate] per crate of 1.96 cubic feet; in bulk, [rate] per thousand.

PARAGRAPH 747.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 747. Plums, prunes, and prunelles, green or ripe, one-half of 1 cent per pound; dried, one-half of 1 cent per pound; otherwise prepared or preserved, and not specially provided for, 20 per centum ad valorem.

ACT OF 1909.

PAR. 274. * * * plums, * * * green or ripe, twenty-five cents per bushel; * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, two cents per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or

ACT OF 1913.

PAR. 217. * * * plums, * * * green or ripe, 10 cents per bushel of fifty pounds; * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, 1 cent per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved

ACT OF 1909. ACT OF 1918.

packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; * * *

PAR. 275. * * * plums, prunes, and prunelles, two cents per pound; * * *

or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; * * *

Par. 218. * * * plums, prunes, and prunelles, 1 cent per pound; * * *

PLUMS, GREEN OR RIPE.

Description and uses.—Three main types of plums are grown in America—the European or *Domestica*, the Japanese, and the numerous native species. The European and Japanese types are used principally fresh and for canning; the native plums, to a limited extent fresh, especially for culinary purposes, for canning, marmalades, jellies, etc. Certain European plums, the damsons, for example, are used entirely for preserves and marmalades.

Production of plums and prunes in 1909 was 15,480,170 bushels, the Pacific States yielding over 80 per cent. In 1919 production amounted to 19,500,000 bushels, valued at \$41,900,000. The types are somewhat regional, commercial production of the European varieties being chiefly in New York, Michigan, Ohio, California, and the Pacific Northwest. The native species are hardiest and more widely distributed.

In 1919 a total of 571,521 cases of plums, valued at \$2,228,183, was canned as compared with 288,326 cases, valued at \$438,238, in 1914. About two-thirds of the pack is canned in California.

Imports of plums, prunes, and prunelles are small, averaging about \$50,000 from 1910 to 1914, and come principally from Canada. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 15,028 | \$4,180 | \$151 | 3.60 |
| 1919..... | 62,227 | 16,656 | 622 | 3.74 |
| 1920..... | 145,956 | 33,786 | 1,460 | 3.97 |
| 1921 (9 months)..... | 47,765 | 10,705 | | |

Exports of this group are not separately shown except for dried prunes. (See Prunes.)

Important changes in classification.—See General Notes on Paragraph, page 738.

PRUNES.

Description and uses.—Prunes consist of certain varieties of *Domestica* or European plums, which can be dried without fermentation or removal of the pits—the horticultural characteristic which differentiates a prune from a plum.

Production.—Prunes for drying are grown chiefly in California and Oregon, and to a small extent in Washington. In California the fruit is largely sun dried; in Oregon and Washington, wholly by artificial heat. The crop varies widely—in 1919 the domestic production was

136,377,066 pounds valued at \$18,253,691, of which amount California produced about 85 per cent.

A total of 273,710 cases of prunes valued at \$1,271,410 was canned in 1919; of this amount Oregon put up over 40 per cent, and California and Washington most of the remainder.

Import statistics are not separately shown for prunes. (See *Plums*, p. 737.)

Exports averaged about 80,000,000 pounds from 1910 to 1914. They go chiefly to the United Kingdom, Canada, France, and the countries of northern Europe. Later statistics by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|--------------|--------------|---------------------|
| Quantity (pounds)..... | 22,888,112 | 108,208,257 | 75,138,779 | 68,541,318 |
| Value..... | \$2,177,976 | \$15,721,951 | \$11,738,312 | \$1,821,167 |

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Parts of two paragraphs relating to plums, prunes, and prunelles have been combined; and the apparently duplicate provision for plums in paragraphs 274 and 275 of the act of 1909 and paragraphs 217 and 218 of the act of 1913, has been corrected.

PARAGRAPH 748.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 748. Pickled fruits and nuts, and sauces of all kinds, not specially provided for; comfits, sweetmeats, and all jellies, jams, marmalades, fruit butters, and similar products, 28 per centum ad valorem.

ACT OF 1909.

PAR. 253. Pickles, including pickled nuts, sauces of all kinds, not specially provided for in this section, * * * forty per centum ad valorem.

PAR. 274. * * * comfits, sweetmeats, and fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per cent ad valorem; if containing over ten per centum of alcohol and not specially provided for in this section, thirty-five per centum ad valorem and in addition two dollars and fifty cents per proof gallon on the alcohol contained therein in excess of ten per centum; jellies of all kinds, thirty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 201. Pickles, including pickled nuts, sauces of all kinds, not specially provided for in this section, * * * 25 per centum ad valorem.

PAR. 217. * * * comfits, sweetmeats, and fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem; if containing over 10 per centum of alcohol and not specially provided for in this section, 20 per centum ad valorem, and in addition \$2.50 per proof gallon on the alcohol contained therein in excess of 10 per centum; jellies of all kinds, 20 per centum ad valorem; * * *

PICKLES AND SAUCES.

Production of pickles and sauces was valued at \$45,303,671 in 1914; New York, Pennsylvania, and Illinois leading. In 1919 a total of 507 establishments reported a product valued at \$78,843,545.

Import values of pickles, including pickled nuts and sauces, of all kinds, not specially provided for (except fish paste or sauce), before the war ranged from \$915,549 to \$1,246,240. These products come chiefly from Japan, Italy, United Kingdom, and Hongkong. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|------------------|
| 1918..... | \$329,527 | \$82,324 | Per cent. 25 |
| 1919..... | 1,115,324 | 278,826 | 25 |
| 1920..... | 1,468,827 | 367,214 | 25 |
| 1921 (9 months)..... | 1,246,082 | | |

Exports of pickles, sauces, etc., amounted to \$928,611 in 1914. The United Kingdom, Canada, Mexico, and Cuba are the principal buyers. Later statistics (for calendar years) follow: 1918, \$1,129,918; 1919, \$2,039,641; 1920, \$2,273,059; 1921 (9 months), \$1,382,143.

Important changes in classification, etc.—See General Notes on Paragraph, page 740.

COMFITS, SWEETMEATS, ETC., PRESERVED IN SUGAR, ETC.

Production of these commodities is not stated separately. In 1914, however, the value of preserves, jellies, and jams made in factories was \$15,033,346. Large quantities put up for consumption in the home are not included. In 1919 the value of all preserves, jellies, and jams put up in 205 establishments was \$65,458,000. This amount does not include the output of other factories that may manufacture these products in small quantity along with other products, or factories that may reclaim some of their by-products in this way.

Imports of comfits, sweetmeats, and fruits, etc., containing not over 10 per cent of alcohol, averaged \$639,576 during 1909-1913. Following the reduction of the tariff, imports amounted to \$818,435 in 1914. These came largely from France, England, Italy, and the West Indies. Later imports by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|-----------|-----------|-------------|---------------------|
| Value..... | \$352,913 | 1,041,371 | \$1,352,676 | \$862,494 |
| Duty..... | 68,752 | 126,676 | 267,986 | |

¹ Includes comfits, sweetmeats, etc., containing over 10 per cent of alcohol, as follows: \$150 value, \$101 duty, 56.11 per centum ad valorem.

² Includes \$100 worth of comfits, sweetmeats, etc., containing over 10 per cent of alcohol. Imports of comfits, sweetmeats, etc., containing alcohol averaged 750 gallons valued at \$3,816 for 1909-1913. They declined after the war.

Exports.—Not separately stated.

Important changes in classification, etc.—See General Notes on Paragraph, page 740.

JELLIES OF ALL KINDS.

Imports averaged \$53,545 from 1909 to 1913. Later statistics by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|----------|-----------|-----------|---------------------|
| Value..... | \$72,721 | \$774,557 | \$423,051 | \$106,184 |
| Duty..... | 13,965 | 79,547 | 52,962 | ..... |

Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The provision in paragraph 201 of the act of 1913, for “pickles, including pickled nuts, and sauces of all kinds, not specially provided for in this section” has been changed to “pickled fruits and nuts, and sauces of all kinds, not specially provided for.” This changed provision has been combined with part of paragraph 217, act of 1913, for “comfits, sweetmeats, * * *; jellies of all kinds * * *.” The provision has been expanded to include “jams, marmalades, fruit butters, and similar products.”

Conflicting provisions.—H. R. 7456 has made separate provision for the more important fruits, including their dried and prepared or preserved forms; in consequence, there may be conflict between the provision for “pickled fruits” and the provisions for particular fruits prepared or preserved. Likewise “sauces,” although placed in a paragraph relating to fruits, consist largely of vegetable products such as soy, shoyu, and chutney. Further, the provision for comfits and sweetmeats may conflict with the several provisions for particular fruits prepared or preserved, as well as with the general provision in paragraph 749 for “fruits prepared or preserved” and “mixtures of two or more fruits.”

Suggested changes.—These conflicts might be avoided by striking out the provisions for “pickled fruits and nuts, and sauces of all kinds, not specially provided for; comfits, sweetmeats, and,” page 93, lines 3 and 4; by inserting the words “or pickled” after the word “brine” in paragraph 749, line 7, page 93; by substituting a semicolon for the colon after the word “pound” in line 7, page 95, paragraph 759, and inserting the words “pickled, or otherwise prepared or preserved, and not specially provided for,” followed by a colon, thereafter; by inserting the words “sauces of all kinds, not specially provided for,” followed by a semicolon in paragraph 773 after the words “not specially provided for” in line 12, page 97, and by omitting the words “comfits, sweetmeats, and” altogether from H. R. 7456.

It is furthermore suggested that the words “and similar products” in this paragraph, lines 5 and 6, page 93; be omitted. With these changes this paragraph would read:

All jellies, jams, marmalades, and fruit butters [rate].

PARAGRAPH 749.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 749. Fruits in their natural state, or in brine, dried, desiccated, evaporated, or otherwise prepared or preserved, and not specially provided for, and mixtures of two or more fruits, 20 per centum ad valorem: *Provided*, That all provisions of this title for fruits and berries prepared or preserved shall include fruits and berries preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices.

ACT OF 1909.

PAR. 274. * * * quinces, * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, two cents per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; * * *

PAR. 571. Fruits or berries, green, ripe, or dried, and fruits in brine, not specially provided for in this section [Free].

ACT OF 1913.

PAR. 217. * * * quinces, * * * all edible fruits, * * * when dried, desiccated, evaporated, or prepared in any manner, not specially provided for in this section, 1 cent per pound; * * * fruits of all kinds preserved or packed in sugar, or having sugar added thereto or preserved or packed in molasses, spirits, or their own juices, if containing no alcohol, or containing not over 10 per centum of alcohol, 20 per centum ad valorem: * * *

PAR. 488. Fruits or berries, green, ripe, or dried, and fruits in brine, not specially provided for in this section [Free].

ALL OTHER FRUITS, FRESH, DRIED, OR PRESERVED.

Description and uses.—This paragraph relates to a large number of fruits and fruit preparations, which individually enter into a small import trade.

Production statistics are given in the following table:

| | 1919 | | 1914 | |
|------------------------------------|--------------|---------------|--------------|---------------|
| | Quantity. | Value. | Quantity. | Value. |
| Fruits, n. s. p. f. | | | | |
| Apricots.....pounds..... | 24, 192, 628 | \$6, 034, 697 | 39, 397, 294 | \$3, 615, 837 |
| All other dried fruits.....do..... | 37, 852, 258 | 6, 384, 934 | 47, 189, 970 | 2, 408, 061 |
| Canned fruits, n. o. p. f.: | | | | |
| Apricots.....cases..... | 3, 939, 768 | 25, 167, 772 | 1, 051, 816 | 3, 060, 226 |
| Other canned fruits.....do..... | 516, 558 | 2, 701, 348 | 86, 850 | 356, 082 |

Imports of "all other" fruits and berries, green, ripe, and dried, have been, by calendar years, as follows: 1918, \$65,424; 1919, \$139,379; 1920, \$127,665; 1921 (9 months), \$175,138.

Exports for calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------------|---------------|----------------|---------------|------------------|
| All other fruits, green or ripe..... | \$3, 396, 709 | \$4, 713, 008 | \$4, 187, 624 | \$2, 974, 956 |
| All other fruits, dried..... | \$752, 868 | \$2, 557, 451 | \$2, 168, 279 | \$616, 582 |
| Apricots, dried: | | | | |
| Quantity (pounds)..... | 5, 262, 206 | 37, 143, 824 | 9, 881, 256 | 17, 784, 882 |
| Value..... | \$754, 700 | \$8, 506, 348 | \$2, 681, 750 | \$3, 351, 890 |
| All other canned fruits..... | \$4, 134, 272 | \$31, 968, 772 | \$7, 082, 064 | \$2, 590, 968 |
| All other preserved fruits..... | \$1, 969, 945 | \$4, 518, 348 | \$1, 882, 180 | \$453, 089 |

Important changes in classification, etc.—See General Notes on Paragraph below.

PLANTAIN.

Description and uses.—The plantain is a species of banana. It has a coarse texture and is not so sweet as the ripe banana. In tropical countries it is used extensively. If specific provision is not made for it in other paragraphs (see Bananas, p. 713) it would be dutiable under this basket clause.

Production.—There is no production in the United States. British Honduras, via New Orleans, is our principal source.

Imports were valued at \$50,276 in 1914. Later statistics by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------|----------|----------|----------|-----------------|
| Quantity (bunches)..... | | 115,806 | 193,026 | 179,976 |
| Value..... | \$12,712 | \$41,424 | \$59,961 | \$60,431 |

Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—This paragraph combines two provisions of the act of 1913—paragraph 217, a dutiable catchall clause for edible fruits prepared or preserved, and paragraph 488, a free-list provision for fruits and berries, green, ripe, dried, or in brine. The last-named provision has given rise to much litigation.

A proviso has been added to the effect that the provisions for fruits and berries shall include such fruits whether preserved in sugar, molasses, etc.

A new provision has also been added for mixtures of two or more fruits.

Conflicting provisions.—The provision for “mixtures of two or more fruits” might be construed to include fruits in their natural state, n. s. p. f., and afford an opportunity for evading higher specific duties.

Suggested changes.—For the reasons stated under the subheading “Conflicting provisions,” under paragraph 748, the words “or pickled” might be inserted after the word “brine” in line 7, page 93. To agree with paragraph 773, the words “in any other way” should be inserted after the word “preserved” in line 8, page 93, and the word “otherwise” before “prepared” in line 8, page 93, be stricken out.

With a view to the avoidance of possible conflicts of this paragraph with *eo nomine* provisions for fruits, prepared or preserved, it is suggested that the word “specific” be inserted before “provisions” in line 10, page 93.

PARAGRAPH 750.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 750. Berries and fruits, of all kinds, and similar products, prepared or preserved in any manner, containing 5 per centum or more of alcohol shall pay in addition to the rates provided in this title \$5 per proof gallon on the alcohol contained therein: *Provided, however,* That nothing in this Act shall be construed as permitting the importation of intoxicating liquor in violation of the eighteenth amendment to the Constitution, or any Act of Congress enacted in its enforcement.

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PAR. 274. * * * fruits of all kinds preserved or packed in * * * spirits, * * * if containing * * * not over ten per centum of alcohol, one cent per pound and thirty-five per centum ad valorem; if containing over ten per centum of alcohol and not specially provided for in this section, thirty-five per centum ad valorem and in addition two dollars and fifty cents per proof gallon on the alcohol contained therein in excess of ten per centum; * * *

PAR. 217. * * * fruits * * * preserved or packed in * * * spirits, * * * if containing * * * not over 10 per centum of alcohol, 20 per centum ad valorem; if containing over 10 per centum of alcohol and not specially provided for in this section, 20 per centum ad valorem, and in addition \$2.50 per proof gallon on the alcohol contained therein in excess of 10 per centum; * * *

FRUITS PRESERVED IN ALCOHOL, ETC.

Imports and exports.—See paragraph 737, p. 716.

Important changes in classification.—A separate paragraph has been here provided for fruits preserved in alcohol, and the wording of these provisions has been changed more nearly to accord with prohibition legislation. Such legislation applies to intoxicating beverages, and not to fruits. Owing to natural fermentation, fruits may contain one-half of 1 per cent or more of alcohol. For this reason, and because of difficulties of administration, the penalty clause was applied to fruits containing 5 per centum or more of alcohol. The final proviso has been added to avoid conflict with laws respecting the enforcement of prohibition legislation.

Suggested changes.—It is suggested that the words "and similar products" be eliminated, being unnecessary. It is difficult to determine what products are "similar" to fruits and berries preserved in alcohol.

Because of the varying value of the alcoholic liquors in which fruits may be packed, and the difficulties of administration, an ad valorem rate appears preferable to the rate per proof gallon for the penalty clause.

NURSERY AND GREENHOUSE STOCK.

GENERAL.

Imports of all nursery and greenhouse stock provided for in paragraphs 751, 752, and 753 are admitted only under the license and inspection of the Federal Horticultural Board of the Department of Agriculture. Because of the danger of importing insect pests and plant diseases, this license is granted only for such stock as can not be produced in sufficient quantities within the United States. All other bulbs, seedlings, cuttings, and similar plant material are under an absolute quarantine. In view of these conditions, the specific tariff provisions relating to the items under quarantine have been eliminated; the small quantities of quarantined propagating stock that are allowed entry, under special regulations, would be dutiable under the basket clauses.

Specific duties are suggested by New York customs officials for most of this material because of difficulty in determining market values and in identifying different varieties of bulbs.

The two paragraphs in the dutiable list of the 1913 act relating to nursery and greenhouse stock have been rearranged into three paragraphs. The first paragraph covers bulbs and flowers, the second relates chiefly to ornamental shrubbery, and the third to fruit stocks.

Paragraph 489 of the act of 1913, relating to tropical and semi-tropical fruit plants, is eliminated from the free list, as this item is provided for in the suggested new paragraphs. The items in paragraph 595 of the act of 1913, "bulbs and bulbous roots, not edible and not otherwise provided for in this section; * * * coniferous evergreen seedlings," are also provided for in the suggested reclassification. Paragraph 510 is also eliminated, since few hop roots have been imported for a number of years and none are likely to be imported.

PARAGRAPH 751.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 751. Tulip, narcissus, and hyacinth bulbs and lily of the valley pips, \$4 per thousand; lily of the valley clumps, \$10 per thousand; crocus bulbs, \$1 per thousand; lily bulbs, \$4 per thousand; all other bulbs and roots, root stocks, corms, tubers, and herbaceous perennials, imported for horticultural purposes, 20 per centum ad valorem; cut flowers, fresh or preserved, 25 per centum ad valorem.

ACT OF 1909.

PAR. 263. Orchids, palms, azaleas, and all other decorative or greenhouse plants and cut flowers, preserved or fresh, twenty-five per centum ad valorem; lily of the valley pips, tulip, narcissus, begonia, and gloxinia bulbs, one dollar per thousand; hyacinth, astilbe, dielytra, and lily of the valley clumps, two dollars

ACT OF 1913.

PAR. 210. Orchids, palms, azalea indica, and cut flowers, preserved or fresh, 25 per centum ad valorem; lily of the valley pips, tulips, narcissus, begonia, and gloxinia bulbs, \$1 per thousand; hyacinth bulbs, astilbe, dielytra, and lily of the valley clumps, \$2.50 per thousand; lily bulbs and calla bulbs or corms, \$5 per

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and fifty cents per thousand; lily bulbs and calla bulbs, five dollars per thousand; peony, *Iris Kaempferii* or *Germanica*, canna, dahlia, and amaryllis bulbs, ten dollars per thousand; all other bulbs, bulbous roots or corms which are cultivated for their flowers or foliage, fifty cents per thousand.

PAR. 588. Hop roots for cultivation [Free].

PAR. 668. * * * bulbs and bulbous roots, not edible and not otherwise provided for in this section; * * * [Free].

ACT OF 1913.

thousand; herbaceous peony. *Iris Kaempferii* or *Germanica*, canna, dahlia, and amaryllis bulbs, \$10 per thousand; all other bulbs, roots, root stocks, corms, and tubers, which are cultivated for their flowers or foliage, 50 cents per thousand: *Provided*, That all mature mother flowering bulbs imported exclusively for propagating purposes shall be admitted free of duty.

PAR. 510. Hop roots for cultivation [Free].

PAR. 595. * * * bulbs and bulbous roots, not edible and not otherwise provided for in this section; * * * [Free].

BULBS, ROOTS, ETC.

Description, uses, and production.—Tulip bulbs are used largely for outdoor bedding to give vivid spring-flower effects, and also by florists for forcing. Production to a limited extent has begun in the Pacific Northwest and Michigan. They can be grown in some sections on the Atlantic seaboard, but because of hand labor required, the European-grown stock is the cheaper. Domestic production of merchantable stocks in 1920 was not less than 1,000,000 bulbs. Most bulbs are grown in Holland.

Narcissus bulbs are used largely by florists for forcing as cut flowers, also in the indoor window garden and for outdoor planting, both in formal beds and in open woodlands and meadows. Many varieties are grown in increasing numbers along the Atlantic coast, in the Pacific Northwest, and in Michigan. They are native to various parts of Europe and Asia. Holland is the most important producer, but some imports are from Great Britain and one important variety comes from China. The most important early forcing varieties are of French origin. Cheap labor has undoubtedly determined the present trade relations, though less hand labor is required than in growing some other bulbs.

Hyacinths are low-growing bulbous plants used largely for spring bedding effects, and by florists in vast quantities for forcing for winter blooms. Three to five years are required to grow full-sized bulbs. A few bulbs have been grown experimentally in the Pacific Northwest, but great labor cost entailed by many handlings, has delayed commercial production. The one grower engaged in the production of the Dutch stocks operates on a small scale. Two classes are imported—the Dutch and the Roman; the former from the Netherlands and the latter from the south of France.

Lily of the valley is a small, dainty spring flower. It is grown as a hardy garden plant, but largely by florists, for forcing at all seasons. The "pip" is a bud capable of producing a flower stalk with its accompanying roots, while "clump" denotes several of these together, not separated and sorted. Production in this country is in its infancy, but is being attempted in several localities. From two to three years are required to produce a crop. The plants grow wild in many parts of Europe, but practically all commercial pips are

grown in two limited areas in Germany, on specially adapted soil under expert cultivation.

The crocus belongs to the same natural order as the iris but is a very different plant. It is grown mainly in beds and borders, is naturalized, and is adapted to cool greenhouse culture. The varieties are prized mostly for their gorgeous display and the earliness of their appearance in the spring. Some varieties blossom before the snow disappears, others produce flowers in autumn, but it is the spring flowering kinds that we import almost entirely. There is no domestic supply, although the stocks are easily produced.

The lily family contains many species prized for their size and the beauty of their flowers. The principal ones are *Lilium longiflorum*, called Bermuda or Easter lily, of which there are many varieties; *Lilium speciosum*, or show lily; and *Lilium candidum*, or Madonna lily. These and many other species are used for outdoor culture in a small way; they are also commonly forced by florists for spring flowers. Practically none of the bulbs used for forcing are grown here, but some for garden use are domestic. *Lilium longiflorum* is grown extensively in Bermuda and Japan; *Lilium speciosum*, mostly in Japan; and *Lilium candidum*, largely in southern France; many varieties, to a limited extent, in western Europe. Domestic production has been greatly stimulated in the past 2 years.

The calla lily is much used by florists for forcing, as a house plant, and as a common garden plant in the warmer sections of the country. The corms are grown on a large scale outdoors in California, where many of the blooms are also marketed. Domestic stocks are rapidly supplying the demands of the trade.

All other bulbs and roots, root stocks, corms, tubers, and herbaceous perennials including such flowering stocks as dielytra, astilbe, iris, begonia, canna, gladiolus, dahlia, amaryllis, and peony are now excluded from this country by quarantine regulations.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|-------------------|-----------|----------|------------------------|
| LILY OF THE VALLEY PIPS, TULIP, NARCISUS, BEGONIA, AND GLOXINIA BULBS. | | | | |
| | <i>Thousands.</i> | | | <i>Per cent.</i> |
| 1918..... | 80,788 | \$658,874 | 650,788 | 7.71 |
| 1919..... | 63,178 | 1,116,641 | 63,176 | 5.66 |
| 1920..... | 107,778 | 2,023,552 | 107,778 | 5.33 |
| 1921 (9 months)..... | 78,194 | 1,474,169 | | |
| HYACINTH BULBS, ASTILBE, DIELYTRA, AND LILY OF THE VALLEY CLUMPS. | | | | |
| 1918..... | 11,400 | \$425,316 | 828,725 | 6.75 |
| 1919..... | 15,852 | 550,759 | 42,130 | 7.65 |
| 1920..... | 19,518 | 746,566 | 48,796 | 6.54 |
| 1921 (9 months)..... | 22,443 | 771,020 | | |
| LILY BULBS AND CALLA BULBS OR CORMS. | | | | |
| 1918..... | 2,440 | \$76,439 | \$12,245 | 16.02 |
| 1919..... | 8,642 | 744,777 | 43,210 | 5.80 |
| 1920..... | 8,827 | 623,188 | 44,135 | 7.06 |
| 1921 (9 months)..... | 2,007 | 187,367 | | |

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

PEONY, HERBACEOUS, IRIS KAEMPFERII OR GERMANICA, CANNA, DAHLIA AND AMARYLLIS BULBS.

| | Pounds. | | | Per cent. |
|----------------------|---------|----------|--------|-----------|
| 1918..... | 540 | \$36,340 | 65,000 | 18.29 |
| 1919..... | 303 | 18,802 | 3,690 | 19.25 |
| 1920..... | 165 | 4,460 | 1,690 | 34.30 |
| 1921 (9 months)..... | 68 | 23,989 | | |

BULBS, MATURE MOTHER FLOWERING, IMPORTED EXCLUSIVELY FOR PROPAGATING PURPOSES.

| | | | | |
|----------------------|-------|----------|--|--|
| 1918..... | 2,720 | \$16,319 | | |
| 1919..... | 9,805 | 68,026 | | |
| 1920..... | 2,629 | 30,517 | | |
| 1921 (9 months)..... | 1,006 | 14,274 | | |

ALL OTHER BULBS, ROOTS, ROOT STOCKS, CORMS, AND TUBERS WHICH ARE CULTIVATED FOR THEIR FLOWERS OR FOLIAGE.

| | | | | |
|----------------------|--------|-----------|----------|------|
| 1918..... | 37,553 | \$383,033 | \$15,776 | 4.90 |
| 1919..... | 57,910 | 1,054,623 | 28,955 | 2.80 |
| 1920..... | 55,664 | 1,225,195 | 27,832 | 2.27 |
| 1921 (9 months)..... | 62,953 | 1,157,427 | | |

ORCHIDS, PALMS, AZALEAS, AND ALL OTHER DECORATIVE OR GREENHOUSE PLANTS PRESERVED OR FRESH.

| | Number. | | | |
|----------------------|---------|----------|---------|-------|
| 1918..... | | \$25,381 | \$6,286 | 25.00 |
| 1919..... | 145,714 | 150,429 | 37,108 | 25.00 |
| 1920..... | 5,834 | 31,816 | 7,854 | 25.00 |
| 1921 (9 months)..... | 70,159 | 22,656 | | |

The following table indicates the number of bulbs of each kind imported under the quarantine regulations for the fiscal year ended June 30, 1921:

| Country of origin. | Crocus. | Hyacinth. | Lily. | Lily of the Valley. | Narcissus. | Tulip. | Unclassified. |
|---------------------|-----------|------------|------------|---------------------|------------|------------|---------------|
| Azores..... | | | 30,000 | | | | |
| Bermuda..... | | | 102,986 | | | | |
| Canary Islands..... | | | 6,172 | | | | |
| China..... | | | | | 4,343,136 | | |
| England..... | | 50 | 3,282 | | 1,079,069 | 200 | |
| France..... | 10,500 | 3,609,666 | 193,283 | | 40,966,054 | 259,910 | |
| Germany..... | | | 15,803,175 | 856,850 | | | |
| Holland..... | 5,604,306 | 18,964,175 | 75,969 | 2,749,896 | 81,687,816 | 54,815,283 | 1,418,369 |
| Ireland..... | | | | | 1,000 | | |
| Italy..... | | | | | | | 3,341,000 |
| Japan..... | | | 6,275,666 | | 9,120 | | |
| Total..... | 5,614,806 | 22,568,891 | 22,490,633 | 3,606,746 | 77,956,195 | 55,075,343 | 4,756,369 |

Exports.—None recorded.

Important changes in classification, etc.—See General Notes on Paragraph, page 748.

OUT FLOWERS.

Description and uses.—Fresh cut flowers are used in large quantities, the business in greenhouse flowers probably amounting to \$60,000,000. Preserved flowers, notably palm leaves, are used to some extent.

Production.—Cut flowers are extensively produced in the United States; a few concerns attempt putting preserved leaves on the market. Canada is the only country from which we import fresh flowers in quantity. Dried flowers come from southern France and Cape Colony; palm leaves from Japan, formerly via Germany, where they were dyed.

Imports were valued at \$24,681 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|---------|------------------|
| 1918..... | \$8,705 | \$2,176 | Per cent. 25 |
| 1919..... | 58,193 | 14,548 | 25 |
| 1920..... | 39,254 | 9,812 | 25 |
| 1921 (9 months)..... | 16,886 | | |

Exports of cut flowers were valued at \$121,287 in 1914. Practically all go to Canada. Later exports for calendar years have been as follows: 1918, \$173,991; 1919, \$171,407; 1920, \$180,789; 1921 (nine months), \$120,504.

Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—"Tulip" has been substituted for "tulips" of the act of 1913 (par. 210). "Tulips" in the act of 1913 was applied to the flower (*Maltus v. United States*, 6 Ct. Cust. Appls., 525, of 1916; *United States v. American Express Co.*, 8 Ct. Cust. Appls., 195, of 1917).

Some varieties of bulbs and roots named in the act of 1913, but which are now under quarantine, are omitted. Imports of these have never been important and should the quarantine be lifted they would be caught by the general provision in paragraph 751. The provision in the free list of the act of 1913 (par. 510) for hop roots is also omitted.

The provision "all mature mother flowering bulbs imported exclusively for propagating purposes" has been eliminated in order to simplify administration. This term has no definite meaning in the trade and has been a source of litigation.

Suggested changes.—Nurserymen have suggested that hyacinth bulbs be not grouped with tulip, narcissus, and lily of the valley pips for the reason that hyacinth bulbs are considerably higher in price than the other three.

It is also suggested that the provision for lily of the valley clumps (groups of lily of the valley pips in earth), which are now excluded by quarantine, be eliminated. "Clumps" added to the general provision in paragraph 751 would catch any future importation of lily of the valley or other clumps.

The revised paragraph might read as follows:

PAR. 751. Tulip, lily, and narcissus bulbs, and lily of the valley pipe, \$4 per thousand; hyacinth bulbs, \$— per thousand; crocus bulbs, \$1 per thousand; all other bulbs and roots, root stocks, clumps, corms, tubers, and herbaceous perennials, imported for horticultural purposes, 20 per centum ad valorem; cut flowers, fresh or preserved, 25 per centum ad valorem.

PARAGRAPH 752.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 752. Seedlings and cuttings of Manetti, multiflora, brier, rugosa, and other roses, \$2 per thousand plants; cuttings, seedlings, and grafted plants of other deciduous or evergreen ornamental trees, shrubs, or vines, including greenhouse plants, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 264. Stocks, cuttings, or seedlings of * * * Manetti multiflora and briar rose, three years old or less, one dollar per thousand plants; * * * rose plants, budded, grafted, or grown on their own roots, four cents each; stocks, cuttings and seedlings of all * * * ornamental trees, deciduous and evergreen shrubs and vines, and all trees, shrubs, plants, and vines commonly known as nursery or greenhouse stock, not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 668. * * * evergreen seedlings; * * * [Free].

PAR. 211. Stocks, cuttings, or seedlings of * * * Manetti multiflora and briar rose, Rosa rugosa, three years old or less, \$1 per thousand plants; * * * rose plants, budded, grafted, or grown on their own roots, 4 cents each; stocks, cuttings, and seedlings, of all * * * ornamental trees, deciduous and evergreen shrubs and vines, and all * * * shrubs, plants, and vines commonly known as nursery or greenhouse stock, not specially provided for in this section, 15 per centum ad valorem.

PAR. 595. * * * coniferous evergreen seedlings; * * * [Free].

ROSE PLANTS FOR STOCKS.

Description, uses, and production.—Manetti is a variety of rose used as a stock upon which to bud or graft other more desirable varieties, both for garden and greenhouse culture. Production is rare here because of the ease of securing cheap foreign-grown stocks from northern France, Belgium, and adjacent regions. Multiflora brier, and rugosa are roses used by some nurserymen instead of the Manetti as stocks on which to graft or bud named varieties of roses.

Imports of Manetti for four years preceding the war averaged about 5,000,000. Other varieties are not stated separately. In the fiscal year ended June, 1920, of 3,514,636 rose plants were imported. Roses used as stocks including Manetti, multiflora, brier, and rugosa are imported under unlimited permits of the Department of Agriculture. All other varieties are imported only under special permit and in limited quantities for propagation.

Imports of rose plants, budded, grafted, or grown on their own roots, are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|----------|------------------------|
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | 818,235 | \$69,091 | \$32,729 | 47.37 |
| 1919..... | 143,483 | 19,503 | 5,739 | 29.43 |
| 1920..... | 28,585 | 3,151 | 1,143 | 36.29 |
| 1921 (9 months)..... | 18,976 | 5,018 | | |

The following table indicates the number of rose stocks imported under the quarantine regulations for the fiscal year ended June 30, 1921:

| Country of origin. | Rose stocks. | Country of origin. | Rose stocks. |
|--------------------|--------------|--------------------|--------------|
| England..... | 1, 181, 109 | Scotland..... | 43, 000 |
| France..... | 2, 176, 282 | Ireland..... | 269, 800 |
| Holland..... | 2, 264, 010 | Total..... | 5, 934, 192 |

Exports.—None recorded.

Important changes in classification, etc.—See General Notes on Paragraph, page 751.

PLANTS.

Description, uses, and production.—The rugosa rose, an ornamental shrub for garden planting, in Europe is used as a stock for grafting. It is grown by all nurserymen handling ornamental shrubs.

Ornamental trees are used for street, park, and home-ground planting. They are produced here and in France and in other sections of western Europe. Many different kinds of ornamental shrubs are used for park, cemetery, and home ornamentation. These shrubs are generally produced here in nurseries, the kinds varying with the region. Western Europe, especially France, furnishes a supply for propagating purposes only. Various kinds of broad-leaved evergreens are found, mainly in the warmer sections. Most sections produce these shrubs in nurseries. France, Belgium, Holland, and other parts of western Europe cultivate them extensively.

Imports in 1916 of ornamental trees were over 2,000,000; of ornamental shrubs, over 4,000,000; and of evergreens, 2,500,000. The plant quarantine of the Department of Agriculture now prevents the importation of these plant materials.

Exports are insignificant. They are excluded from many European countries.

Important changes in classification, etc.—See General Notes on Paragraph, page 751.

NURSERY AND GREENHOUSE STOCK, N. S. P. F.

Description and uses.—“Nursery and greenhouse stock” is a blanket phrase, probably including many different plants grown in small quantities.

Production.—Many of these plants are grown to some extent in the United States. Western Europe and Japan are notable producers.

Imports since 1917 have been as follows:

Fruit and ornamental trees, deciduous and evergreen shrubs and vines, and all trees, shrubs, plants, and vines commonly known as nursery or greenhouse stock, n. s. p. f.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-------------------|------------|-----------|------------------|
| | <i>Thousands.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$211, 575 | \$31, 736 | 15 |
| 1919..... | 4, 064 | 572, 554 | 85, 883 | 15 |
| 1920..... | 316 | 12, 089 | 1, 813 | 15 |
| 1921 (9 months)..... | 701 | 26, 292 | | |

Exports of nursery stock were valued at \$315,065 in 1914, and went for the most part to Canada. This stock is excluded from some European countries. Later exports have been as follows (calendar years): 1918, \$239,621; 1919, \$405,270; 1920, \$405,006; 1921 (nine months), \$266,363.

Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Coniferous evergreen seedlings on the free list of the act of 1913 (par. 595) are made dutiable.

Suggested changes.—Page 94, line 7, of H. R. 7456: Change "other roses" to "other rose stocks." Strike out "plants" as redundant.

Page 94, line 8: Insert "or budded" after "grafted."

Page 94, lines 9, 10: Strike out "including greenhouse plants" and insert "and all nursery or greenhouse stock, not specially provided for." This change will cover nursery or greenhouse stock not specially provided for in paragraphs 751, 752, or 753.

The tariff and legislative committee of the Society of American Florists and Ornamental Horticulturists requests restoration of the three-year limitation for rose plants. The term "not more than three years old" would perhaps be better than "three years old or less." At present practically all imported rose stocks are less than three years old.

With the above changes, paragraph 752 would read:

Seedlings and cuttings of Manetti, multiflora, brier, rugosa, and other rose stocks, all the foregoing not more than three years old, \$2 per thousand; cuttings, seedlings, and grafted or budded plants of other deciduous or evergreen ornamental trees, shrubs, or vines, and all nursery or greenhouse stock not specially provided for, 20 per centum ad valorem.

PARAGRAPH 753.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 753. Seedlings, layers, and cuttings of plants for apple, cherry, pear, plum, quince, or other fruit stocks, \$2 per thousand plants; grafted or budded fruit trees, cuttings and seedlings of grapes, currants, gooseberries, or other fruit vines or bushes, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 264. Stocks, cuttings, or seedlings of Myrobolan plum, Mahaleb or Mazzard cherry, * * * three years old or less, one dollar per thousand plants; stocks, cuttings, or seedlings of pear, apple, quince and the Saint Julien plum, three years old or less, two dollars per thousand plants; * * * stocks, cuttings and seedlings of all fruit * * * trees, deciduous and evergreen shrubs and vines, and all trees, shrubs, plants, and vines commonly known as nursery or greenhouse stock, not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 211. Stocks, cuttings, or seedlings of Myrobolan plum, Mahaleb or Mazzard cherry, * * * three years old or less, \$1 per thousand plants; stocks, cuttings, or seedlings of pear, apple, quince, and the Saint Julien plum, three years old or less, \$1 per thousand plants; * * * stocks, cuttings, and seedlings, of all fruit * * * trees, deciduous and evergreen shrubs and vines, and all trees, shrubs, plants, and vines commonly known as nursery or greenhouse stock, not specially provided for in this section, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1918.

PAR. 572. Fruit plants, tropical and semitropical, for the purpose of propagation or cultivation [Free].

PAR. 489. Fruit plants, tropical and semitropical, for the purpose of propagation or cultivation [Free].

STOCKS, CUTTINGS, AND SEEDLINGS OF ALL FRUITS N. S. P. F.

Description and uses.—This collection of plant material includes the stock used by nurserymen in the propagation of fruits. Large numbers of seedlings used for budding or grafting stocks for apple, cherry, pear, plum, quince, or other fruits are imported by nurserymen, but under plant-quarantine regulations of the Department of Agriculture. These regulations restrict imports of grafted or budded fruit trees, vines, or bushes to new varieties or to those not available in this country.

Production.—Great numbers of apple and other seedlings from imported seed (largely from France) are grown here for stock purposes. The growing of fruit-tree seedling stocks other than peaches is chiefly by specialists, located principally near Topeka, Kans. We have a native supply of peach pits, and nurserymen who propagate peach trees grow their own seedlings.

Import statistics do not adequately segregate the different kinds of plants for detailed consideration. For a period of seven or eight years prior to 1915 the imports of pear, apple, quince, and St. Julien plum seedlings had ranged from 14,211,000 to 25,748,000; in 1918 imports were 3,606,000, valued at \$27,305; in 1919, 3,821,000, valued at \$35,269; and in 1920, 4,008,000, valued at \$90,752. Imports of myrobolan plum, mahaleb or mazzard cherry (*Manetti multiflora*), and brier rose (*Rosa rugosa*, see below) were 24,695,000, valued at \$128,314 in 1914; and 10,886,000, valued at \$82,118 in 1918; 8,144,000, valued at \$99,033 in 1919; and 9,141,000, valued at \$242,142 in 1920. The foregoing data for 1918 and later relate to calendar years.

Imports for consumption of the various fruit stocks since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

MYROBOLAN PLUM, MAHALEB OR MAZZARD CHERRY, MANETTI MULTIFLORA, AND BRIER ROSE, ROSA RUGOSA, 3 YEARS OLD OR LESS.

| | Thousands. | | | Per cent. |
|----------------------|------------|----------|----------|-----------|
| 1918..... | 10,896 | \$82,118 | \$10,896 | 13.26 |
| 1919..... | 8,144 | 99,033 | 8,144 | 8.22 |
| 1920..... | 9,141 | 242,142 | 9,141 | 3.78 |
| 1921 (9 months)..... | 13,075 | 255,578 | | |

PEAR, APPLE, QUINCE, AND THE ST. JULIEN PLUM, 3 YEARS OLD OR LESS.

| | | | | |
|----------------------|-------|----------|---------|-------|
| 1918..... | 3,606 | \$27,305 | \$3,606 | 13.21 |
| 1919..... | 3,821 | 35,269 | 3,821 | 10.53 |
| 1920..... | 4,008 | 90,752 | 4,008 | 4.42 |
| 1921 (9 months)..... | 9,485 | 172,094 | | |

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|----------------|--------|-------|------------------------|
| FRUIT PLANTS, TROPICAL AND SEMITROPICAL, FOR THE PURPOSE OF PROPAGATION OR CULTIVATION. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$723 | | |
| 1919..... | 298 | 5,285 | | |
| 1920..... | 600 | 22,500 | | |
| 1921 (9 months)..... | 70 | 1,256 | | |

The following table indicates the number of fruit stocks of each kind imported under the quarantine regulations for the fiscal year ended June 30, 1921.

| Country of origin. | Fruit stocks. | | | | | |
|---------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| | Apple. | Cherry. | Pear. | Plum. | Quince. | All other fruits. |
| Austria..... | | 1,018 | | | | |
| Czechoslovakia..... | 150 | | 50 | | | 3 |
| Costa Rica..... | | | | | | 200 |
| England..... | 100 | | | | | |
| France..... | 4,306,450 | 3,003,698 | 3,214,104 | 2,050,375 | 1,026,280 | 344,899 |
| Holland..... | 584,100 | 884,648 | 499,070 | 235,133 | 26,000 | 25,000 |
| Ireland..... | | | | | | |
| Italy..... | | | | 103,000 | | 35,300 |
| Japan..... | | | 3,000 | | | |
| Mexico..... | | | | | | 1,500 |
| Scotland..... | | | | | | |
| Total..... | 4,990,800 | 3,889,364 | 3,698,224 | 2,285,508 | 1,052,280 | 406,908 |

Exports.—None recorded.

Important changes in classification.—Fruit plants, tropical and semitropical, for the purpose of propagation or cultivation, on the free list of the act of 1913 (par. 489), are made dutiable.

All fruit-stock material has been combined in this paragraph. A few varieties of fruits named in prior acts are omitted. Special provision for material under quarantine has been dropped since the small quantity of quarantined propagating stock allowed entry under the special regulations will be dutiable under the general provision in this paragraph.

Suggested changes.—Page 94, line 11, of H. R. 7456: Strike out "plants for" and in line 13 strike out "plants" as redundant.

Page 94, line 12: Change "or" to "and" before "other."

Page 94, line 15: Insert "plants" after "vines."

PARAGRAPH 754.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 754. Almonds, not shelled, 4 cents per pound; shelled, 12 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 280. Almonds, not shelled, four cents per pound; clear almonds, shelled, six cents per pound; * * *.

PAR. 223. Almonds, not shelled, 3 cents per pound; almonds, shelled, 4 cents per pound; * * *.

ALMONDS.

(See Survey G-34.)

Description and uses.—Almonds are of two kinds, the bitter and the sweet. Bitter almonds are cultivated to a limited extent in the Mediterranean region. The nuts are used in making flavoring extracts and prussic acid. That which enters most largely into commerce is the sweet or edible almond, native to Mediterranean countries and southwestern Asia. The nuts contain a bland, fixed oil of agreeable flavor, and are used in confectionery (especially in sweet chocolate), in deserts, and also in emulsion that forms a pleasant diluent drink. It is as edible nuts, however, either as unshelled, shelled, or as "salted almonds," that they are chiefly used.

(For discussion of shelling percentages see Survey G-34.)

Production in the United States is limited to California, which reports, for 1920, 2,408,040 almond trees of bearing age and 1,407,901 trees not of bearing age. At 75 trees per acre, this is equivalent to 32,107 acres of bearing and 18,772 acres of nonbearing orchards. The acreage has increased largely in recent years. The present yield is low per acre, principally because many trees are just beginning to bear. Few domestic almonds are sold in the shelled form, while imports are for the most part received in this form. Statistics of production since 1917 are as follows:

| | 1918 | 1919 | 1920 | 1921 |
|------------------------|------------|-------------|------------|-------------|
| Quantity (pounds)..... | 10,200,300 | 15,099,743 | 12,009,000 | 112,000,000 |
| Value..... | | \$3,924,940 | | |

† Preliminary.

Imports of shelled almonds in 1913 amounted to 12,655,057 pounds and to 13,896,821 pounds in 1914. Imports of almonds not shelled amounted to 5,501,059 pounds in 1914. Both kinds come mostly from Spain, Italy, and France. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------|-----------|--------|-------|--------------------------------|
|----------------|-----------|--------|-------|--------------------------------|

ALMONDS, SHELLED.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|------------|-------------|-----------|-----------|
| 1918..... | 21,108,848 | \$5,600,630 | \$644,269 | 15.05 |
| 1919..... | 26,517,377 | 9,739,287 | 1,069,696 | 10.89 |
| 1920..... | 18,709,626 | 7,201,773 | 750,785 | 10.43 |
| 1921 (9 months)..... | 11,805,128 | 3,533,100 | | |

ALMONDS, NOT SHELLED.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|-----------|-----------|-----------|-----------|
| 1918..... | 6,147,240 | \$940,739 | \$184,417 | 19.60 |
| 1919..... | 6,316,059 | 1,098,714 | 199,482 | 17.25 |
| 1920..... | 6,460,732 | 1,044,341 | 193,822 | 18.58 |
| 1921 (9 months)..... | 2,049,093 | 362,578 | | |

Exports.—None recorded. (See par. 759.)

Important changes in classification.—The principal nuts have been given separate paragraphs; several that were formerly caught in the basket clause have been specifically named and the operation of the general or basket clause correspondingly limited. (See Survey G-34 entitled "Almonds, walnuts, pecans, and other nuts.")

PARAGRAPH 755.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 755. Cream or Brazil nuts, 1 cent per pound; filberts, not shelled, 2½ cents per pound; shelled, 5 cents per pound; chestnuts, including marrons, in their natural state, dried, or baked, one-half of 1 cent per pound; prepared or preserved, and not specially provided for, 15 cents per pound; pignolia nuts, 1 cent per pound; pistache nuts, 1 cent per pound.

ACT OF 1909.

PAR. 281. Filberts * * * not shelled, three cents per pound; shelled, five cents per pound.

PAR. 283. Nuts of all kinds, shelled or unshelled, not specially provided for in this section, one cent per pound; but no allowance shall be made for dirt or other impurities in nuts of any kind, shelled or unshelled.

PAR. 635. Nuts: Brazil nuts, cream nuts, marrons crude, * * * [Free].

ACT OF 1913.

PAR. 224. Filberts * * * not shelled, 2 cents per pound; shelled, 4 cents per pound.

PAR. 226. Nuts of all kinds, shelled or unshelled, not specially provided for in this section, 1 cent per pound; but no allowance shall be made for dirt or other impurities in nuts of any kind, shelled or unshelled.

PAR. 557. Nuts: Marrons, crude; * * * [Free].

CREAM OR BRAZIL NUTS.

(See Survey G-34.)

Description and uses.—The cream or Brazil nut, used largely on the table and in confections, is almost entirely imported.

Production.—The nut is a native of the Amazon and Rio Negro River valleys. The tree is too tender for cultivation in the United States.

Imports in 1914 amounted to 11,431,531 pounds. Practically all imports come from Brazil. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|------------|-----------|-----------|------------------------|
| | Pounds. | | | Per cent. |
| 1918..... | 12,401,091 | 907,387 | \$124,011 | 17.77 |
| 1919..... | 40,621,914 | 2,987,190 | 406,219 | 13.60 |
| 1920..... | 12,085,436 | 1,734,555 | 130,354 | 7.52 |
| 1921 (9 months)..... | 20,910,910 | 1,436,800 | | |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 757.

FILBERTS.

(See Survey G-34.)

Description and uses.—Filberts are also known as hazelnuts and cobnuts. Native hazels are rather widely distributed, but the European varieties are not cultivated to a great extent in the United States. Hazelnuts yield about 50 per cent of their weight in a bland, fixed oil, often called "nut oil," which has drying properties that make it useful to painters; it is also a base for expensive perfumes.

Production.—Some of the European varieties have been grown here experimentally but not as yet commercially.

Imports in 1914 of filberts, not shelled, were 10,836,072 pounds, valued at \$841,019 and yielded a revenue of \$220,669; of shelled nuts, 1,798,147 pounds, valued at \$278,974 and yielded a revenue of \$74,080. These came chiefly from Spain, Italy, and Turkey in Europe. Asiatic Turkey formerly was an important source of shelled nuts. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|------------------------|----------------|-----------|-----------|------------------------|
| FILBERTS, NOT SHELLED. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 8,295,535 | \$938,641 | \$165,911 | 16.78 |
| 1919..... | 14,565,279 | 2,977,583 | 291,288 | 9.78 |
| 1920..... | 14,884,604 | 2,100,184 | 297,615 | 10.67 |
| 1921 (9 months)..... | 5,847,210 | 510,614 | | |
| FILBERTS, SHELLED. | | | | |
| 1918..... | 3,754,801 | \$320,628 | \$150,192 | 18.30 |
| 1919..... | 3,393,256 | 1,092,050 | 135,730 | 12.43 |
| 1920..... | 4,711,293 | 1,279,103 | 184,452 | 14.73 |
| 1921 (9 months)..... | 2,328,866 | 402,509 | | |

Important changes in classification.—See General Notes on Paragraph, page 757.

CHESTNUTS, INCLUDING MARRONS.

(See Survey G-34.)

Description, uses, and production.—Wild chestnuts are grown throughout the eastern part of the United States, and in some localities are marketed in relatively large quantities. In the last few years a fatal fungous disease has attacked chestnut trees in practically every section of the country. The chestnut is cultivated in Spain, Italy, and other southern European countries where the nut is very sweet, acquires a large size, and is known as the marron.

Imports of crude marrons amounted to 18,849,257 pounds in 1914. They now come chiefly from Italy; a few are imported from Spain. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------|-----------|-------------|------------------|
| Quantity (pounds)..... | 151,887 | 5,012,194 | 29,484,037 | 2,141,281 |
| Value..... | \$7,946 | \$333,803 | \$1,716,181 | \$106,169 |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph below.

PIGNOLIA NUTS.

(See Survey G-34.)

Description, uses, and production.—Pignolia or pine nuts are the seeds of a considerable number of both American and foreign pines. The nuts are marketed without the shell and in appearance somewhat resemble puffed rice. The kernels are very rich and form an important article of food in some countries. A few species of American pines yield edible nuts, but the domestic product is commercially not important. Southern Europe, Chile, and Mexico produce quantities of the nut.

Imports.—Some pignolia nuts are imported; statistics of imports are, however, lacking.

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph below.

PISTACHE NUTS.

(See Survey G-34.)

Description, uses, and production.—The pistache is a small, green-fleshed nut used chiefly in flavoring and for coloring ice cream and confections. It is also excellent to eat when roasted and salted. The nut is grown only in a very limited way in California and certain semiarid regions of the Western States. It is cultivated chiefly in the Mediterranean countries and southwestern Asia.

Imports are not segregated from all other nuts; it is estimated they have amounted to about \$250,000 annually.

Exports.—None recorded.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Marrons, crude, are free of duty under paragraph 557 of the act of 1913. Parts of three paragraphs of the act of 1913 (224, 226, and 557) have been combined, so as to bring together such nuts as are produced to a small extent in the United States. The specific provision for cream or Brazil nuts, dropped in 1913, has been restored, since the trade is of considerable dimensions. Provisions have been added for prepared or preserved marrons, to include, among others, baked marrons, and for pignolia and pistache nuts. Imports of these nuts are of considerable proportions, and specific provision seems desirable.

PARAGRAPH 756.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 756. Coconuts, one-half of 1 cent each; coconut meat, shredded and desiccated, or similarly prepared, 4½ cents per pound.

ACT OF 1909.

PAR. 278. * * * cocoanut meat or copra desiccated, shredded, cut, or similarly prepared, two cents per pound; * * *

PAR. 635. Nuts: * * * cocoanuts in the shell * * * [Free].

ACT OF 1913.

PAR. 221. * * * coconut meat or copra desiccated, shredded, cut, or similarly prepared, * * * 2 cents per pound.

PAR. 557. Nuts: * * * coconuts in the shell * * * [Free].

COCONUTS.

(See Survey A-11.)

Description and uses.—The coconut is a tropical fruit of a species of the palm tree. The nut, both ripe and unripe, is used extensively as an edible fruit; the milky center as well as the outer meat being nourishing food. Most of the whole nuts imported are used in the manufacture of shredded coconut for confectionery and culinary purposes.

Production in continental United States in 1919 was limited to the Florida crop of 613,000 nuts, valued at \$43,000. In 1919 Porto Rico produced 24,608,000 coconuts, valued at \$1,001,460.

Imports of coconut in the shell in 1914 were valued at \$2,150,500, and in 1918 at \$2,792,165. Of the 1920 importation (91,164,605 coconuts), Panama furnished 21 per cent; Jamaica 17 per cent; Trinidad and Tobago, 24 per cent; and Honduras, 16 per cent. Imports since 1917 by calendar years of coconuts in the shell have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|-------------|-------------|-----------------|
| Quantity (number)..... | 68,255,512 | 85,081,922 | 91,164,605 | 42,495,984 |
| Value..... | \$2,483,898 | \$4,053,282 | \$4,230,221 | \$1,156,902 |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 759.

COCONUT MEAT, SHREDDED AND DESICCATED OR SIMILARLY PREPARED.

(See Survey A-11.)

Description and uses.—Coconut meat is prepared for food purposes by shredding and artificial drying, either with or without the addition of sugar. The domestic demand is made up of the package or household trade and the requirements of manufacturing bakers and confectioners for bulk goods. The package trade is supplied by domestic producers who manufacture and pack shredded coconut from nuts imported from the West Indies and Central America. Unsweetened

shredded coconut prepared in Ceylon enters largely into the bulk trade.

Production.—Domestic production is estimated at from 20,000,000 to 25,000,000 pounds annually.

Imports reached a total in 1914 of 9,307,924 pounds, valued at \$742,701. This product comes chiefly from the British East Indies. Statistics of imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|------------|-------------|-----------|------------------------|
| | Pounds. | | | Per cent. |
| 1918..... | 19,987,575 | \$2,462,513 | \$399,751 | 16.23 |
| 1919..... | 28,900,378 | 3,972,016 | 578,008 | 14.55 |
| 1920..... | 30,631,022 | 4,879,685 | 612,620 | 12.55 |
| 1921 (9 months)..... | 21,351,135 | 1,914,122 | | |

Exports.—None recorded.

Important changes in classification.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Coconuts have been transferred from the free list (par. 557) of the 1913 act. "Copra" is omitted here because the word is not applied in trade to the shredded meat of the coconut, but is confined to the unshredded meat as oil material, which is covered by paragraph 1620 of H. R. 7456.

PARAGRAPH 757.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 757. Peanuts, not shelled, 3 cents per pound; shelled, 4 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 282. Peanuts or ground beans, unshelled, one-half of one cent per pound; shelled, one cent per pound.

PAR. 225. Peanuts or ground beans, unshelled, $\frac{1}{2}$ of 1 cent per pound; shelled, $\frac{1}{2}$ of 1 cent per pound.²³

PEANUTS.

(See Survey G-36.)

Description and uses.—The bulk of the domestic peanut crop is used in the manufacture of peanut oil (see par. 45), peanut butter, confectioner's and baker's goods, and as roasted and salted peanuts. In 1916 approximately 4,000,000 bushels went into peanut butter, and about 7,000,000 bushels were crushed into 50,000,000 pounds of oil. Cottonseed oil mills manufacture peanut oil, using the same equipment. The meal left after extracting the oil serves as the basis for a high-grade cattle and dairy feed. The peanut is a soil im-

²³ Peanuts or ground beans, 3 cents per pound. (Par. 6, emergency tariff act of 1821.)

prover, and gives a valuable hay crop. Where the boll-weevil has interfered with the growing of cotton, the peanut production has increased rapidly; and its culture is possible on millions of acres of southern soils adapted to this crop.

Production.—From 1899 to 1918 the acreage in peanuts rose from 516,654 to 2,291,000 acres, the yield from 11,964,000 to 54,434,000 bushels, and farm values from \$7,270,515 to \$95,829,000. This increase was due chiefly to the growing market for peanuts and their products, to the realization of the usefulness of the crop as a soil improver, and to the handling of the crop by machinery. In Virginia and North Carolina peanuts are grown largely for confectionery purposes; farther South, for oil and for forage. In the Gulf States the increase in production has been very marked.

Production during recent years has been as follows:

| | 1919 | 1920 | 1921 |
|------------------------|--------------|--------------|--------------|
| Quantity (pounds)..... | 783,273,000 | 841,474,000 | 816,465,000 |
| Value..... | \$73,094,000 | \$44,286,000 | \$32,288,000 |

Imports have greatly increased since 1913, notwithstanding the great expansion in domestic production. The increase of shelled peanuts coming from southern France, Spain, and Japan has been the more pronounced. Japan supplies about three-fourths of the unshelled nuts, chiefly absorbed in the Pacific States, far distant from important domestic sources. Larger imports are made in the form of peanut oil. Since 1917 imports have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|---------------------------------------|----------------|-------------|-----------|--------------------------------|
| PEANUTS OR GROUND BEANS, NOT SHELLED. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,719,276 | \$117,427 | \$6,447 | 5.49 |
| 1919..... | 5,383,828 | 368,184 | 20,189 | 5.48 |
| 1920..... | 7,222,486 | 642,095 | 27,084 | 4.22 |
| 1921 (9 months)..... | 4,614,686 | 247,089 | | |
| PEANUTS OR GROUND BEANS, SHELLED. | | | | |
| 1918..... | 60,811,453 | \$3,934,946 | \$456,086 | 11.59 |
| 1919..... | 26,531,105 | 2,000,776 | 191,408 | 9.57 |
| 1920..... | 103,552,486 | 9,846,655 | 776,644 | 7.89 |
| 1921 (9 months)..... | 38,931,465 | 1,896,709 | | |

The following statistics show by months the quantity and value of both unshelled and shelled peanuts imported in 1920 and in 1921 under the operation of the emergency tariff act:

| Month. | Quantity. | | Value. | |
|------------------------------|----------------|----------------|----------|----------|
| | 1920 | 1921 | 1920 | 1921 |
| PEANUTS, NOT SHELLED. | | | | |
| | <i>Pounds.</i> | <i>Pounds.</i> | | |
| January..... | 158,844 | 354,951 | \$15,249 | \$16,192 |
| February..... | 760,781 | 84,654 | 69,246 | 5,063 |
| March..... | 1,062,153 | 361,916 | 86,830 | 14,420 |
| April..... | 2,794,879 | 818,783 | 263,330 | 48,517 |
| May..... | 1,094,887 | 1,682,460 | 100,694 | 68,572 |
| June..... | 1,468,136 | 794,091 | 137,695 | 32,099 |
| July..... | 797,933 | 38,574 | 58,989 | 2,378 |
| August..... | 260,561 | 329,987 | 21,663 | 11,944 |
| September..... | 165,599 | 67,005 | 12,651 | 3,135 |
| October..... | 32,610 | 59,610 | 2,248 | 3,013 |
| November..... | 27,010 | 2,598 | 1,993 | 267 |
| December..... | 79,726 | 28,310 | 4,624 | 1,845 |

PEANUTS, SHELLED.

| | | | | |
|----------------|------------|------------|-----------|----------|
| January..... | 8,324,542 | 1,230,145 | \$809,154 | \$63,953 |
| February..... | 16,276,079 | 2,280,165 | 1,537,067 | 122,138 |
| March..... | 26,361,065 | 4,386,220 | 2,630,484 | 184,991 |
| April..... | 27,042,490 | 15,177,797 | 2,769,652 | 662,908 |
| May..... | 18,385,786 | 10,257,514 | 1,574,968 | 392,459 |
| June..... | 6,930,324 | 1,683,263 | 661,213 | 68,335 |
| July..... | 1,859,085 | 361,769 | 184,984 | 11,635 |
| August..... | 4,825,263 | 56,437 | 338,503 | 2,701 |
| September..... | 130,720 | 10,707 | 13,641 | 1,097 |
| October..... | 652,855 | 4,468 | 49,028 | 381 |
| November..... | 21,327 | 14,099 | 2,101 | 856 |
| December..... | 780 | 55,667 | 85 | 4,948 |

Exports range between 10,000,000 and 20,000,000 pounds and move chiefly to Canada. Figures for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|-------------|-------------|--------------------|
| Quantity (pounds)..... | 12,319,004 | 19,778,490 | 9,366,434 | 11,063,404 |
| Value..... | \$1,602,657 | \$2,123,411 | \$1,115,351 | \$728,856 |

Important changes in classification.—The term “ground beans” has been eliminated as unnecessary. The effectiveness of a duty upon peanuts is to a considerable degree conditioned by the duty upon peanut oil, for which the great bulk of the imported peanuts is used.

PARAGRAPH 758.**H. R. 7456.****SENATE AMENDMENTS.**

PAR. 758. Walnuts of all kinds, not shelled, 2½ cents per pound; shelled, 7½ cents per pound; pecans, unshelled, 1 cent per pound; shelled, 2 cents per pound.

ACT OF 1909.**ACT OF 1913.**

PAR. 281. * * * walnuts of all kinds, not shelled, three cents per pound; shelled, five cents per pound.

PAR. 224. * * * walnuts of all kinds, not shelled, 2 cents per pound; shelled, 4 cents per pound.

ACT OF 1909.

PAR. 283. Nuts of all kinds, shelled or unshelled, not specially provided for in this section, one cent per pound; but no allowance shall be made for dirt or other impurities in nuts of any kind, shelled or unshelled.

ACT OF 1913.

PAR. 226. Nuts of all kinds, shelled or unshelled, not specially provided for in this section, 1 cent per pound; but no allowance shall be made for dirt or other impurities in nuts of any kind, shelled or unshelled.

WALNUTS OF ALL KINDS.

(See Survey G-34.)

Description and uses.—The Persian walnut, commonly called the English walnut, is very popular as a table nut and much used in cakes and confections.

Production.—Because of climatic requirements profitable commercial production is restricted to Pacific Coast States, chiefly to southern California. The California crop in 1919 amounted to 59,091,390 pounds, with approximate valuation of \$14,181,934. Total production in pounds has been as follows: 1918, 40,230,000; 1919, 59,091,390 (\$14,181,934); 1920, 4,000,000.

Imports of walnuts not shelled averaged for 1913-1917, 20,561,194 pounds per annum. Imports of shelled walnuts in the same time averaged 14,029,644 pounds. Imports came principally from France, Italy, and Chile, and recently in increasing quantities from China. Statistics of imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|-----------------------|----------------|-------------|-----------|------------------------|
| WALNUTS, NOT SHELLED. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 3,875,345 | \$509,311 | \$77,507 | 15.22 |
| 1919..... | 16,667,276 | 3,161,334 | 333,346 | 10.54 |
| 1920..... | 17,339,096 | 2,662,268 | 346,782 | 13.03 |
| 1921 (9 months)..... | 10,980,108 | 1,192,093 | | |
| WALNUTS, SHELLED. | | | | |
| 1918..... | 9,164,103 | \$3,504,501 | \$366,564 | 10.46 |
| 1919..... | 9,800,762 | 5,001,569 | 392,030 | 7.84 |
| 1920..... | 13,972,917 | 5,562,769 | 558,917 | 10.05 |
| 1921 (9 months)..... | 9,708,122 | 3,396,581 | | |

Exports.—None recorded.

PECANS.

(See Survey G-34.)

Description and uses.—The pecan is widely distributed throughout the Gulf States, and is one of the most important American nuts. Formerly a large proportion was gathered wild, but orchards of the better varieties are now cultivated and may be expected in the coming years to produce an increasing quantity of thin-shelled nuts.

Production in 1919 amounted to 31,808,548 pounds valued at \$7,792,086. Texas produced over half the crop; Oklahoma, Georgia and Louisiana had the next largest crops.

Imports of pecans in 1914 amounted to 2,621,161 pounds. They come almost entirely from Mexico. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,239,717 | \$143,316 | \$12,397 | 8.65 |
| 1919..... | 1,794,265 | 226,539 | 17,943 | 7.92 |
| 1920..... | 2,194,820 | 283,395 | 21,946 | 7.74 |
| 1921 (9 months)..... | 551,247 | 66,502 | | |

Exports.—None recorded.

Important changes in classification.—Special provision has been made for pecans as the volume of the trade seems to warrant it.

Suggested changes.—In order to carry out the general plan of having separate paragraphs for the important nuts, in an alphabetical arrangement, it is suggested that pecans be taken out of this paragraph, and given a separate paragraph, between peanuts and walnuts.

PARAGRAPH 759.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 759. Edible nuts, shelled or unshelled, not specially provided for, 1 cent per pound: *Provided*, That no allowance shall be made for dirt or other impurities in nuts of any kind, shelled or unshelled.

ACT OF 1909.

ACT OF 1913.

PAR. 283. Nuts of all kinds, shelled or unshelled, not specially provided for in this section, one cent per pound; but no allowance shall be made for dirt or other impurities in nuts of any kind, shelled or unshelled.

PAR. 226. Nuts of all kinds, shelled or unshelled, not specially provided for in this section, 1 cent per pound; but no allowance shall be made for dirt or other impurities in nuts of any kind, shelled or unshelled.

ALL OTHER NUTS, N. S. P. F.

(See Survey G-34.)

Import statistics given below include pignolia and pistache nuts and all others not mentioned specifically in the tariff act of 1913.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|----------------|-----------|---------|------------------------|
| NUTS, SHELLED OR UNSHELLED, N. S. P. F. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 984,062 | \$204,815 | \$9,832 | 4.81 |
| 1919..... | 2,163,097 | 581,100 | 21,612 | 3.72 |
| 1920..... | 3,789,902 | 882,583 | 37,640 | 4.27 |
| 1921 (9 months)..... | 2,558,431 | 534,329 | | |
| OLIVE NUTS, GROUND. | | | | |
| 1918..... | | \$17 | \$3 | 15.00 |
| 1919..... | | 129 | 19 | 15.00 |
| 1920..... | | 132 | 20 | 15.00 |
| 1921 (9 months)..... | | 161 | | |

Exports go chiefly to Canada. They include almonds, walnuts, pecans, and all other nuts except peanuts. Exports of individual varieties have not in the past been large; in consequence, they have not been separated by customs authorities. Late statistics for calendar years follow: 1918, \$541,641; 1919, \$1,462,408; 1920, \$857,123; 1921 (9 months), \$526,548.

Important changes in classification.—"Edible" excludes from this paragraph nonedible oil nuts. Nearly all of such nuts are covered by specific provisions, with a general provision (par. 760) for oil-bearing materials.

Suggested changes.—For the reasons stated under the subheading "conflicting provisions" under paragraph 748, a semicolon might be substituted for the colon after the word "pound" in line 7, page 95, and the words "pickled, or otherwise prepared or preserved, and not specially provided for, [rate]" followed by a colon, be inserted thereafter.

SEEDS AND STOCKS.

GENERAL.

The dutiable and free provisions for seeds and stocks imported for industrial purposes, for replanting, or as spices have been rearranged into three dutiable paragraphs:

760. Oil-bearing materials.

761. Grass seeds.

762. Other field and garden seeds.

Seeds used chiefly as spices have been transferred to the spice paragraph (780); roots, root stocks, and seedlings to the paragraphs relating to nursery and greenhouse stock (pars. 750-752); and a number of new provisions have been added. For the details of these changes and additions see paragraphs 760, 761, 762, as well as the others cited.

PARAGRAPH 760.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 760. Oil-bearing seeds and materials: Castor beans, one-half of 1 cent per pound; flaxseed, 25 cents per bushel of fifty-six pounds; poppy seed, 32 cents per one hundred pounds; sunflower seed, 2 cents per pound; apricot and peach kernels, 3 cents per pound.

ACT OF 1909.

PAR. 266. Seeds: Castor beans or seeds, twenty-five cents per bushel of fifty pounds; flaxseed or linseed * * * twenty-five cents per bushel of fifty-six pounds; poppy seed, fifteen cents per bushel; * * *

PAR. 280. * * * apricot and peach kernels, four cents per pound.

PAR. 668. Seeds: * * * flower * * * seeds; * * * [Free].

ACT OF 1913.

PAR. 212. Seeds: Castor beans or seeds, 15 cents per bushel of fifty pounds; flaxseed or linseed * * *, 20 cents per bushel of fifty-six pounds; * * * poppy seed, 15 cents per bushel of forty-seven pounds; * * *

PAR. 223. * * * apricot and peach kernels, 3 cents per pound.

PAR. 595. Seeds: * * * flower * * * seeds; * * * [Free].

* Flaxseed, 30 cents per bushel of fifty-six pounds. (Par. 3, emergency tariff act of 1921.)

CASTOR BEANS OR SEEDS.

(See Survey A-11).

Description and uses.—Castor beans or seeds are employed principally for oil manufacture. The oil is used for industrial purposes, as a medicine, and as a lubricant for airplanes.

Production is cheaper perhaps in India and other Asiatic countries than elsewhere, and is insignificant here, chiefly because of the large amount of hand labor required, especially in harvesting. Efforts in 1918 to grow these beans to supply oil for airplanes met with little success, because of the inexperience of agriculturists, unseasonable conditions, and other causes.

Imports averaged annually 838,861 bushels for 1910-1913. They came mainly from India and parts of Asia. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-------------|-----------|------------------------|
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 858,157 | \$2,327,061 | \$128,638 | 5.52 |
| 1919..... | 1,133,824 | 3,488,702 | 169,938 | 4.87 |
| 1920..... | 1,259,307 | 2,987,148 | 188,868 | 6.48 |
| 1921 (9 months)..... | 540,318 | 664,082 | | |

In 1920, about 65 per cent of the imports were from Brazil, and about 13 per cent were from England.

Important changes in classification, etc.—See General Notes on Paragraph, page 769.

FLAXSEED OR LINSEED.

(See Report T. I. S.-20.)

Description and uses.—Flaxseed or linseed is used almost exclusively for making linseed oil. The by-product, oil cake, is a valuable feedstuff and fertilizer.

Production of flaxseed has been steadily declining. It has been essentially a frontier crop, thriving on the frontier and moving with it. It has been unpopular because of flaxwilt and other factors apart from the competition of more profitable crops. The domestic production declined from 25,856,000 bushels in 1909 to 8,112,000 bushels in 1921. The Dakotas, Montana, and Minnesota produce nearly all of the output of the United States.

Imports during 1910-1913 averaged 6,909,209 bushels per annum. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|--------------|-------------|------------------------|
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 12,397,597 | \$32,618,623 | \$2,479,519 | 7.60 |
| 1919..... | 14,049,542 | 44,382,395 | 2,408,508 | 5.33 |
| 1920..... | 24,616,766 | 74,519,675 | 4,923,353 | 6.61 |
| 1921 (9 months)..... | 8,599,517 | 13,858,063 | | |

In 1920, 92 per cent of the imports were from Argentina.

Flaxseed is dutiable at 30 cents per bushel of 56 pounds under paragraph 3 of the emergency tariff act of 1921. General imports by months for 1920 and 1921 have been as follows:

| Month | Quantity | | Value | |
|----------------|-----------------|-----------------|-------------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Bushels.</i> | <i>Bushels.</i> | | |
| January..... | 2,186,287 | 388,638 | \$6,702,682 | \$721,519 |
| February..... | 1,082,796 | 341,180 | 3,788,497 | 625,905 |
| March..... | 2,263,533 | 903,070 | 7,085,524 | 1,554,797 |
| April..... | 1,703,611 | 1,091,584 | 5,333,860 | 1,681,726 |
| May..... | 4,253,319 | 1,728,398 | 13,445,400 | 2,603,301 |
| June..... | 2,312,742 | 890,583 | 7,565,269 | 1,241,388 |
| July..... | 1,798,954 | 776,036 | 5,442,181 | 1,219,944 |
| August..... | 1,666,510 | 1,806,500 | 5,251,974 | 3,136,280 |
| September..... | 2,007,440 | 598,805 | 5,948,534 | 1,073,409 |
| October..... | 2,202,447 | 648,038 | 6,121,030 | 1,145,263 |
| November..... | 1,468,098 | 1,576,193 | 3,982,192 | 2,869,434 |
| December..... | 1,670,713 | 1,409,127 | 3,958,441 | 2,566,235 |

Exports are relatively insignificant. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------|-----------|-----------|-----------|-----------------|
| Quantity (bushels)..... | 25,508 | 16,595 | 15,753 | 262 |
| Value..... | \$134,965 | \$125,143 | \$112,037 | \$1,365 |

In 1920, 68 per cent of the exports went to Canada and 26 per cent to the United Kingdom.

Important changes in classification, etc.—See General Notes on Paragraph, page 769.

POPPY SEED.

Description and uses.—The most important is the white or oil poppy, noted for its yield of opium and the bland, fixed oil obtained from the seed by crushing. It is native to most warm countries. The seeds contain no opium and yield about 40 per cent oil. The oil cake is used for fertilizer and for feeding cattle.

Production.—The poppy plant is grown extensively in Asia Minor, Persia, India, Egypt, south Russia, and northern France. The seed from Manchuria is of low quality.

Imports for 1910-1914 averaged annually 56,084 bushels. France and Germany were the principal countries in which poppy seed was crushed. Later statistics follow:

| Calendar year. | Quantity | Value | Duty | Equivalent ad valorem. |
|----------------------|-----------------|----------|-------|------------------------|
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 4,438 | \$24,581 | \$666 | 2.71 |
| 1919..... | 22,911 | 231,121 | 3,437 | 1.49 |
| 1920..... | 59,582 | 468,131 | 9,937 | 1.91 |
| 1921 (9 months)..... | 65,012 | 272,231 | | |

Important changes in classification, etc.—See General Notes on Paragraph, page 769.

SUNFLOWER SEED.

Description and uses.—The seed is the product of the sunflower plant. It yields an oil that is an ingredient in certain high-class paints used by artists. It is also used for feeding purposes.

Imports are not separately stated but are included in "Flower seeds."

Important changes in classification.—See General Notes on Paragraph, page 769.

APRICOT AND PEACH KERNELS.

Description and uses.—The principal use of these fruit kernels is in the production of apricot and peach kernel oil. In preparing the fruit for drying it is split open and the pit removed. The pits are used quite extensively in California for fuel, and during the war were employed in making charcoal for gas masks.

Production.—The source of these kernels is primarily the canning factories and, in California, the apricot and peach drying yards.

Imports averaged annually 22,874 pounds for 1912-1916. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 241,106 | \$19,117 | \$7,233 | 37.33 |
| 1919..... | 38,416 | 7,847 | 1,152 | 14.69 |
| 1920..... | 65,215 | 14,453 | 1,955 | 13.53 |
| 1921 (9 months)..... | 30,411 | 7,070 | | |

Important changes in classification, etc.—See General Notes on Paragraph, page 769.

OIL-BEARING SEEDS, N. S. P. F.

The following seeds, not specially provided for in H. R. 7456, are used chiefly for oil:

COTTONSEED.

Description and uses.—Cottonseed, from the fibrous cotton plant, is used principally in making cottonseed oil; the residual cottonseed meal or cake is used for cattle feed and fertilizer. Cottonseed hulls, used chiefly for feeding cattle, and linters (for guncotton, mattresses, etc.) are less important by-products. About 540,000 tons of cottonseed for planting are required annually by farmers in the Southern States.

Production of cottonseed averages nearly 6,000,000 tons per annum in the United States.

Imports in 1914 were 4,446 tons, valued at \$66,035. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 36,946,855 | 67,051,597 | 76,597,283 | 49,371,380 |
| Value..... | \$914,991 | \$1,776,135 | \$1,290,520 | \$255,457 |

Exports of domestic cottonseed amounted in 1914 to 8,171 tons, valued at \$215,115. Before the war most of the exports went to Germany. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-----------|-----------|-----------|--------------------|
| Quantity (pounds)..... | 1,741,499 | 1,918,848 | 3,270,382 | 2,447,074 |
| Value..... | \$69,707 | \$88,743 | \$309,135 | \$97,854 |

In 1920, about 75 per cent of the exports went to Mexico and about 9 per cent to the Barbados.

Important changes in classification.—See General Notes on Paragraph, page 769.

HEMPSEED.

Description and uses.—Hempseed when crushed yields an oil used in making soap and an oil cake serving as cattle feed. The seed is used also as feed for poultry and cage birds and for sowing.

Production.—Hemp is native to temperate Asia, but grows also in Europe, India, and Canada. Kentucky supplies practically all of the domestic output. In 1909, 5,416 bushels were gathered from 516 acres; the acreage increased to 42,000 in 1917. Further figures are unavailable. China and Japan furnish large quantities, of no value for seeding, which is used for poultry feed.

Imports in 1914 were 2,031,438 pounds, valued at \$38,315. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------|-----------|-----------|--------------------|
| Quantity (pounds)..... | 20,512 | 3,108,047 | 6,030,608 | 810,019 |
| Value..... | \$2,341 | \$142,177 | \$221,904 | \$12,819 |

Important changes in classification.—See General Notes on Paragraph, page 769.

RAPESEED.

Description and uses.—Rapeseed is used for planting, oil, and feed. Rape produces an abundance of green forage, valued highly by farmers for feeding or grazing live stock and poultry. It is grown to some extent in practically every State. The seed, together with millet, canary, and hemp seed, is used also in bird-seed mixtures. Rapeseed is also crushed for oil.

Production.—It is not produced here commercially. Prior to the war our supply came from England; during the war it came from Japan, where large quantities of seed less desirable for planting purposes are produced.

Imports in 1914, an average year, were 5,970,937 pounds, valued at \$211,301. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 2,625,259 | 5,080,089 | 5,798,272 | 2,804,861 |
| Value..... | \$175,357 | \$317,262 | \$368,012 | \$140,575 |

Important changes in classification, etc.—See below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Three provisions relating to oil seeds and materials have been combined in this paragraph. The duty on castor beans and poppy seed has been changed from the bushel to the pound basis and a provision added for sunflower seed which is exempt from duty under the act of 1913 (par. 595).

Suggested changes.—It is suggested that provision be made by name for cottonseed, hempseed, rapeseed, Chinese or Japanese tung nuts, perilla and sesame seed, and soya beans, and that a general provision be added for oil seeds and oil-bearing vegetable materials not specially provided for. If these articles or any of them should be exempted from duty, they should come within paragraph 1620; if, however, a duty is imposed they should be provided for in this paragraph.

(See also pars. 762 and 1626.)

PARAGRAPH 761.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 761. Grass seeds: Alfalfa, 2 cents per pound; alsike clover, 3 cents per pound; crimson clover, 1 cent per pound; red clover, 3 cents per pound; white clover, 3 cents per pound; clover, not specially provided for, 2 cents per pound; millet, one-half of 1 cent per pound; timothy, 2 cents per pound; hairy vetch, 2 cents per pound; spring vetch, 1 cent per pound; all other grass seeds not specially provided for, 2 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 668. Seeds: * * * all * * * grass seeds; * * * not specially provided for in this section [Free].

PAR. 595. Seeds: * * * all * * * grass seeds; * * * not specially provided for in this section [Free].

GRASS SEEDS.

ALFALFA SEED.

Description and uses.—The quantity of alfalfa seed used annually in the United States for planting is estimated as more than 25,000,000 pounds.

Production is very uncertain and is commercially localized in South Dakota, Nebraska, Kansas, Texas, Oklahoma, Colorado, Utah, Montana, Idaho, California, and Arizona. Excessive rains or drought

and injury to the crop inflicted by grasshoppers, alfalfa weevil, and other insects affect the production.

Imports in 1914 amounted to 7,438,261 pounds, valued at \$740,810. Much of it comes from Turkestan, but is inferior to the domestic seed. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 167,487 | 6,241,948 | 12,110,131 | 1,680,067 |
| Value..... | \$41,762 | \$1,328,581 | \$3,203,845 | \$231,481 |

Exports.—None specifically recorded.

CRIMSON CLOVER SEED.

Description and uses.—Crimson clover seed is used solely for planting. American farmers sowing annually over 4,000,000 pounds.

Production here of crimson clover seed, although greatly increased during late years, does not equal requirements. It is produced successfully in Tennessee (2,500,000 pounds in 1919) and lightly in Alabama, North Carolina, Virginia, Maryland, and Delaware.

Imports averaged annually 6,266,737 pounds for 1914–1917. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-----------|---------------------|
| Quantity (pounds)..... | 938,323 | 5,837,948 | 5,429,770 | 4,681,792 |
| Value..... | \$177,881 | \$1,099,923 | \$594,532 | \$291,554 |

Exports are not separately stated. See statistics under "Clover seed, n. s. p. f.," page 772.

RED CLOVER SEED.

Description and uses.—In the United States red clover seed is used exclusively for planting, the estimated annual requirement being over 100,000,000 pounds.

Production is principally in Michigan, Illinois, Indiana, Ohio, Minnesota, Wisconsin, Iowa, Missouri, Oregon, and Idaho. The amount decreased during the war. Government officials and large seed dealers agree that there is a world shortage of red clover seed. The wholesale price has ranged from \$15 to \$50 per 100 pounds.

Imports for 1913–1917 averaged 11,989,767 pounds per annum. In 1918 (fiscal year) nearly all came from Italy, France, and Canada. Before the war Germany was the most important source. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 931,307 | 7,025,591 | 12,692,711 | 15,640,393 |
| Value..... | \$176,111 | \$2,410,066 | \$4,627,485 | \$2,233,565 |

In 1920 imports were chiefly from France, about 54 per cent, and from Italy, about 35 per cent.

Exports are not separately stated. See statistics under "Clover seed, n. s. p. f."

ALSIKE CLOVER SEED.

Description and uses.—The seed of alsike clover, used primarily for planting, was employed more extensively in 1918 and 1919 than formerly, probably because of the scarcity and higher price of red clover seed.

Production.—Most of this seed is grown in Michigan, Illinois, Indiana, Ohio, Minnesota, Wisconsin, and Idaho, but production is not sufficient for domestic requirements.

Imports in 1914 were 5,349,156 pounds, valued at \$804,092, and came chiefly from Canada. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-----------|------------------|
| Quantity (pounds)..... | 6,078,038 | 7,071,548 | 2,170,884 | 4,504,619 |
| Value..... | \$1,409,879 | \$2,433,780 | \$853,780 | \$795,608 |

Exports are not separately stated. See statistics under "Clover seed, n. s. p. f."

WHITE CLOVER SEED.

Description and uses.—White clover seed, used primarily for planting, is sown extensively in pastures and on lawns together with other clover and grass seed. Compared with the extent to which the crops are grown, however, little seed is required—probably not over 1,000,000 pounds per annum.

Production.—Wisconsin, Idaho, and Illinois produce most of this seed. In Illinois it is mainly a by-product of redtop seeds. Some of the supply is obtained from Canada.

Imports in 1914 were unusually large; 1,122,551 pounds, valued at \$207,088. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|----------|-----------|------------------|
| Quantity (pounds)..... | 84,412 | 329,585 | 540,825 | 1,151,417 |
| Value..... | \$15,982 | \$99,737 | \$190,783 | \$299,128 |

Exports are not separately stated. See statistics under "Clover seed, n. s. p. f."

CLOVER SEED, N. S. P. F.

Description and uses.—Sweet clover, white flowered (*Melilotus alba*), is becoming important as a cultivated crop. It grows wild throughout most of the corn belt, portions of the Rocky Mountain States, and on the black lands of Alabama and Mississippi. It is valuable in restoring waste lands to profitable cultivation. Its increasing use for hay and pasture has created a strong demand for the seed.

Production is quite large, but data are not available. Sales by dealers in 1919 were double those of 1917 or 1918. This plant has a wide adaptation and produces seed abundantly. Seed is produced commercially in Oregon, Idaho, Utah, Colorado, Kansas, Nebraska, South Dakota, Kentucky, Mississippi, and to a less extent in some other States. Canada also produces sweet clover seed and during 1919 relatively large quantities were imported from that country for planting.

Imports of clover seed designated as "all other" amounted to 6,034,673 pounds, valued at \$515,143 in 1914. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 1,739,649 | 4,777,328 | 4,742,892 | 8,148,977 |
| Value..... | \$307,758 | \$1,308,468 | \$1,299,306 | \$738,529 |

In 1920, imports of all varieties of clover seed, except red, came principally from France (43 per cent), and Canada (33 per cent).

Exports of clover seed, for calendar years, since 1917 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 5,985,526 | 7,943,749 | 4,985,695 | 3,990,790 |
| Value..... | \$1,836,124 | \$3,206,316 | \$1,928,140 | \$787,590 |

In 1920, exports went principally to Canada (about 21 per cent), to England (about 20 per cent), and to Denmark (about 19 per cent).

MILLET SEED.

Description and uses.—About 25,000,000 pounds of millet seed are annually sown for hay and forage. Large quantities are also used in poultry feed and bird-seed mixtures.

Production is sufficient for planting purposes. Kansas, Missouri, Texas, Oklahoma, Nebraska, the Dakotas, Iowa, Tennessee, and Colorado produce the bulk of the seed.

Imports from 1914 to 1918 were relatively small. The Orient supplies a part of domestic requirements for poultry and bird-seed mixtures. Statistics of imports since 1917 by calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------|-----------|---------|---------------------|
| Quantity (pounds)..... | 14,014 | 1,775,226 | 88,575 | 214,119 |
| Value..... | \$553 | \$30,549 | \$3,653 | \$5,628 |

TIMOTHY SEED.

Description and uses.—Timothy is America's greatest cultivated hay grass. The seed is used solely for planting.

Production of timothy seed annually exceeds our planting needs. Most commercial timothy seed is produced in Illinois, Indiana, Ohio, South Dakota, Minnesota, Wisconsin, Iowa, Missouri, Utah, and Idaho.

Imports were not separately stated prior to 1918, but were included in "All other grass seeds." Since 1917 imports by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|---------|-------|---------------------|
| Quantity (pounds)..... | 88,435 | 85,443 | 4,419 | 117,207 |
| Value..... | \$12,309 | \$8,424 | \$650 | \$5,401 |

Exports in 1914 were 12,480,294 pounds, valued at \$688,118. They go mostly to Canada. Later statistics, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 8,554,384 | 13,346,358 | 13,522,134 | 13,165,717 |
| Value..... | \$881,154 | \$1,633,271 | \$1,666,332 | \$944,698 |

VETCH SEED.

Description and uses.—Vetch, both hairy (winter) and common (spring) are grown here for hay and forage, and the seed is used for planting. The hairy, or winter variety, is considered much more valuable, except perhaps on the Pacific coast, but high prices in recent years restrict its use.

Production.—Hairy, or winter vetch seed is difficult to grow, small quantities being produced only in Michigan in connection with, or as a by-product of, rye for grain. Most of the hairy vetch seed comes from Russia, but quantities have been small since 1914. The Willamette Valley in Oregon produces most of our common, or spring vetch seed. The demand for this species, although the price is lower, rarely exceeds production and little is imported.

Imports of hairy vetch in 1914 were 3,405,750 pounds, valued at \$135,875; and of spring vetch, 630,881 pounds, valued at \$24,085. Later statistics, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|----------|-----------|---------------------|
| Hairy vetch seeds: | | | | |
| Quantity (pounds)..... | 225,023 | 461,843 | 1,521,504 | 1,736,178 |
| Value..... | \$20,381 | \$62,194 | \$213,150 | \$101,410 |
| Spring vetch seeds: | | | | |
| Quantity (pounds)..... | 224,852 | 273,814 | 612,002 | 266,765 |
| Value..... | \$10,850 | \$17,432 | \$44,195 | \$11,105 |

GRASS SEED N. S. P. F.

Description and uses.—A few other kinds of grass seeds n. s. p. f. included in this section are imported. Canada blue-grass seed, practically all from Ontario, Canada, is used for planting. It was formerly

used to adulterate Kentucky blue-grass seed. Kentucky blue-grass seed is used for sowing, principally in pastures. Sufficient is produced in Kentucky, Missouri, and Iowa for domestic requirements. Very little is imported. A mixture of alsike clover and timothy seed is extensively sown for hay. Although this mixture is largely imported, there is also a limited domestic production. Orchard grass seed, used for sowing in pastures and meadows, thrives in shady places. Kentucky, Indiana, Ohio, and Virginia produce the greater part of the requirements. Large quantities formerly were imported from New Zealand, but the strain is inferior. Redtop seed gives a valuable hay and pasture grass, especially on wet and acid soils. It is used mostly in mixtures with alsike clover and alsike and timothy, and is a constituent of lawn and turf grass mixtures. Illinois produces the greater portion of the supply; Iowa and Missouri also produce fairly large quantities. Very little is imported. English rye-grass seed is used in meadow and pasture mixtures and also in turf-grass mixtures. It is imported from Europe. Italian rye-grass seed, used for the same purpose as English rye grass, is normally imported from Europe; in recent years a variety has come in quantities from Argentina.

Imports of "all other" grass seed (including timothy, treated above) amounted to 23,350,147 pounds, valued at \$742,941 in 1914. Germany furnished the bulk in 1914, while in 1918 (fiscal year) Ireland, Russia, and Canada furnished about 75 per cent. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 5,345,659 | 6,771,617 | 6,777,120 | 7,563,758 |
| Value..... | \$480,393 | \$1,158,274 | \$1,019,417 | \$933,337 |

Exports in 1914 were 5,156,801 pounds, valued at \$600,368, chiefly to Germany, Canada, Great Britain, and the Netherlands. Later exports of grass seeds (except clover and timothy) for calendar years are shown as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 2,952,193 | 4,440,490 | 4,252,152 | 3,687,281 |
| Value..... | \$542,704 | \$717,102 | \$812,801 | \$514,595 |

In 1920, exports were principally to Canada (31 per cent) and to England (17 per cent).

GENERAL NOTE ON PARAGRAPH.

Important changes in classification.—New specific provision: the seeds covered by this paragraph are exempt from duty under the provision in paragraph 595 of the act of 1913 for "all grass seeds."

PARAGRAPH 762.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 762. Other garden and field seeds: Sugar beet, 1 cent per pound; other beet, 4 cents per pound; cabbage, 12 cents per pound; canary, 1 cent per pound; carrot, 4 cents per pound; cauliflower, 25 cents per pound; celery, 2 cents per pound; kale, 6 cents per pound; kohlrabi, 8 cents per pound; mangelwurzel, 4 cents per pound; onion, 20 cents per pound; parsley, 2 cents per pound; parsnip, 4 cents per pound; pepper, 15 cents per pound; radish, 4 cents per pound; spinach, 1 cent per pound; tree, 8 cents per pound; turnip, 4 cents per pound; rutabaga, 4 cents per pound; flower, 4 cents per pound; all other garden and field seeds not specially provided for, 20 per centum ad valorem: *Provided*, That the provisions for seeds in this title shall include such seeds whether used for planting or for other purposes.

ACT OF 1909.

PAR. 068. Seeds: * * * canary, * * * cauliflower, * * * cotton, * * * fenugreek, hemp, hoarhound, mangelwurzel, * * * rape, Saint John's bread or bean, sugar beet, sorghum or sugar cane for seed; * * * all flower * * * seeds; * * * all the foregoing not specially provided for in this section [Free].

PAR. 266. Seeds: * * * oil seeds not specially provided for in this section, twenty-five cents per bushel of fifty-six pounds; * * * mushroom spawn, and spinach seed, one cent per pound; beet, except sugar beet, carrot, corn salad, parsley, parsnip, radish, turnip and rutabaga seed, four cents per pound; cabbage, collard, kale and kohlrabi seed, eight cents per pound; egg plant and pepper seed, twenty cents per pound; seeds of all kinds not specially provided for in this section, ten cents per pound.

ACT OF 1913.

PAR. 595. Seeds: * * * cauliflower, celery, * * * cotton, * * * fenugreek, hemp, hoarhound, mangelwurzel, * * * rape, Saint John's bread or bean, sorghum, sugar beet, and sugar cane for seed; * * * all flower * * * seeds; * * * all the foregoing not specially provided for in this section [Free].

PAR. 212. Seeds: * * * oil seeds not specially provided for in this section, 20 cents per bushel of fifty-six pounds; * * * mushroom spawn, and spinach seed, 1 cent per pound; canary seed, $\frac{1}{2}$ cent per pound; * * * beet (except sugar beet), carrot, corn salad, parsley, parsnip, radish, turnip, and rutabaga seed, 3 cents per pound; cabbage, collard, kale, and kohlrabi seed, 6 cents per pound; egg plant and pepper seed, 10 cents per pound; seeds of all kinds not specially provided for in this section, 5 cents per pound: *Provided*, That no allowance shall be made for dirt or other impurities in seeds provided for in this paragraph.

OTHER GARDEN AND FIELD SEEDS.

SUGAR-BEET SEED.

Description and uses.—The sugar beet, closely related to certain varieties of garden beet, is grown almost solely for the production of sugar. The roots yield sugar the first year, but seeds are not produced until the second year.

Production of sugar-beet seed in 1916 was 5,539,000 pounds. Because it was difficult to import seed during the war, the seed

acreage was increased; nevertheless the production of 1921 decreased to 3,575,000 pounds. Idaho, Colorado, Utah, California, and Michigan lead. Beet-sugar manufacturers, who control the supply, endeavor to carry sufficient seed to meet requirements for one or two years and thus provide against emergencies.

Imports in 1914 were 10,490,089 pounds, valued at \$804,209—86 per cent from Germany, 6 per cent from Austria-Hungary, and 3.5 per cent from Russia. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 4,298,375 | 9,830,068 | 23,446,067 | 6,385,999 |
| Value..... | \$1,341,341 | \$2,137,091 | \$5,213,410 | \$1,280,825 |

In 1920 about 40 per cent of the imports came from Germany, about 38 per cent from the Netherlands, and about 19 per cent from Denmark.

Important changes in classification.—Sugar-beet seed is transferred from the free list of the act of 1913 (par. 595).

BET SEED (EXCEPT SUGAR BEET AND MANGELWURZEL).

Description and uses.—Beet seed is used primarily for planting in this country, nearly 500,000 pounds of the garden variety being sown annually.

Production increased rapidly during the war—in 1916, 200,000 pounds; in 1918, 2,509,000 pounds, but in 1921 decreased to 180,000 pounds. California leads; smaller quantities come from Washington and Connecticut.

Imports in 1914 were 1,076,525 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|---------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 351,592 | \$173,037 | \$10,548 | ..... |
| 1919..... | 160,962 | 108,233 | 4,829 | 4.46 |
| 1920..... | 238,111 | 80,353 | 7,143 | 14.19 |
| 1921 (9 months)..... | 152,864 | 23,940 | ..... | ..... |

CABBAGE SEED.

Description and uses.—Cabbage, one of our principal truck crops, is a common home garden product; over 500,000 pounds of seed are required annually.

Production commercially in 1916 was 217,000 pounds; in 1918, 157,000 pounds; and in 1921, 224,000 pounds. Long Island and Puget Sound are the cabbage-seed producing sections.

Imports averaged 251,927 pounds for 1910-1913. Denmark and Holland were normally the principal exporting countries. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 114,973 | \$198,370 | \$6,898 | 3.51 |
| 1919..... | 168,951 | 357,853 | 10,137 | 2.83 |
| 1920..... | 390,741 | 299,354 | 23,444 | 7.83 |
| 1921 (9 months)..... | 144,240 | 92,120 | | |

CANARY SEED.

Description and uses.—Canary seed, from an annual grass of that name, is native to the Canary Islands, southern Europe, northern Africa, and Asia. It has been naturalized in England and parts of the United States, and is cultivated as a food for cage birds in the south of Europe, especially in Germany and England. A fine flour prepared from this seed is used in sizing high-grade cotton and silk goods.

Imports were 4,503,280 pounds in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 3,244,697 | \$292,302 | \$16,223 | 5.55 |
| 1919..... | 5,954,434 | 551,143 | 28,745 | |
| 1920..... | 5,292,922 | 311,192 | 26,465 | 8.51 |
| 1921 (9 months)..... | 5,228,165 | 206,775 | | |

CARROT SEED.

Description and uses.—The carrot is a vegetable grown in home and market gardens. Some of the large-rooted varieties are grown under field culture for stock feeding. Probably 450,000 pounds of carrot seed are sown for these purposes.

Production increased from 534,000 pounds in 1916 to 2,125,000 pounds in 1918, but in 1921, declined to 76,200 pounds. Practically all domestic carrot seed is produced in California.

Imports averaged 144,056 pounds for 1910–1913.; they came chiefly from France. Statistics of imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 27,758 | \$23,901 | \$33 | 3.18 |
| 1919..... | 15,666 | 18,859 | 470 | 2.49 |
| 1920..... | 69,428 | 15,807 | 2,083 | 13.15 |
| 1921 (9 months)..... | 33,033 | 9,461 | | |

CAULIFLOWER SEED.

Description and uses.—Cauliflower seed is used primarily for planting, about 7,500 pounds being used annually for home and market gardens.

Production of cauliflower seed is negligible, because of unfavorable climatic and soil conditions. It is produced more successfully in Holland and Denmark, where the domestic supply is obtained.

Imports averaged 9,834 pounds annually for 1913-1917. Statistics of imports since 1917 by calendar years are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 8,068 | 12,141 | 16,918 | 8,240 |
| Value..... | \$37,008 | \$146,071 | \$134,882 | \$73,919 |

Important changes in classification.—Cauliflower seed is transferred from the free list of the act of 1913 (par. 595).

CELERY SEED.

Description and uses.—Celery seed is used largely for planting, and also as a condiment.

Production of celery seed commercially has increased from 5,200 pounds in 1916 to 65,000 pounds in 1918, and in 1921 was 45,800 pounds, practically all in California. Market gardeners assert that imported French-grown seed of some varieties, notably Golden Self-Blanching, produces plants more nearly true to type.

Imports for 1910-1913 averaged 147,764 pounds annually. Later statistics for calendar years follow:

| | 1918 | 1919 | * 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 239,231 | 768,101 | 593,722 | 267,252 |
| Value..... | \$90,948 | \$312,636 | \$116,361 | \$37,354 |

Important changes in classification.—Celery seed is transferred from the free list of the act of 1913 (par. 595).

KALE SEED.

Description and uses.—Kale is grown in family and truck gardens and is used as a vegetable or "greens," also, especially the Siberian kale, as a forage plant for live stock and poultry. The quantity of seed required for planting is estimated at from 50,000 to 65,000 pounds.

Production is mainly in New York, Washington, California, and Connecticut. The commercial production in 1916 was 29,000 pounds; in 1918, 16,700 pounds; and in 1921, 29,700 pounds.

Imports were 31,806 pounds in 1913 and 38,073 pounds in 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|---------|-------|--------------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 9,858 | \$7,419 | \$591 | 7.97 |
| 1919..... | 18,866 | 12,062 | 1,132 | 9.38 |
| 1920..... | 77,009 | 20,572 | 4,624 | 22.45 |
| 1921 (9 months)..... | 29,190 | 8,499 | | |

KOHU-RABI SEED.

Description and uses.—Kohu-rabi is a vegetable forming an edible "bulb," popular in home gardens, and grown somewhat by truckers. Its seed are used solely for planting. The plants are stored in pits, or otherwise protected from freezing, as are cabbage, beets, carrots, etc.

Imports in 1914 were 15,612 pounds, valued at \$4,283, about an average quantity. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|----------------------|----------------|----------|-------|--------------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 14,726 | \$11,499 | \$884 | 7.68 |
| 1919..... | 17,109 | 10,938 | 1,027 | 9.39 |
| 1920..... | 22,728 | 12,020 | 1,364 | 11.35 |
| 1921 (9 months)..... | 10,028 | 4,554 | | |

MANGELWURZEL (MANGEL BEET) SEED.

Description and uses.—Mangelwurzel seed is used in this country for planting. The root provides a succulent feed for dairy cows and other farm live stock.

Production of mangelwurzel seed, very small prior to 1918, was in that year 286,974 pounds. The seeding requirement is about 320,000 pounds. Commercial growers have had excellent success with this seed, and the industry seems fairly well established, California and Washington leading.

Imports are not separately stated.

Important changes in classification.—Mangelwurzel seed is transferred from the free list of the act of 1913 (par. 595).

ONION SEED.

Description and uses.—Onion seeds are produced from the flower stem of the plant the second year. The bulb is usually set out in the spring of the second year and the seeds are harvested when mature.

Production.—In 1919, 2,618,000 pounds of onion seeds were produced. In 1920 and 1921 production declined sharply to 800,800 and 334,000 pounds, respectively.

Imports are not separately stated, but are included with "all other" seeds.

Important changes in classification.—New specific provision.

PARSLEY SEED.

Description and uses.—Parsley is used for garnishing meats and other foods and as a condiment. The seed is also crushed for its oil.

Production is in California, the annual average being 88,000 pounds. In 1921, 27,500 pounds were produced.

Imports during 1916-1918 averaged 58,116 pounds, running somewhat below domestic production. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|--------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 64,596 | \$12,754 | 41,938 | 15.19 |
| 1919..... | 52,713 | 20,717 | 1,581 | 7.63 |
| 1920..... | 179,774 | 21,475 | 5,293 | 25.11 |
| 1921 (9 months)..... | 135,118 | 16,287 | | |

PARSNIP SEED.

Description and uses.—Parsnip is a root crop grown in home and market gardens for table food and on farms for live stock. About 120,000 to 150,000 pounds of the seed are used annually for planting.

Production, mainly in California, amounted to 67,000 pounds in 1916, 167,000 pounds in 1918, and 25,700 pounds in 1921.

Imports averaged annually 102,557 pounds for 1913-1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 9,461 | \$4,653 | \$284 | 6.10 |
| 1919..... | 43,817 | 26,457 | 1,315 | 4.97 |
| 1920..... | 17,015 | 3,731 | 510 | 13.68 |
| 1921 (9 months)..... | 79,612 | 5,457 | | |

PEPPER SEED.

Description and uses.—Peppers are grown in home and market gardens for use in condiments, sauces, pickles, etc.

Production.—Pepper seed is easily cultivated in many sections of the country. The commercial output, omitting that retained for home sowing, was 17,000 pounds in 1916, 56,000 pounds in 1918, and 99,200 pounds in 1921. New Jersey, Georgia, Mississippi, and California lead in production.

Imports in 1914 were 11,536 pounds, valued at \$4,879. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 13,778 | \$12,183 | \$1,377 | |
| 1919..... | 6,420 | 9,748 | 642 | 6.59 |
| 1920..... | 2,050 | 2,245 | 205 | 9.13 |
| 1921 (9 months)..... | 5,415 | 4,185 | | |

RADISH SEED.

Description and uses.—The radish is grown extensively in home and market gardens. Over 800,000 pounds of radish seed, used solely for planting, are sold annually, not including the seed from home gardens for local use.

Production in 1916 was 720,000 pounds; in 1918, 1,935,000 pounds; and in 1921, 258,000 pounds. Radishes produce seed the first season. California and Michigan are the chief sources of supply.

Imports during 1910-1914 averaged annually 491,097 pounds. Much of the seed formerly came from France. When that supply was cut off, domestic growers planted larger acreages, and since 1918 considerable quantities have been available for export. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 82,334 | \$55,664 | \$2,470 | 4.44 |
| 1919..... | 111,562 | 64,226 | 3,347 | 5.21 |
| 1920..... | 320,487 | 76,924 | 9,615 | 12.50 |
| 1921 (9 months)..... | 144,492 | 31,672 | | |

SPINACH SEED.

Description and uses.—Spinach seed is used solely for planting; about 800,000 or 900,000 pounds are sown annually.

Production of commercial spinach seed increased from 45,000 pounds in 1916 to 1,650,000 pounds in 1918, but in 1921 decreased to 24,700 pounds.

Imports averaged 1,241,757 pounds annually during the period 1910 to 1914. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,037,039 | \$353,931 | \$10,670 | 3.01 |
| 1919..... | 367,032 | 80,357 | 3,670 | 4.57 |
| 1920..... | 1,139,143 | 132,574 | 11,391 | 8.59 |
| 1921 (9 months)..... | 527,760 | 52,231 | | |

TREE SEEDS.

Description and uses.—Tree seeds, both coniferous and hardwood, are largely produced in this country on a commercial scale for reforestation purposes, by either State or Federal organizations. Although occasionally florists or nurserymen are interested in the trade in tree seeds, the project in this country is largely under Government supervision.

Production.—No accurate statistics regarding the production of tree seeds are available.

Imports are not separately stated, but are included in "All seeds, n. s. p. f., page 784."

Important changes in classification.—New specific provision.

TURNIP AND RUTABAGA SEEDS.

Description and uses.—Turnip and rutabaga are root crops grown extensively in home and market gardens for food purposes, and on farms for live stock. The seed is used solely for planting and about 2,000,000 pounds (1,500,000 pounds turnip and 500,000 pounds rutabaga) are required annually.

Production.—Washington, California, New York, and Connecticut are the leading producing areas. The commercial output of turnip seed increased from 20,000 pounds in 1916 to 200,700 pounds in 1918 but declined to 59,000 pounds in 1921. Production of rutabaga seed increased between 1916 and 1918 from 3,800 pounds to 27,300 pounds.

Imports for 1914 were 1,580,713 pounds compared with an average of 1,773,613 pounds for 1910-1913. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,751,876 | \$580,383 | \$52,556 | 9.06 |
| 1919..... | 1,810,479 | 668,541 | 54,314 | 8.12 |
| 1920..... | 1,846,607 | 420,724 | 55,398 | 13.17 |
| 1921 (9 months)..... | 1,997,304 | 289,642 | | |

FLOWER SEEDS.

Description and uses.—Flower seeds are used for planting purposes.

Imports in 1914 were valued at \$295,195; in 1918, \$142,152; 1919, \$269,376; 1920, \$656,379; 1921 (nine months), \$189,577. (Statistics for 1918-1921 are by calendar years.)

Important changes in classification.—Flower seeds are transferred from the free list of the act of 1913 (par. 595).

COLLARD SEED.

Description and uses.—Collard, a favorite vegetable in some of the Atlantic and Gulf States, is used in much the same way as cabbage. The seed is used solely for planting.

Production.—Collard seed is easily produced wherever the plant is grown as a vegetable. Most commercial seed is produced in Georgia. Data are not available as to the output, but it appears to be sufficient to meet domestic requirements.

Imports averaged annually 2,359 pounds from 1915 to 1918. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1919..... | 1,050 | \$1,837 | \$63 | 3.43 |
| 1920..... | 80 | 13 | 8 | 23.08 |
| 1921 (9 months)..... | 112 | 21 | | |

Important changes in classification.—Specific provision dropped. imports being small.

CORN-SALAD SEED.

Description and uses.—Corn salad is used as a garnish and for salad, as is parsley or cress. The seed is used in the United States primarily for planting. Only small quantities are imported.

Imports for 1915-1918 averaged annually 4,118 pounds, valued at \$741—somewhat less than the prewar average. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 3,347 | \$1,276 | \$100 | 7.87 |
| 1919..... | 7,734 | 2,793 | 232 | 6.13 |
| 1920..... | 13,624 | 6,124 | 400 | 6.67 |
| 1921 (9 months)..... | 1,488 | 930 | | |

Important changes in classification.—Specific provision dropped, imports being small.

EGGPLANT SEED.

Description and uses.—This vegetable produces a large, purple, egg-shaped fruit, and is grown extensively in family and market gardens. Seed for planting is produced here in sufficient quantity to meet domestic demands.

Imports in 1914 amounted to 886 pounds, valued at \$836. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|---------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,350 | \$2,121 | \$135 | 6.36 |
| 1919..... | 968 | 2,105 | 96 | 4.55 |
| 1920..... | 825 | 965 | 53 | 5.33 |
| 1921 (9 months)..... | 1,156 | 1,676 | | |

Important changes in classification.—Specific provision dropped, imports being small.

FENUGREEK SEED.

Description and uses.—Fenugreek, allied to clover, is cultivated as a fodder and for its strong-smelling, oily seed, used as a flavoring substance of patent stock feeds. It is native to eastern Europe and western Asia.

Imports in 1914 were 1,619,230 pounds, valued at \$29,601. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 1,502,968 | 1,118,083 | 1,199,978 | 159,225 |
| Value..... | \$139,969 | \$69,824 | \$33,042 | \$3,824 |

Important changes in classification.—Fenugreek seed is on the free list of the act of 1913 (par. 595). Since this paragraph, as revised in H. R. 7456, includes only seeds primarily used for sowing, fenugreek is not specifically mentioned here. It is apparently covered by paragraph 1562 as a drug seed.

MUSHROOM SPAWN.

Description and uses.—Mushroom is the popular name for various species of edible fungi. It is the fruiting body of the fungus, the

result of a more or less matted growth called the spawn, consisting of numerous white threads disseminated through the soil. The commercial spawn comes in bricks or flakes; these are made of horse manure impregnated with the fungus. Parasitic fungi sometimes interfere with mushroom culture and cause serious losses.

Imports for 1910-1914 averaged annually 279,064 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 13, 215 | \$571 | \$132 | 23.14 |
| 1919..... | 23, 275 | 925 | 233 | 25.17 |
| 1920..... | 19, 096 | 545 | 191 | 35.04 |
| 1921 (9 months)..... | 18, 440 | 3, 183 | | |

Important changes in classification.—Specific provision dropped, imports being small.

SORGHUM SEED.

Description and uses.—Sorghum includes sweet sorghum and grain sorghum, the latter mostly kafir, feterita, and milo. Sweet sorghum seed is used only for planting; the seed of grain sorghum is used for feed and for making alcohol and yeast, as well as for planting.

Production.—Sorghums are grown extensively, principally in the southern half of the Great Plains area. Production in Kansas, Texas, Oklahoma, Colorado, New Mexico, and Arizona in 1915 was 114,460,000 bushels, with a farm value of \$51,157,000; in 1918 only 66,396,000 bushels, with farm value of \$99,848,000. It is cultivated in Europe, India, and other parts of Asia.

Imports are not separately stated.

Important changes in classification.—Sorghum seed is on the free list of the act of 1913 (par. 595). It is not mentioned specifically in H. R. 7456.

ALL SEEDS N. S. F. F.

Imports of all seeds not specially provided for under the act of 1913 are shown as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|------------|-----------|
| | <i>Pounds.</i> | | |
| 1918..... | 253, 463 | \$205, 335 | \$12, 672 |
| 1919..... | 338, 310 | 284, 267 | 16, 915 |
| 1920..... | 526, 809 | 274, 544 | 26, 340 |
| 1921 (9 months)..... | 335, 608 | 221, 757 | |

Exports of seeds, except cotton, grass seeds, and flaxseed, for calendar years, are as follows: 1918, \$2, 031,776; 1919, \$2,771,836; 1920, \$2,187,318; 1921 (9 months), \$795,856.

In 1920 about 29 per cent of these exports went to England and about 22 per cent to Canada.

SUGAR-CANE FOR SEED.

Description and uses.—Sugar cane does not yield much fertile seed. The seed is used principally for the development of new varieties and strains.

Production figures are unimportant.

Import statistics are combined with "seeds, including bulbs, and bulbous roots, etc.," and are insignificant.

Important changes in classification.—Sugar-cane for seed is on the free list of the act of 1913 (par. 595). It is not mentioned specifically in H. R. 7456, imports being small.

ST. JOHN'S BREAD OR BEAN.

Description.—St. John's bread or bean (also called locust bean and carob) is a brown, leathery fruit pod 4 to 10 inches long, containing a gummy pulp, about 60 per cent sugar. The seeds are bitter and of no use except for planting.

Production.—The locust tree bearing this fruit grows in the Mediterranean region, and is being introduced into California. No production figures are available.

Imports are not separately stated.

Important changes in classification.—St. John's bread or bean is on the free list of the act of 1913 (par. 595). It is not mentioned specifically in H. R. 7456.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The provisions for garden and field seeds, other than grass seed, that are used chiefly for replanting, have been combined and alphabetically arranged. (See pars. 212 and 595 of the act of 1913.) The provisions for cotton, hemp, and rape seed on the free list (par. 595) of the act of 1913 have been omitted. The provisions for collard, corn salad, eggplant, hoarhound, mushroom spawn, sorghum, and St. John's bread have been omitted from specific mention because relatively unimportant. Fenugreek, being chiefly used for medicinal or drug purposes in stock feeds, has likewise been omitted. It is apparently provided for in paragraph 1562 as a drug seed.

The proviso in paragraph 212 of the act of 1913, prohibiting allowance for dirt and impurities in seeds, has been eliminated, since it has been incorporated in paragraph 732, with a similar proviso for grains.

A clause has been added to the effect that the provision for seeds includes such seeds for whatever purpose used.

Provisions have been added for onion and tree seeds.

Suggested changes.—Provision for shrub seeds might be added to tree seeds, to avoid possible conflict.

The catch-all clause for all other garden and field seeds includes a wide range of seeds of minor importance, whose dutiable value it is difficult to determine. For this reason the American Seed Trade Association has requested that specific duties be retained. Figures submitted by a leading importer show imports under this group of 161,871 pounds, valued at \$53,099, average value per pound about 33 cents (from 1911 to 1921, inclusive).

Page 96, line 10, of H. R. 7456: Change "title" to "schedule."

(See also paragraph 760.)

PARAGRAPH 768.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 763. Beans, green or unripe, one-half of 1 cent per pound; dried, $1\frac{1}{2}$ cents per pound; in brine, prepared or preserved in any manner, 2 cents per pound.

ACT OF 1909.

PAR. 249. Beans, forty-five cents per bushel of sixty pounds.

PAR. 251. Beans, * * * prepared or preserved, or contained in tins, jars, bottles, or similar packages, two and one-half cents per pound, including the weight of immediate coverings; * * *.

ACT OF 1913.

PAR. 197. Beans, * * * not specially provided for, 25 cents per bushel of sixty pounds.²⁵

PAR. 199. Beans * * * prepared or preserved, or contained in tins, jars, bottles, or similar packages, including the weight of immediate coverings, 1 cent per pound; * * *.

PAR. 606. Soya beans [Free].

BEANS.

(See Survey G-8.)

GENERAL.

Description and uses.—This group embraces principally dried, but also green and pod beans, soya beans, and canned or prepared beans.

Many varieties of beans, largely, serve special purposes: Lima beans, for cooking; the white or navy bean, for baking; large white beans for soups; cowpeas (par. 765) and broad beans for live-stock feed. Besides its uses for fodder, silage, and soiling, the bean plant is a valuable cover crop and soil renovator. The great bulk of the commercial crop, employed almost exclusively for human food, is marketed as dry beans; the culls are fed to live stock, and the straw is consumed as roughage or fertilizer. Green or unripe beans (including string beans) enter only into a rather local or seasonal trade when not canned or preserved in brine. White beans are preferred for food, most colored beans selling at lower prices. The chief use of soya beans is as a raw material for soya bean oil and cake. They also enter into certain oriental food preparations provided for in paragraph 773.

Production.—The United States ranks among the six largest bean-producing nations; the domestic harvest of dried beans in 1918, when production was greatly stimulated by war demands, was 17,397,000 bushels, with a farm value of over \$90,000,000; the planted area was 1,744,000 acres, about two and one-half times that of 1909. In 1921, only 9,118,000 bushels were produced. The commercial crop comes from a few sections of dense production; of the record crop of 1918, California produced approximately one-half, Michigan about one-fourth, New York and Colorado most of the remainder. In California, Limas and small whites are the principal varieties; in Colorado and the Southwest, pintos and pink beans; in Michigan and New York, the white or navy bean.

²⁵ Beans, 2 cents per pound. (Par. 5, emergency tariff act of 1921.)

In 1919 the commercial acreage in green beans was 71,970, and the harvest was valued at \$8,031,449; the harvested area of soya beans in 1921 was 186,000 acres, and the yield 2,815,000 bushels.

BEANS, PREPARED OR PRESERVED.

Description and uses.—White, Lima, and string beans are those principally used in the canning industry. Baked beans are chiefly of the common white variety. Soya beans also are made into various food preparations, especially for use by orientals.

Production of canned beans rose from 77,640,450 pounds in 1904 to 401,350,000 pounds in 1919, valued at \$4,133,810 and \$39,408,603, respectively. About 73 per cent were baked beans; about 16 per cent, string beans; 4 per cent, Lima beans; and 7 per cent, all other. Canning factories are located in the regions of largest production. Baked beans are produced chiefly in Indiana, New Jersey, and Pennsylvania; string beans in New York, Maryland, and Wisconsin; and Lima beans in New Jersey, whence one-half of the total output is derived.

Imports of beans and lentils ranged around 1,000,000 bushels, valued at about \$1,500,000, during 1910–1914, chiefly from Europe. In the war period imports increased greatly, because of the demand from the Army; Japan was the principal contributor.

Imports of prepared beans declined from 3,461,541 pounds in 1908 to 800,264 pounds in 1913, valued at \$347,476 and \$49,933, respectively. Imports rose to 1,081,631 pounds in 1914 and 2,510,722 pounds in 1915, but decreased to 568,460 pounds in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

BEANS AND LENTILS.

| | Bushels. | | | Per cent. |
|----------------------|-----------|-------------|-----------|-----------|
| 1918..... | 2,082,850 | \$8,864,028 | \$520,333 | 5.87 |
| 1919..... | 2,309,007 | 8,322,802 | 577,144 | 6.93 |
| 1920..... | 2,012,271 | 7,066,395 | 510,440 | 7.23 |
| 1921 (9 months)..... | 1,185,895 | 3,228,439 | | |

SOYA BEANS.

| | Pounds. | | | |
|----------------------|-----------|-----------|--|--|
| 1918..... | 1,433,319 | \$111,818 | | |
| 1919..... | 4,363,780 | 201,496 | | |
| 1920..... | 3,136,850 | 180,759 | | |
| 1921 (9 months)..... | 3,414,625 | 115,533 | | |

PREPARED BEANS.

| 1918..... | 243,170 | \$16,061 | \$2,432 | 15.14 |
|----------------------|---------|----------|---------|-------|
| 1919..... | 385,443 | 33,005 | 3,854 | 11.69 |
| 1920..... | 801,906 | 75,452 | 8,019 | 10.63 |
| 1921 (9 months)..... | 379,441 | 29,389 | | |

Since beans are provided for in the emergency tariff act of 1921 (par. 5), statistics²⁹ of imports by months for 1920 and 1921 are given below:

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|-------------|----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Bushels.</i> | <i>Bushels.</i> | | |
| January..... | 492,191 | 26,958 | \$2,300,964 | \$95,421 |
| February..... | 213,310 | 30,812 | 962,167 | 79,231 |
| March..... | 264,069 | 52,114 | 1,107,766 | 115,203 |
| April..... | 139,648 | 19,430 | 477,374 | 44,351 |
| May..... | 79,942 | 33,166 | 298,334 | 54,365 |
| June..... | 265,311 | 11,212 | 712,118 | 30,421 |
| July..... | 219,644 | 13,369 | 670,136 | 34,252 |
| August..... | 148,290 | 4,638 | 408,155 | 11,273 |
| September..... | 109,952 | 8,810 | 297,350 | 18,350 |
| October..... | 53,308 | 15,736 | 162,764 | 44,282 |
| November..... | 70,371 | 24,661 | 201,052 | 53,475 |
| December..... | 38,610 | 23,254 | 112,290 | 64,968 |

Exports of canned beans are not itemized. The total export of canned vegetables increased in value from \$782,973 to \$6,340,359 from 1908 to 1920.

Exports of beans ranged from 400,868 bushels in 1909 to 4,489,078 bushels in 1918 (fiscal year). Later statistics of the export of beans, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|-------------|------------------|
| Quantity (bushels)..... | 2,398,854 | 3,795,420 | 1,764,735 | 1,079,739 |
| Value..... | \$14,226,277 | \$19,965,737 | \$7,672,241 | \$3,673,664 |

In 1920, 50 per cent went to Cuba, 21 per cent to Danzig, and 14 per cent to Germany.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Provisions for beans in the act of 1913 are here combined; and lentils, added in the act of 1913, have been put in a separate paragraph (par. 765) with chickpeas and cowpeas. Soya beans, prepared or preserved, appear in paragraph 773. Specific provision has been made for green or unripe beans (which include string beans). The words "in brine" have been added to prepared or preserved beans in order to make string beans in brine, for instance, dutiable under this paragraph rather than under the general provision for vegetables in brine. Bushel equivalents have been dropped, since the trade is largely conducted on the basis of weight.

Since no specific provision has been made for soya beans, not prepared or preserved, exempt from duty under the act of 1913 (par. 660), they would be dutiable under this paragraph.

Suggested changes.—Since the principal use of soya beans is crushing for oil, it is better to classify them, except when prepared or preserved, with oil-bearing materials in paragraph 760.

²⁹ Figures are for beans and lentils to July, 1921.

PARAGRAPH 764.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 764. Sugar beets, 80 cents per ton; other beets, 17 per centum ad valorem.

ACT OF 1909.

ACT OF 1918.

PAR. 250. Beets, twenty-five per centum ad valorem; sugar beets, ten per centum ad valorem.

PAR. 198. Beets of all kinds, 5 per centum ad valorem.

SUGAR BEETS AND OTHER BEETS.

Description and uses.—The beet is a root crop consisting chiefly of mangels, garden, and sugar beets. Mangels and garden beets are raised for seed, feed, and table use. Sugar beets are by far the most important.

Production of sugar beets averaged 5,056,393 short tons during 1910–1914, valued approximately at \$28,417,000; in 1920 production was 8,545,000 short tons, with a farm value of \$99,396,000. The principal producing States are California, Colorado, Michigan, Utah, Nebraska, Idaho, Ohio, and Wisconsin. In 1909 the value of the beet crop, exclusive of sugar beets, was \$352,696, about one-third in the Middle Atlantic States, the remainder widely distributed.

Imports of sugar beets in 1913 were valued at \$28,751. Following the reduction of the tariff from 10 per cent to 5 per cent, imports in 1914 reached a value of \$75,590, but decreased to \$30,774 in 1918 (fiscal years).

Imports of mangels and garden beets in 1913 were valued at \$3,344, nearly one-half from Cuba; the value rose to \$16,772 in 1914, and to \$14,466 in 1918 (fiscal year.) Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|-------------------------|----------|---------|------------------|
| SUGAR BEETS. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$28,571 | \$1,429 | 5 |
| 1919..... | 96,149 | 4,274 | 5 |
| 1920..... | 19,023 | 951 | 5 |
| 1921 (9 months)..... | 154,227 | | |
| ALL OTHER BEETS. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$10,160 | \$508 | 5 |
| 1919..... | 20,341 | 1,016 | 5 |
| 1920..... | 39,704 | 1,985 | 5 |
| 1921 (9 months)..... | 42,073 | | |

PARAGRAPH 765.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 765. Chickpeas or garbanzos, 1 cent per pound; cowpeas, one-half of 1 cent per pound; lentils, 2 cents per pound; lupins, one-half of 1 cent per pound.

ACT OF 1909.

[No corresponding provision. Chickpeas and cowpeas classable as peas; lentils and lupins classable as vegetables.]

ACT OF 1913.

PAR. 197. * * * lentils, not specially provided for, 25 cents per bushel of sixty pounds.

[No corresponding provision for the other commodities. Chickpeas and cowpeas classable as peas; lupins classable as vegetables.]

CHICKPEAS, COWPEAS, LENTILS, ETC.

(See Survey G-8.)

Description and uses.—Chickpeas or garbanzos are used as a vegetable and in soups—in the United States chiefly by Latin-Americans. The great bulk of the domestic crop of cowpeas is used for feeding purposes, but some varieties, notably the Blackeye, are utilized for food, in both the green and dried form. The lentil, the seed of a leguminous plant similar to the bean and pea, is largely used in soups and purées, chiefly by foreign residents. Lupines, the seed of a leguminous plant, rich in protein, are used for feed and to some extent for food, particularly by Europeans.

Production.—Chickpeas or garbanzos are extensively produced in Mexico and Spain, but the American production is largely confined to a small acreage in California. That State also produces a small crop of lentils, and most of the commercial Blackeye cowpeas. The great bulk of the domestic requirements of chickpeas and lentils, and substantially all of the lupines used for food, are imported. The South, especially the Southeastern States, devote several millions of acres to cowpeas, nearly all for feeding purposes. In 1921, the harvested acreage of cowpeas was 1,133,000 and the yield 9,581,000 bushels.

Imports of these legumes are not separately stated.

Exports.—None reported.

Important changes in classification.—New specific provisions for chickpeas, cowpeas, and lupines, the dutiable status of which has been the subject of litigation. The first two have been held dutiable as peas, though botanically and commercially distinct products. Lentils have been transferred to this paragraph from paragraph 197, of the act of 1913, for beans.

Suggested charges.—The proper spelling is "lupines."

PARAGRAPH 766.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 766. Mushrooms, fresh, or dried or otherwise prepared or preserved, 33½ per centum ad valorem; truffles, fresh, or dried or otherwise prepared or preserved, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 251. * * * mushrooms, and truffles, prepared or preserved, or contained in tins, jars, bottles, or similar packages, two and one-half cents per pound, including the weight of immediate coverings; mushrooms, cut, sliced, or dried, in undivided packages containing not less than five pounds, two and one-half cents per pound.

PAR. 199. * * * mushrooms and truffles, including the weight of immediate coverings, 2½ cents per pound.

MUSHROOMS AND TRUFFLES.

(See Survey G-9.)

Description and uses.—Mushrooms and truffles are food luxuries, since they possess but little food value relative to their price. Mushrooms are very perishable and are imported only in the canned and dried form, while most of the domestic product is marketed fresh. About one pound of fresh mushrooms goes into an 8-ounce can, while about 5 pounds are required for one can of dried. But the prices per pound of canned and dried are about the same.

Production of mushrooms has increased considerably in recent years. It is estimated that between 5,000,000 and 6,000,000 pounds were produced in 1920.

Truffles are not commercially grown in this country.

Imports of mushrooms and truffles in 1914 were 9,188,177 pounds, and in 1917 4,419,374 pounds, valued respectively at \$1,306,818 and \$1,462,510. About 80 per cent are from France. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,290,114 | \$524,917 | \$32,253 | 6.14 |
| 1919..... | 2,084,676 | 1,354,337 | 52,117 | 3.85 |
| 1920..... | 3,132,842 | 1,527,807 | 78,321 | 5.13 |
| 1921 (9 months)..... | 3,271,340 | 1,135,590 | | |

Exports.—None recorded.

Suggested changes.—In view of the fact that in the agricultural schedules of H. R. 7456 specific rates of duty have been adopted wherever they were possible, attention is invited to the fact that such rates are feasible in the case of mushrooms and truffles.

PARAGRAPH 767.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 767. Peas, green or dried, 75 cents per one hundred pounds; peas, split, 1 cent per pound; peas, prepared or preserved in any manner, 2 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 251. * * * pease, * * * prepared or preserved, or contained in tins, jars, bottles, or similar packages, two and one-half cents per pound, including the weight of immediate coverings; * * *

PAR. 262. Pease, green, in bulk or in barrels, sacks, or similar packages, twenty-five cents per bushel of sixty pounds; seed pease, forty cents per bushel of sixty pounds; pease, dried, not specially provided for in this section, twenty-five cents per bushel; split pease, forty-five cents per bushel of sixty pounds; pease in cartons, papers, or other small packages, one cent per pound.

PAR. 199. * * * peas, prepared or preserved, or contained in tins, jars, bottles, or similar packages, including the weight of immediate coverings, 1 cent per pound; * * *

PAR. 209. Peas, green or dried, in bulk or in barrels, sacks, or similar packages, 10 cents per bushel of sixty pounds; split peas, 20 cents per bushel of sixty pounds; peas in cartons, papers, or other similar packages, including the weight of the immediate covering, $\frac{1}{2}$ cent per pound.

PEAS.

(See Survey G-8.)

Description, and uses.—Peas included in this provision are of the field variety. They are grown for human food and for stock feed, for canning, forage, green manuring, and seed. The green garden pea is used in the fresh state; dried peas are used in soups and purées, and sometimes are baked like beans; split peas are used in soup, etc.

For prepared or preserved peas, two varieties are used, the smooth, round pea, known as the early or Alaska type, and the wrinkled sweet pea, not quite spherical. The two have distinct flavors, the latter being generally sold as sweet or sugar peas.

Production.—The pea is native to Asia and South Europe. It is cultivated both as a field and garden crop in many parts of the United States, principally in the South Atlantic and east North Central States. In 1909 the product was 7,129,000 bushels of dried peas, valued at over \$10,000,000, while the crop of green peas approximated \$3,000,000. The estimated production of dried peas for seed in 1918 was 65,912,000 pounds, or over 1,000,000 bushels. In 1919 the commercial area in green peas was 103,686 acres and the harvest was valued at \$7,164,988.

Production of canned peas in 1914 was 264,787,520 pounds, and in 1919, 279,771,810 pounds, valued respectively at \$15,089,047 and \$25,073,220. Wisconsin and New York supply about 65 per cent of the total.

Imports of green or dried peas were 611,666 bushels, valued at \$1,150,611 in 1914; of split peas, 251,353 bushels, valued at \$332,271. Other peas in cartons, papers, or other similar packages amounted in 1914 to 35,000 pounds, valued at \$3,025.

Imports of canned peas in 1914 amounted to 4,504,729 pounds, valued at \$344,118, French peas constituting the bulk.

Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

PEAS, DRIED, IN BULK OR IN BARRELS, SACKS, OR SIMILAR PACKAGES.

| | Bushels. | | | Per cent. |
|----------------------|----------|-------------|----------|-----------|
| 1918..... | 632,414 | \$2,130,697 | \$63,207 | 2.96 |
| 1919..... | 708,810 | 2,537,182 | 70,881 | 2.79 |
| 1920..... | 573,397 | 2,084,882 | 57,340 | 2.75 |
| 1921 (9 months)..... | 393,550 | 1,380,487 | | |

PEAS, GREEN, IN BULK OR IN BARRELS, SACKS, OR SIMILAR PACKAGES.

| | | | | |
|----------------------|--------|----------|---------|------|
| 1918..... | 16,425 | \$65,713 | \$1,642 | 2.50 |
| 1919..... | 4,981 | 15,666 | 498 | 3.18 |
| 1920..... | 4,067 | 17,616 | 407 | 2.31 |
| 1921 (9 months)..... | 4,778 | 15,778 | | |

SPLIT PEAS.

| | | | | |
|----------------------|--------|----------|---------|------|
| 1918..... | 8,495 | \$37,660 | \$1,699 | 4.51 |
| 1919..... | 23,609 | 80,078 | 4,722 | 5.90 |
| 1920..... | 10,460 | 38,222 | 2,090 | 5.47 |
| 1921 (9 months)..... | 8,819 | 21,238 | | |

PEAS IN CARTONS, PAPER, OR SIMILAR PACKAGES.

| | Pounds. | | | |
|----------------------|---------|-------|-----|------|
| 1918..... | 555 | \$75 | \$2 | 2.47 |
| 1919..... | 2,127 | 502 | 7 | 1.41 |
| 1920..... | 8,056 | 1,457 | 40 | 2.76 |
| 1921 (9 months)..... | 1,436 | 165 | | |

PEAS, PREPARED OR PRESERVED, OR CONTAINED IN TINS, JARS, BOTTLES OR SIMILAR PACKAGES.

| | | | | |
|----------------------|-----------|---------|--------|-------|
| 1918..... | 49,128 | \$4,504 | \$491 | 10.91 |
| 1919..... | 402,915 | 84,445 | 4,029 | 4.77 |
| 1920..... | 1,913,498 | 270,856 | 19,135 | 7.06 |
| 1921 (9 months)..... | 1,492,844 | 185,609 | | |

In 1920, 78 per cent of imports of dried peas came from Mexico.

Exports of dried peas in the fiscal year 1918 were 266,824 bushels, valued at \$1,346,816; these went largely to Belgium, England, Canada, Norway, and France. Earlier or more complete figures are unavailable. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|-------------|---------------------|
| Quantity (bushels)..... | 322,452 | 476,106 | 295,679 | 92,813 |
| Value..... | \$1,689,437 | \$2,664,511 | \$1,415,528 | \$397,497 |

In 1920, Canada received 22 per cent; Germany, 15 per cent; Cuba, 14 per cent; England, 13 per cent; and Poland and Danzig, 11 per cent.

Important changes in classification.—The provisions of the act of 1913 (pars. 199 and 209) for peas, green, dried, split, and canned (prepared or preserved) have been combined and the provision (par.

199) regarding the inclusion of the containers in the dutiable weight has been dropped. Likewise, the clause (par. 209) regarding peas in cartons and similar packages has been eliminated, imports in this form being insignificant. Finally, the rate of duty has been placed upon the basis of weight rather than measure, since the trade is largely so conducted.

Specific provision has been made in paragraph 765 for chickpeas and cowpeas.

PARAGRAPH 768.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 768. Onions, 75 cents per one hundred pounds; garlic, 2 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 261. Onions, forty cents per bushel of fifty-seven pounds; garlic, one cent per pound.

PAR. 208. Garlic, 1 cent per pound; onions, 20 cents per bushel of 57 pounds.²⁷

ONIONS AND GARLIC.

(See Survey G-15.)

Description and uses.—Besides its wide culinary use, the onion is an important ingredient of many sauces and relishes. Of the numerous varieties those of Italy, Spain, Mexico, California, and the Bermudas are specially noted for size and quality. Garlic is an onionlike bulbous plant, native to Central Asia and the Mediterranean region. It may be used in the fresh state as a condiment, and as an ingredient in some sauces.

Production.—In 1910 there were 47,625 acres under onion cultivation, producing a crop valued at \$6,709,047. The corresponding figures for 1921 were 55,829 acres, producing a crop valued at \$26,966,000 and amounting to 12,652,000 bushels. New York, Ohio, and Texas grew about one-third of the output. The growing of Bermuda onions has been attempted in southern Texas, and has become a successful and important industry. Commercial production of garlic in the United States is very small.

Imports of onions in 1914 were 1,096,781 bushels, valued at \$890,508, and in the calendar year 1920, 1,818,514 bushels, valued at \$2,362,316. In the latter year 78 per cent came from Spain and 10 per cent from Egypt. In 1914, 9,282,302 pounds of garlic were imported as compared with 7,688,000 pounds in the calendar year 1920. In the latter year Italy furnished 50 per cent; Spain, 29 per cent; and Mexico, 14 per cent. Our Latin population consumes the greater part. Imports since 1917 have been as follows:

²⁷ Onions, 40 cents per bushel of fifty-seven pounds. (Par. 8, emergency tariff act of 1921.)

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-----------|----------|------------------------|
| ONIONS. | | | | |
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 262,381 | \$214,012 | \$52,193 | 25.04 |
| 1919..... | 740,284 | 1,017,135 | 143,000 | 14.57 |
| 1920..... | 1,818,514 | 2,362,316 | 363,708 | 15.40 |
| 1921 (9 months)..... | 574,874 | 602,817 | ..... | ..... |

| GARLIC. | | | | |
|----------------------|----------------|-----------|----------|-------|
| | <i>Pounds.</i> | | | |
| 1918..... | 3,901,838 | \$219,808 | \$39,919 | 18.16 |
| 1919..... | 9,960,346 | 1,334,327 | 99,375 | 7.51 |
| 1920..... | 7,688,410 | 870,326 | 76,864 | 8.84 |
| 1921 (9 months)..... | 4,940,977 | 271,614 | ..... | ..... |

General imports of onions, included in paragraph 8 of the emergency tariff act, are given by months for 1920 and 1921 in the following table:

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|-----------|----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Bushels.</i> | <i>Bushels.</i> | | |
| January..... | 335,569 | 20,733 | \$432,694 | \$30,322 |
| February..... | 244,153 | 63,732 | 297,926 | 66,625 |
| March..... | 369,263 | 41,405 | 385,392 | 49,760 |
| April..... | 143,371 | 7,243 | 228,604 | 15,425 |
| May..... | 88,452 | 13,016 | 204,761 | 22,018 |
| June..... | 104,942 | 9,036 | 226,836 | 12,175 |
| July..... | 95,009 | 32,181 | 118,853 | 34,075 |
| August..... | 35,224 | 125,029 | 40,393 | 125,895 |
| September..... | 69,743 | 261,965 | 72,804 | 254,602 |
| October..... | 177,742 | 306,447 | 183,943 | 355,634 |
| November..... | 119,396 | 662,883 | 120,642 | 722,061 |
| December..... | 46,295 | 442,413 | 50,249 | 569,457 |

Exports of onions increased from 386,322 bushels in 1914 to 534,192 bushels in the fiscal year 1918, and in value from \$435,953 to \$788,584. About 50 per cent of the exports go to Cuba and 25 per cent to Canada. Later statistics, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|-------------|------------------|
| Quantity (bushels)..... | 662,855 | 816,959 | 945,778 | 732,969 |
| Value..... | \$1,112,074 | \$2,086,142 | \$2,075,862 | \$970,779 |

Important changes in classification.—The basis of duty on onions has been changed from bushels to pounds to conform to commercial usage.

PARAGRAPH 769.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 769. White or Irish potatoes, 42 cents per one hundred pounds; dried, dehydrated, or desiccated potatoes, 3½ cents per pound; potato flour, 1½ cents per pound.

ACT OF 1909.

PAR. 265. Potatoes, twenty-five cents per bushel of sixty pounds.

PAR. 480. * * * articles manufactured, in whole or in part, not provided for in this section, * * * twenty per centum ad valorem. (Abstract 23912, T. D. 30901, of 1910.)

[No corresponding provision for dried, dehydrated, or desiccated potatoes.]

ACT OF 1913.

PAR. 581. Potatoes, and potatoes dried, desiccated, or otherwise prepared, not specially provided for in this section: *Provided*, That any of the foregoing specified articles shall be subject to a duty of 10 per centum ad valorem when imported directly or indirectly from a country, dependency, or other subdivision of government which imposes a duty on such articles imported from the United States.²⁵

WHITE OR IRISH POTATOES.

(See Report T. I. S.-20 and Survey G-33.)

Description and uses.—The chief domestic consumption of potatoes is, of course, in the familiar table uses. Relatively small quantities are used for starch, for potato flour, and for dried or riced potatoes. Large quantities of cull potatoes are fed to swine and other animals on American farms. Potatoes are employed extensively in European industries, principally in making starch, dextrin, alcohol, glucose, and lactic acid; corn, which is in this country usually cheaper, is here substituted for these purposes.

The fresh potato is from 75 to 80 per cent water. Potato flour consists of the whole potato except the peel, washed, cooked and dried, ground and bolted. It is used chiefly for mixing with bread flours, also for soups and other food products. Dried or dehydrated potatoes in the form of chips, flakes, or "rice," contain all the potato except the water and peel, and are used almost entirely for food.

Production and prices of potatoes fluctuate greatly. Between 1916 and 1920 the harvest ranged from 287,000,000 to 430,000,000 bushels. Though widely cultivated, the bulk of the commercial crop is concentrated in Aroostook County, Me., western New York, western Michigan, Minnesota, Colorado, Idaho, and central California. Each of the potato crops—the "early," the "seed," and the "late"—enter into a distinct market. Early potatoes are grown principally in the South and move northward, seed and late varieties move southward and eastward. Europe produces about 90 per cent of the world's harvest, its physical and economic conditions being well suited to this crop.

Domestic manufacture of potato flour began about 1917, and in 1918 in five factories the production was about 2,500,000 pounds. Sixteen plants were producing dried or dehydrated potatoes in 1918, chiefly for Army use, with an output of about 7,000,000 pounds.

Imports of potatoes from the principal producing countries have been barred by quarantines since October, 1912, only Canada and the Bermudas shipping without restriction. Shipments of potatoes from

²⁵ Potatoes, 25 cents per bushel of sixty pounds. (Par. 7, emergency tariff act of 1921.)

the Bermudas are from 150,000 to 200,000 bushels annually; from Canada, about 200,000 to nearly 6,000,000 bushels annually since 1914. In 1920, 85 per cent of the imported potatoes came from Canada and 13 per cent from Denmark.

Imports of both potato flour and dried potatoes amounted to about 550,000 pounds, valued at \$17,000, in 1914. Normally these imports came chiefly from Germany and the Netherlands. In 1920, 48 per cent of dried and desiccated potatoes came from Canada and 40 per cent from the Netherlands. Statistics of imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Duty. ¹ |
|----------------------|------------------------------|-------------|--------------------|
| POTATOES. | | | |
| 1918..... | <i>Bushels.</i> 1,201,385 | \$1,367,668 | \$76,582 |
| 1919..... | 5,543,686 | 5,907,064 | 862 |
| 1920..... | 6,061,718 | 12,526,534 | 5,934 |
| 1921 (9 months)..... | 1,248,715 | 1,390,904 | ..... |

POTATOES, DRIED, DESICCATED, OR OTHERWISE PREPARED.

| | <i>Pounds.</i> | | |
|----------------------|----------------|-----------|----------|
| 1918..... | 469,961 | \$115,558 | \$11,367 |
| 1919..... | 1,888,697 | 480,194 | 7 |
| 1920..... | 3,421,405 | 310,496 | 6 |
| 1921 (9 months)..... | 3,451,745 | 140,995 | ..... |

¹ Dried potatoes are dutiable only when imported from a country which imposes a duty on potatoes imported from the United States.

Since potatoes are provided for in the emergency tariff act of 1921, a comparison of general monthly imports for 1920 and 1921 is given below:

| Month. | Quantity. | | Value. | |
|----------------|-----------------|-----------------|-----------|-----------|
| | 1920 | 1921 | 1920 | 1921 |
| | <i>Bushels.</i> | <i>Bushels.</i> | | |
| January..... | 494,532 | 384,173 | \$867,966 | \$317,750 |
| February..... | 294,754 | 219,872 | 607,730 | 235,007 |
| March..... | 624,158 | 353,999 | 1,314,285 | 281,163 |
| April..... | 1,179,597 | 317,638 | 3,061,036 | 191,791 |
| May..... | 1,118,008 | 172,643 | 3,332,006 | 154,441 |
| June..... | 399,637 | 23,805 | 1,204,984 | 41,867 |
| July..... | 65,400 | 5,122 | 178,661 | 6,077 |
| August..... | 268,847 | 55,214 | 427,353 | 59,221 |
| September..... | 236,696 | 116,249 | 245,781 | 103,578 |
| October..... | 443,170 | 160,536 | 396,401 | 141,663 |
| November..... | 615,612 | 136,865 | 581,893 | 143,408 |
| December..... | 321,334 | 69,446 | 308,544 | 76,212 |

Exports for 1910-1918 (fiscal years) were between 1,000,000 and 4,000,000 bushels, chiefly to Cuba and Canada. Later statistics (for calendar years) of exports of potatoes, except sweet potatoes, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|--------------|---------------------|
| Quantity (bushels)..... | 3,853,187 | 3,642,322 | 4,153,565 | 3,149,101 |
| Value..... | \$5,834,349 | \$6,475,208 | \$10,199,928 | \$4,263,680 |

In 1920, 65 per cent of the exports went to Cuba and 20 per cent to Canada.

Important changes in classification.—Potatoes covered by this paragraph were conditionally free under paragraph 581 of the act of 1913. Potatoes are dutiable under the emergency tariff act of 1921 (par. 7). The rate of duty in H. R. 7456 has been changed from bushel measure to a rate per 100 pounds to conform to trade usage. The paragraph has been restricted specifically to white or Irish potatoes since the potato provision has been held to embrace sweet potatoes, a commercially distinct product. Imports of sweet potatoes and yams are restricted by quarantines. Such as are allowed entry would be dutiable under the provision for "vegetables, not specially provided for."

Specific provision has been made for potato flour.

PARAGRAPH 770.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 770. Tomatoes in their natural state, 1 cent per pound; tomato paste, 28 per centum ad valorem; all other, prepared or preserved in any manner, 10 per centum ad valorem.

ACT OF 1909.

PAR. 252. Vegetables * * * prepared * * * not specially provided for in this section, * * * forty per centum ad valorem.

[No corresponding provision for tomatoes in their natural state; classable as vegetables.]

ACT OF 1913.

PAR. 200. Vegetables, * * * prepared * * * not specially provided for in this section, * * * 25 per centum ad valorem.

[No corresponding provision for tomatoes in their natural state; classable as vegetables.]

TOMATOES.

Description and uses.—The limited keeping quality of the tomato restricts the trade in the raw product. For this reason and because of its popularity for many uses it is the most widely canned of all vegetables. It is packed whole, and as pulp, purée, and a mixture of whole tomatoes and purée. Tomato purée is the whole tomato with skin and seeds removed and concentrated to a little less than half its bulk. It is used as a basis for soups and sauces. Tomato paste is heavily concentrated tomato produced by evaporating pulp in a vacuum kettle or by first making pulp and then draining it.

Production.—For 1919 the Census reports that the commercial area in tomatoes was 316,000 acres, with a harvest valued at \$38,675,000. A preliminary estimate of production in 1921 gives 1,044,000 tons as compared with 1,648,000 tons in 1920. The falling off was largely in canning stock. In 1919 the value of canned tomatoes produced was \$38,068,000; of tomato paste, \$1,301,000; and of tomato pulp, \$3,819,000.

Imports of raw tomatoes are not separately reported. Some are grown by Americans on the west coast of Mexico for export to the United States during the winter season. Some are also imported from the West Indies. Shipments in the season 1920-1921 were

estimated at over 20,000,000 pounds. Imports of canned tomatoes, mostly of tomato paste from Italy, are given below:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-------------------|---------|---------|------------------|
| | <i>Doz. cans.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$6,743 | \$1,686 | 25 |
| 1919..... | 4,161 | 9,620 | 2,405 | 25 |
| 1920..... | 235,060 | 366,055 | 91,514 | 25 |
| 1921 (9 months)..... | 235,907 | 308,634 | | |

Exports of raw tomatoes are not separately reported. In 1920, 66 per cent of the exports of canned tomatoes went to Cuba. Export values of canned tomatoes have since 1917 by calendar years been as follows: 1918, \$479,260; 1919, \$2,127,896; 1920, \$1,079,582; 1921 (9 months), \$332,650.

Important changes in classification.—New specific provision.

Suggested changes.—Widely different rates are provided for tomato paste and other canned tomatoes. In view of the fact that the paste may be packed in varying degrees of concentration, it may be possible to avoid the higher rate by shipping products such as purée, pulp, etc. The dividing line between tomato paste and tomatoes prepared or preserved, is also not clearly defined, and the provision may therefore be difficult to administer.

PARAGRAPH 771.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 771. Turnips, 12 cents per one hundred pounds.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision; classable as vegetables.]

[No corresponding provisions; classable as vegetables.]

TURNIPS.

Description, uses, and production.—The turnip is a vegetable of relatively minor importance in this country, only about 4,000 acres being planted in 1919.

Imports come from Canada, largely through Buffalo. Figures for the years 1918–1921 are given below:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------------|-----------|----------|------------------|
| | <i>Bushels.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,593,231 | \$484,373 | \$72,656 | 15. |
| 1919..... | 2,155,243 | 790,164 | 118,525 | 15 |
| 1920..... | 1,836,843 | 711,425 | 108,714 | 15. |
| 1921 (9 months)..... | 668,278 | 174,278 | | |

¹ July 1 to Dec. 31.

Exports are not separately reported.

Important changes in classification.—New specific provision.

PARAGRAPH 772.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 772. Vegetables in their natural state, not specially provided for, 20 per centum ad valorem: *Provided*, That in the assessment of duties on vegetables no segregation or allowance of any kind shall be made for foreign matter or impurities mixed therewith.

ACT OF 1909.

ACT OF 1913.

PAR. 254. Cabbages, two cents each.

PAR. 269. Vegetables in their natural state, not specially provided for in this section, twenty-five per centum ad valorem.

PAR. 215. Vegetables in their natural state, not specially provided for in this section, 15 per centum ad valorem.

VEGETABLES, IN THEIR NATURAL STATE, N. S. P. F.

Description and uses.—The common cabbage, kale, kohlrabi, cauliflower, broccoli, and Brussels sprouts are all of the same family. They are perhaps the most important of more than a score of vegetables of minor commercial interest included in this paragraph. Cabbage serves as green fodder for cattle, in addition to its use as a food for man, and a dye known as cauline may be made therefrom.

Production of cabbage in 1919 from 123,994 acres was valued at \$21,848,112. It grows in every State, and in 1920 twelve States reported a production of 820,750 tons, valued at \$25,266,000. Complete production statistics for "all other vegetables" are unavailable, but in 1919 nearly 1,000,000 acres were devoted to these crops.

In 1919 the commercial acreage and value of harvest of the more important vegetables were reported by the Census as follows: Asparagus, 30,244 acres, \$5,102,135; cantaloupe and muskmelons, 78,436 acres, \$10,766,591; celery, 20,148 acres, \$9,462,277; sweet corn, 271,584 acres, \$17,297,561; cucumbers, 51,643 acres, \$8,579,102; lettuce, 21,544 acres, \$8,535,093; watermelons, 159,088 acres, \$10,466,133.

Imports of cabbage in 1913 were valued at \$262; in 1914, at \$22,875. Imports decreased during the war. Imports of all other vegetables n. s. p. f., valued at \$998,565 in 1913 and \$1,083,458 in 1914, came chiefly from Canada, Italy, Cuba, and Belgium. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|---------|--------|------------------|
| CABBAGES. | | | | |
| 1918..... | | \$4,483 | \$672 | Per cent. 15 |
| 1919..... | | 12,831 | 1,925 | 15 |
| 1920..... | | 99,808 | 14,971 | 15 |
| 1921 (9 months)..... | | 3,354 | | |

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

SWEET POTATOES.

| | Pounds. | \$479 | \$10 | Per cent. |
|----------------------|---------|-------|------|-----------|
| 1918..... | 364 | | | |
| 1919..... | 2,848 | 1,591 | 157 | |
| 1920..... | 50 | 94 | 1 | |
| 1921 (9 months)..... | 57 | 77 | | |

VEGETABLES IN THEIR NATURAL STATE, N. S. P. F.

| | | | |
|----------------------|-------------|-----------|--|
| 1918..... | \$1,131,479 | \$154,643 | |
| 1919..... | 1,224,693 | 178,502 | |
| 1920..... | 1,533,318 | 267,456 | |
| 1921 (9 months)..... | 1,606,922 | | |

Exports of "all other" vegetables in 1914 amounted to \$1,712,000; in 1918, \$2,204,464; 1919, \$3,237,009; 1920, \$2,807,439; 1921 (9 months), \$2,441,250. (Statistics for 1918-1921 are for calendar years.)

In 1920, Canada was the destination of 80 per cent of the exports.

Important changes in classification.—The provision for nonallowance for foreign matter or impurities is new and designed to simplify administration.

PARAGRAPH 773.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 773. Vegetables, if cut, sliced, or otherwise reduced in size, or if parched or roasted, or if pickled, or packed in salt, brine, oil, or prepared or preserved in any other way and not specially provided for; soya beans, prepared or preserved in any manner; bean stick, miso, bean cake, and similar products, not specially provided for; soups, pastes, balls, puddings, hash, and all similar forms, composed of vegetables, or of vegetables and meat or fish, or both, not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

PAR. 252. Vegetables, if cut, sliced, or otherwise reduced in size, or if parched or roasted, or if pickled, or packed in salt, brine, oil, or prepared in any way; any of the foregoing not specially provided for in this section, and bean stick or bean cake, miso, and similar products, forty per centum ad valorem.

[No corresponding provision for the other commodities; soya beans classable as beans.]

ACT OF 1913.

PAR. 200. Vegetables, if cut, sliced or otherwise reduced in size, or if parched or roasted, or if pickled, or packed in salt, brine, oil, or prepared in any way; any of the foregoing not specially provided for in this section, and bean stick or bean cake, miso, and similar products, 25 per centum ad valorem.

[No corresponding provision for the other commodities; soya beans classable as soya beans or as vegetables, prepared.]

VEGETABLES PREPARED OR PRESERVED.

Description and uses.—This paragraph covers all prepared and preserved vegetables not elsewhere provided for. It embraces principally canned vegetables, but also those preserved in brine, oil, etc., and packed in kegs, boxes, and similar containers. It also provides for fancy food preparations of vegetables or of vegetables mixed with meat or fish. Our canning and preserving industry exceeds that of any other country, but Asiatic and European food specialties are imported largely for resident aliens. In preserving supplies of perishable commodities during the seasons of surplus for periods of scarcity and in extending the range of markets, the industry saves vast quantities of foodstuffs, and tends to stabilize prices and conditions of distribution.

Bean stick or bean cake is an oriental food product made from ground and fermented soya beans. Miso is a cooked and fermented combination of rice and soya beans, generally used in making soup.

Production of canned vegetables (exclusive of beans, peas, and tomatoes) in 1919 was valued at \$56,904,000. While canning and preserving is carried on extensively, the industry is local, factories being located near those sections where the vegetables are grown. California produces about 98 per cent of the canned asparagus; more than 80 per cent of the canned corn was packed in the seven States of Illinois, Indiana, Iowa, Maine, Maryland, New York, and Ohio; while Maryland far exceeds any other State in canned tomatoes.

Imports in 1913 of vegetables prepared or preserved were valued at \$2,213,365; they rose to \$2,681,247 in 1914, but declined during the war. Italy furnished the greater portion, but considerable quantities came from France, Spain, and Belgium. Imports of bean stick or bean cake and miso were valued at \$73,097 in 1914, soya bean cake constituting about 70 per cent. Edible bean cake and miso are imported to meet the demand of the oriental population. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------|------------------|
|----------------|-----------|--------|-------|------------------|

VEGETABLES, PREPARED OR PRESERVED.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|------------|-----------|-----------|-----------|
| 1918..... | | \$459,241 | \$114,810 | 25 |
| 1919..... | 12,763,376 | 1,623,242 | 405,781 | 25 |
| 1920..... | 20,379,212 | 2,251,847 | 562,956 | 25 |
| 1921 (9 months)..... | 11,015,210 | 1,176,004 | | |

BEAN CAKE, OR BEAN STICK, MISO, OR SIMILAR PRODUCTS.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | | \$121,299 | \$30,325 | 25 |
| 1919..... | 3,519,146 | 247,651 | 61,963 | 25 |
| 1920..... | 2,372,420 | 198,133 | 49,533 | 25 |
| 1921 (9 months)..... | 2,012,986 | 142,963 | | |

Export values of all canned vegetables in 1910-1914 ranged from \$783,000 to \$1,822,000. The United Kingdom and Canada were the chief markets. Later statistics, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|------------------|
| Soups, canned..... | \$1,085,173 | \$1,980,624 | \$1,506,010 | \$760,457 |
| Corn, canned..... | 106,632 | 548,037 | 334,519 | 125,726 |
| All other vegetables, canned (except corn, soups, tomatoes)..... | 10,659,454 | 6,088,834 | 3,420,248 | 1,252,320 |

Important changes in classification.—New specific provision has been made for soya beans, prepared or preserved. Some retain their identity as beans. These have been exempt from duty as soya beans. There is also a new provision for vegetables with or without meat or fish, in the form of soups, hash, etc.

Suggested changes.—For the reasons stated under the subheading "Conflicting provisions" under paragraph 748, the words "sauces of all kinds, not specially provided for," followed by a semicolon, might be inserted in this paragraph after the words "not specially provided for" in line 19, page 97.

Conflict with paragraph 749 might be avoided by imposing the same rate of duty on vegetables, prepared or preserved, and fruits prepared or preserved.

PARAGRAPH 774.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 774. Broom corn, \$2 per ton.

ACT OF 1909.

ACT OF 1913.

PAR. 233. Broom corn, three dollars per ton.

PAR. 434. Broom corn [Free].

BROOM CORN.

Description and uses.—Broom corn belongs to the sorghum group of plants. Two kinds, "standard" and "dwarf," are commonly grown. The dwarf is produced in the semiarid regions of the Southwest, the standard in the more humid sections of Illinois, Kansas, Oklahoma, and Texas. The standard brush is 18 to 30 inches long, used largely in carpet brooms; the dwarf makes a brush 1 or 2 feet long, such as the whisk and other small brooms. Special equipment in the form of drying sheds, threshers, and balers, is required in broom-corn production.

Production of broom corn in 1920 was 33,900 tons, valued at \$4,263,000. The principal producing States are Oklahoma, Illinois, Kansas, Texas, and New Mexico.

Imports of broom corn for 1910-1914 ranged from 186 to 7,622 tons. Austria-Hungary was formerly the chief source.

Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|---------|----------|------------------|
| Quantity (tons)..... | 2,399 | 18 | 1,361 | 49 |
| Value..... | \$364,936 | \$4,390 | \$76,715 | \$8,941 |

In 1920, 97 per cent came from Kwantung leased territory.

Exports during 1910-1914 ranged from 3,000 to 4,000 tons, valued at \$327,000 to \$461,000, and went chiefly to Canada and Cuba. Later statistics, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|----------------------|-------------|-----------|-----------|-----------------|
| Quantity (tons)..... | 4,948 | 4,816 | 3,917 | 1,918 |
| Value..... | \$1,396,245 | \$890,790 | \$773,681 | \$226,560 |

In 1920, 79 per cent went to Canada and 18 per cent to Cuba.

Important changes in classification.—Transferred from free list, paragraph 434, act of 1913.

PARAGRAPH 775.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 775. Acorns, and chicory and dandelion roots, crude, 1½ cents per pound; ground, or otherwise prepared, 3 cents per pound; all coffee substitutes and adulterants, and coffee essences, 3 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 291. Chicory root, raw, dried, or undried, but unground, one and one-half cents per pound; chicory root, burnt or roasted, ground or granulated, or in rolls, or otherwise prepared, and not specially provided for in this section, three cents per pound.

PAR. 294. Dandelion root and acorns prepared, and articles used as coffee, or as substitutes for coffee not specially provided for in this section, two and one-half cents per pound.

PAR. 484. Acorns, raw, dried or undried, but unground [Free].

PAR. 554. Dandelion roots, raw, dried, or undried, but unground [Free].

PAR. 230. Chicory root, raw, dried, or undried, but unground, 1 cent per pound; chicory root, burnt or roasted, ground or granulated, or in rolls, or otherwise prepared, and not specially provided for in this section, 2 cents per pound.

PAR. 233. Dandelion root, and acorns prepared, and articles used as coffee, or as substitutes for coffee not specially provided for in this section, 2 cents per pound.

PAR. 389. Acorns, raw, dried or undried, but unground [Free].

PAR. 473. Dandelion roots, raw, dried or undried, but unground [Free].

ACORNS, AND CHICORY AND DANDELION ROOTS, ETC.

Description and uses.—Dandelion root and dried acorns, ground, are among the substitutes for or adulterants of coffee. Other substitutes are chicory, parsnips, carrots, beets, various cereals, and saccharin fruits, such as roasted figs, dates, and raisins. The regulations under the pure food and drugs act, requiring proper branding, discourage the use of such substitutes and adulterants.

Dandelion root is also used as a bitter material in so-called tonics and blood purifiers, chiefly proprietary.

Production.—Dandelion root is collected for commerce in various European countries where the plant is both wild and cultivated. It is grown extensively as a garden plant in America, but wild supplies

are more than sufficient for domestic medicinal purposes. The low-priced foreign product has taken the market, but domestic dandelion appeared during the war scarcity.

Practically all of the domestic chicory is grown in Michigan—18,196,000 pounds in 1919. It has been grown also in California, New York, Wisconsin, Nebraska, and Connecticut.

Imports of dandelion root and acorns, prepared, used as substitutes for coffee, were 132,262 pounds, valued at \$17,780 in 1913, and 162,487 pounds, valued at \$15,481 in 1914. Practically all came from Germany and Austria. Imports of dandelion roots for the fiscal years 1909–1918 averaged annually 87,205 pounds, valued at \$11,555.

In 1920, of the imports of raw chicory 49 per cent came from Belgium and 29 per cent from Germany. Recent statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|----------------|-----------|----------|------------------------|
| DANDELION ROOT, CRUDE. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 99,431 | \$25,084 | | |
| 1919..... | 115,489 | 17,804 | | |
| 1920..... | 232,097 | 36,201 | | |
| 1921 (9 months)..... | 109,977 | 12,217 | | |
| ACORNS, RAW BUT UNGROUND. | | | | |
| 1919..... | 5,000 | \$500 | | |
| 1920..... | 18,618 | 494 | | |
| 1921 (9 months)..... | 110 | 4 | | |
| CHICORY ROOT, RAW, DRIED, OR UNDRIED, BUT UNGROUND. | | | | |
| 1920..... | 6,745,169 | \$446,404 | \$67,452 | 15.11 |
| 1921 (9 months)..... | 833,325 | 25,514 | | |
| ESSENCES OR EXTRACTS OF COFFEE. | | | | |
| 1918..... | 110 | \$25 | \$2 | 2.80 |
| 1919..... | 3,837 | 2,599 | 71 | 2.71 |
| 1920..... | 13,924 | 6,324 | 278 | 4.40 |
| 1921 (9 months)..... | 2,655 | 1,678 | | |
| DANDELION ROOT AND ACORNS, PREPARED, ETC., N. S. P. F. | | | | |
| 1918..... | 4,684 | \$671 | \$94 | 12.96 |
| 1919..... | 2,517 | 1,324 | 50 | 3.90 |
| 1920..... | 23,693 | 3,595 | 474 | 12.17 |
| 1921 (9 months)..... | 1,392 | 1,016 | | |
| CHICORY ROOT, GROUND OR OTHERWISE PREPARED. | | | | |
| 1919..... | 56 | \$28 | \$1 | 4.00 |
| 1920..... | 1,750,878 | 129,910 | 35,018 | 26.95 |
| 1921 (9 months)..... | 172,383 | 13,774 | | |

Exports are not separately recorded.

Important changes in classification.—Two dutiable and two free paragraphs relating to coffee substitutes and adulterants have been here combined and a new item, coffee essences, added.

PARAGRAPH 776.

H. R. 7466.

SENATE AMENDMENTS.

PAR. 776. Chocolate and cocoa, sweetened or unsweetened, powdered, or otherwise prepared, 17½ per centum ad valorem, but not less than 2 cents per pound; cacao butter, 3½ cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 292. Chocolate and cocoa, prepared or manufactured, not specially provided for in this section, valued at not over fifteen cents per pound, two and one-half cents per pound; valued above fifteen and not above twenty-four cents per pound, two and one-half cents per pound and ten per centum ad valorem; valued above twenty-four and not above thirty-five cents per pound, five cents per pound and ten per centum ad valorem; valued above thirty-five cents per pound, fifty per centum ad valorem. The weight and value of all coverings, other than plain wooden, shall be included in the dutiable weight and value of the foregoing merchandise; powdered cocoa, unsweetened, five cents per pound.

PAR. 293. Cocoa butter or cocoa butterine, * * * and all substitutes for cocoa butter, three and one-half cents per pound.

PAR. 231. Unsweetened chocolate and cocoa, prepared or manufactured, not specially provided for in this section, 8 per centum ad valorem. Sweetened chocolate and cocoa, prepared or manufactured, not specially provided for in this section, valued at 20 cents per pound or less, 2 cents per pound; valued at more than 20 cents per pound, 25 per centum ad valorem. The weight and the value of the immediate coverings, other than the outer packing case or other covering, shall be included in the dutiable weight and the value of the merchandise.

PAR. 232. Cocoa butter or cocoa butterine, * * * and all substitutes for cocoa butter, 3½ cents per pound.

CHOCOLATE AND COCOA.

Description and uses.—Chocolate and cocoa are derived from the cacao bean or crude cacao (par. 1548). After being cleaned, sorted, blended, and roasted, the crude cacao is crushed into small fragments, termed "chocolate nibs," from which the shells or husks are removed by a winnowing process. The nibs are then ground into a molasseslike product which hardens upon exposure to air. This is the unsweetened chocolate ("chocolate liquor" in the trade) of this paragraph. Confectioners and bakers take most of the marketed product, and a considerable proportion is used as cooking chocolate. The great bulk of this liquor is further elaborated for sweetened chocolate or cocoa powder and butter. The removal of all but about 20 per cent of the natural fat content, enabling the product to powder, distinguishes cocoa from chocolate. There is much demand for this fat or cacao butter.

The familiar sweet chocolate is prepared by milling or stirring the liquor, adding sugar and cocoa butter, and sometimes other ingredients and pouring the semifluid mass into molds to harden or "cake." There is a growing market for Swiss or milk chocolate, which involves merely the addition of powdered milk. In the manufacture of cocoa and cocoa butter the chocolate liquor is subjected to hydraulic pressure, a large part of the oil or fat expressed, the pressed mass passed through a fine sieve, dried thoroughly, and canned or packed.

Production.—The output of the cocoa and chocolate industry increased about tenfold from 1895 to 1918. In 1914, 36 factories (exclusive of confectioners) had a capital of \$24,000,000 and a product

valued at \$36,000,000. The industry is localized in the Eastern States, four plants producing about half the domestic output. Automatic machinery is employed almost exclusively and raw materials constitute the principal item of cost. In 1917, the 29 largest factories reported the following production, which is substantially the total for this country:

| | Pounds. | | Pounds. |
|----------------------|------------|------------------------|------------|
| Cocoa powder..... | 56,241,669 | Cooking chocolate..... | 13,725,617 |
| Cacao butter..... | 17,348,012 | Chocolate liquor..... | 16,635,892 |
| Sweet chocolate..... | 68,835,847 | Chocolate coating..... | 75,373,052 |

In 1919 the total value of the products of the 48 establishments was \$139,000,000, divided as follows: Chocolate cakes, sweetened and unsweetened, \$51,000,000; chocolate liquor and coating, \$36,000,000; chocolate, including milk chocolate, \$12,000,000; cocoa, \$24,000,000; cacao butter, \$14,000,000; all other products, \$2,000,000.

Imports of chocolate (largely unsweetened) are chiefly from Switzerland. Values declined from \$845,639 in 1907 to \$379,876 in 1914, due to the sale of Swiss patents to an American concern and the erection of a branch factory here by a leading German manufacturer to avoid import duties.

Import values of cocoa were \$373,888 in 1907, \$379,876 in 1914, and \$483,740 in 1917. Holland is the principal competing country, with the product "Dutch process" cocoa, designed for the high-grade trade, and falling almost entirely under the classification "powdered, unsweetened." Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

COCOA, SWEETENED.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|---------|---------|-------|-----------|
| 1918..... | 10,068 | \$3,992 | \$980 | |
| 1919..... | 82,272 | 15,292 | 1,745 | |
| 1920..... | 6,770 | 2,729 | 648 | |
| 1921 (9 months)..... | 9,359 | 2,593 | | |

COCOA, UNSWEETENED.

| | | | | |
|----------------------|---------|---------|--------|------|
| 1918..... | 39 | \$20 | \$160 | 8.00 |
| 1919..... | 715,357 | 296,901 | 23,752 | 8.00 |
| 1920..... | 977,524 | 377,128 | 30,170 | 8.00 |
| 1921 (9 months)..... | 830,551 | 198,287 | | |

CHOCOLATE, SWEETENED.

| | | | | |
|----------------------|---------|---------|---------|--|
| 1918..... | 33,775 | \$9,696 | \$1,976 | |
| 1919..... | 58,531 | 19,414 | 4,393 | |
| 1920..... | 264,623 | 95,300 | 22,403 | |
| 1921 (9 months)..... | 116,399 | 44,751 | | |

CHOCOLATE, UNSWEETENED.

| | | | | |
|----------------------|--------|--------|-------|------|
| 1918..... | 2,246 | \$966 | \$99 | 8.00 |
| 1919..... | 1,190 | 599 | 48 | 8.00 |
| 1920..... | 28,798 | 13,738 | 1,099 | 8.00 |
| 1921 (9 months)..... | 80,679 | 15,310 | | |

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|----------------|--------|-------|------------------------|
| CACAO BUTTER AND SUBSTITUTES FOR. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 3,049 | \$372 | \$107 | 12.24 |
| 1919..... | 8,179 | 2,539 | 286 | 11.27 |
| 1920..... | 14,060 | 6,705 | 493 | 7.35 |
| 1921 (9 months)..... | 443,378 | 96,990 | | |

In 1920, 60 per cent of the cacao butter came from the Netherlands and 30 per cent from Germany.

Exports during 1910-1914 were valued at \$300,000 to \$500,000. Later statistics, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-------------|--------------|-------------|---------------------|
| Cocoa and chocolate, prepared or manufactured (not including confectionery): | | | | |
| Value..... | \$6,961,457 | \$21,380,801 | \$9,047,918 | \$975,786 |
| Cacao butter: | | | | |
| Quantity (pounds)..... | | 7,320,258 | 5,377,188 | 3,295,689 |
| Value..... | | \$3,081,748 | \$1,948,617 | \$601,880 |

In 1920, 50 per cent of the cacao butter went to Canada and 20 per cent to Belgium. The latter country also took 44 per cent of the manufactured cocoa and chocolate.

Important changes in classification.—The two paragraphs relating to cocoa, chocolate, and cacao butter have been combined and simplified. The graduated specific and ad valorem duties upon cocoa and chocolate have been replaced with an ad valorem rate, a minimum specific rate being provided to prevent dumping of low-priced products, and the provision with respect to containers eliminated, being unnecessary.

The provisions for "cocoa" butterine and "cocoa" butter substitutes have been eliminated, and the spelling changed to the correct form, cacao butter, to avoid confusion with "coco" butters made from coconut oil. The provision for refined deodorized coconut oil is also eliminated; the article falls within the general provision for coconut oil in paragraph 50, H. R. 7456.

PARAGRAPH 777.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 777. Ginger root, candied, or otherwise prepared or preserved, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision; classable as sweetmeats.]

[No corresponding provision; classable as sweetmeats.]

GINGER ROOT, CANDIED OR PRESERVED.

Description and uses.—Candied or preserved ginger root is a delicacy or "comfit" resulting from the addition of heavy rich sirups or coatings of sugar to the cleaned and specially prepared root. In certain sections of China the preserved root is prepared in small earthen jars, in which manner it is shipped to this country.

Production.—In this country the candied ginger root is an important product of certain candy manufacturers and confectioners.

Imports.—In 1914, 478,058 pounds of ginger, preserved or pickled, valued at \$36,434, were imported. About 95 per cent came direct from China or Hongkong. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 224,791 | \$30,116 | \$6,023 | 20 |
| 1919..... | 581,435 | 102,580 | 20,518 | 20 |
| 1920..... | 540,158 | 124,858 | 24,972 | 20 |
| 1921 (9 months)..... | 142,494 | 31,808 | | |

Important changes in classification.—New specific provision.

PARAGRAPH 778.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 778. Hay, \$4 per ton; straw, \$1 per ton.

ACT OF 1909.

ACT OF 1913.

PAR. 258. Hay, four dollars per ton.

PAR. 205. Hay, \$2 per ton.

PAR. 267. Straw, one dollar and fifty cents per ton.

PAR. 213. Straw, 50 cents per ton.

HAY AND STRAW.

(See Report T. I. S.—20.)

Use.—About four-fifths of the domestic hay is consumed on farms where grown, while the trade is in large part due to the demand for horse feed in the urban centers. Timothy, the principal variety of the Northern States, is preferred for this purpose.

Production.—The crop of tame hay, approximately three-fourths of which is raised in the Northern States, averaged over 80,000,000 tons in the years 1914 to 1918, and its farm value was over \$1,000,000,000. Production in 1921 was 81,567,000 tons of tame hay, and 15,235,000 tons of wild hay, the farm value of the two being \$1,090,776,000.

Imports of hay fluctuate according to domestic crop conditions. From 1910 to 1914 they ranged from 96,763 to 699,213 tons. Partly because of quarantines, which prohibit imports from nearly all countries, and also because of the high cost of transporting so bulky a product, Canada is the only foreign competitor in domestic markets.

Shipments move from the eastern provinces to adjacent eastern markets and consist principally of timothy. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------|-------------|-----------|------------------------|
| | Tons. | | | Per cent. |
| 1918..... | 398,837 | \$4,824,106 | \$797,874 | 16.54 |
| 1919..... | 207,648 | 3,081,537 | 405,296 | 13.15 |
| 1920..... | 208,621 | 4,452,015 | 417,242 | 9.31 |
| 1921 (9 months)..... | 88,466 | 752,416 | | |

Exports ranged from 50,151 to 60,720 tons during 1910-1914. They went chiefly to Canada and Mexico. Later statistics, for calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|-----------|-------------|------------------|
| Quantity (tons)..... | 28,342 | 32,142 | 63,154 | 36,900 |
| Value..... | \$904,030 | \$962,975 | \$1,797,396 | \$339,100 |

PARAGRAPH 779.

H. R. 7456.

SENATE AMENDMENTS

PAR. 779. Hops, 24 cents per pound; hop extract, \$1.50 per pound; lupulin, 75 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 260. Hops, sixteen cents per pound; hop extract and lupulin, fifty per centum ad valorem.

PAR. 207. Hops, 16 cents per pound; hop extract and lupulin, 50 per centum ad valorem.

HOPS, ETC.

Description and uses.—The hop is a perennial twining herb of the nettle family, which produces burs or "hops," used in brewing. The yellow, resinlike pollen covering the base of each hop is called lupulin and imparts the bitter taste to beer, while the amount in the hop practically determines its value. The chief substitutes for the hop are imported hop extract and lupulin, occasionally also quassia, gentian, and camomile. The last three impart an unpleasant, rough, and bitter taste to beer. Hop extract is the essence of the hop in a semisolid form. Hop extract and lupulin are seldom separated from the hop in this country. The two commodities are combined in the statistics.

The quantity of hops consumed by brewers declined from 42,000,000 pounds in 1917 to 6,000,000 pounds in 1920, including hops used to make "cereal beverages."

Production.—In 1921 production was 29,140,000 pounds, valued at \$7,117,000, on an area of 28,000 acres. Of the total crop, California produced about 50 per cent; Oregon, 30 per cent; Washington, 18 per cent; and New York, 2 per cent. In 1915, 52,986,000 pounds were produced.

Imports of hops in 1914 were 5,360,748 pounds, valued at \$2,775,882, with a revenue of \$857,719; 46 per cent from Austria-Hungary and

53 per cent from Germany. Imports of hop extract and lupulin were valued at \$49,451 in 1914, and at \$24,059 in the calendar year 1920. Later statistics (for hops) follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem |
|----------------------|----------------|-----------|----------|-----------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 106,711 | \$59,185 | \$17,074 | 28.85 |
| 1919..... | 379,405 | 191,092 | 60,705 | 31.71 |
| 1920..... | 4,075,999 | 2,482,286 | 652,160 | 26.27 |
| 1921 (9 months)..... | 1,419,409 | 583,055 | | |

In 1920, 29 per cent of the imported hops came from Belgium, 28 per cent from Czechoslovakia, and 23 per cent from Germany.

Exports of hops in 1914 were 24,262,896 pounds, valued at \$6,953,529, 90 per cent to England and 5 per cent to Canada. Shipping conditions and short supply greatly reduced exports from 1916 to 1919. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-----------|-------------|--------------|-----------------|
| Quantity (pounds)..... | 3,670,352 | 20,797,504 | 25,624,055 | 12,991,902 |
| Value..... | \$970,598 | \$3,832,255 | \$17,063,472 | \$4,701,100 |

In 1920, England took 69 per cent and Ireland 14 per cent.

PARAGRAPH 780.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 780. Spices and spice seeds: Anise seeds, 2 cents per pound; caraway seeds, 1 cent per pound; cardamom seeds, 10 cents per pound; cassia, cassia buds, and cassia vera, unground, 2 cents per pound; ground, 5 cents per pound; cloves, unground, 3 cents per pound; ground, 6 cents per pound; clove stems, unground, 2 cents per pound; ground, 5 cents per pound; cinnamon and cinnamon chips, unground, 2 cents per pound; ground, 5 cents per pound; coriander seeds, one-half of 1 cent per pound; cummin seeds, 1 cent per pound; curry and curry powder, 2 cents per pound; fennel seeds, 1 cent per pound; ginger root, not preserved or candied, unground, 2 cents per pound; ground, 5 cents per pound; mace, unground, 4 cents per pound; ground, 8 cents per pound; Bombay, or wild mace, unground, 18 cents per pound; ground, 22 cents per pound; mustard seeds (whole), 1 cent per pound; mustard, ground, prepared in bottles or otherwise, 5 cents per pound; nutmegs, unground, 2 cents per pound; ground, 5 cents per pound; pepper, capsicum or red pepper

H. R. 7456.

SENATE AMENDMENTS.

or cayenne pepper and paprika, unground, 2 cents per pound; ground, 5 cents per pound; black or white pepper, unground, 2 cents per pound; ground, 5 cents per pound; pimento (allspice), unground, 1 cent per pound; ground, 3 cents per pound; whole pimientos, packed in brine or in oil, or prepared or preserved in any manner, 6 cents per pound; sage, unground, 1 cent per pound; ground, 3 cents per pound; turmeric, 10 cents per pound; mixed spices, and spices and spice seeds not specially provided for, including all herbs or herb leaves in glass or other small packages, for culinary use, 20 per centum ad valorem: *Provided*, That in all the foregoing no allowance shall be made for dirt or other foreign matter: *Provided further*, That the importation of pepper shells, ground or unground, is hereby prohibited.

ACT OF 1909.

PAR. 268. Seeds: * * * seeds of all kinds not specially provided for in this section, ten cents per pound.

PAR. 668. Seeds: Anise, * * * caraway, cardamom, * * * coriander, * * * cummin, fennel, * * * mustard, * * * [Free].

PAR. 298. Spices: Mustard, ground or prepared, in bottles or otherwise, ten cents per pound; capsicum or red pepper, or cayenne pepper, two and one-half cents per pound; sage, one cent per pound; spices not specially provided for in this section, three cents per pound.

PAR. 679. Spices: Cassia, cassia vera, and cassia buds; cinnamon and chips of; cloves and clove stems; mace; nutmegs; pepper, black or white, and pimento; all the foregoing when unground; ginger root, unground and not preserved or candied [Free].

PAR. 552. Curry, and curry powder [Free].

PAR. 698. Turmeric [Free].

[No corresponding provision for whole pimientos; dutiable as vegetables prepared.]

ACT OF 1913.

PAR. 212. Seeds: * * * caraway seed, 1 cent per pound; anise seed, 2 cents per pound; * * * seeds of all kinds not specially provided for in this section, 5 cents per pound: *Provided*, That no allowance shall be made for dirt or other impurities in seeds provided for in this paragraph.

PAR. 595. Seeds: Cardamom, * * * coriander, * * * cummin, fennel, * * * mustard, * * * [Free].

PAR. 235. Spices, unground: Cassia buds, cassia, and cassia vera; cinnamon and cinnamon chips; ginger root, unground and not preserved or candied; nutmegs; pepper, black or white; capsicum or red pepper, or cayenne pepper; and clove stems, 1 cent per pound; cloves, 2 cents per pound; pimento, $\frac{1}{2}$ of 1 cent per pound; sage, $\frac{1}{2}$ cent per pound; mace, 8 cents per pound; Bombay or wild mace, 18 cents per pound; ground spices, in each case, the specific duty per pound enumerated in the foregoing part of this paragraph for unground spices, and in addition thereto a duty of 20 per centum ad valorem; mustard, ground or prepared, in bottles or otherwise, 6 cents per pound; all other spices not specially provided for in this section, including all herbs or herb leaves in glass or other small packages for culinary use, 20 per centum ad valorem.

PAR. 471. Curry, and curry powder [Free].

PAR. 634. Turmeric [Free].

[No corresponding provision for whole pimientos; dutiable as vegetables prepared.]

SPICES AND SPICE SEEDS.

ANISE.

Description, uses, and production.—Anise is the seed of an annual plant native to Egypt and other Mediterranean regions. It is cultivated in the south of Europe, South America, India, Cuba, and in Germany, especially around Erfurt, where a large quantity is produced. Anise is used as a spice, in the preparation of liqueurs, and as a medicinal stimulant. Oil of anise, a volatile oil obtained by crushing and distilling the seed, is used for similar purposes. Anise has a warm, sweetish taste and an agreeable odor.

Imports averaged annually 1,083,339 pounds from 1910 to 1913. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 275,625 | \$37,482 | \$5,512 | 14.71 |
| 1919..... | 494,456 | 89,721 | 9,889 | 11.02 |
| 1920..... | 425,845 | 67,144 | 8,517 | 12.68 |
| 1921 (9 months)..... | 261,204 | 29,580 | | |

CARAWAY SEED.

Description, uses, and production.—This is a grass seed growing wild in Europe and parts of Asia, and cultivated in Europe and America. The grass has a branching stem from 1 to 2 feet high, finely divided leaves, and dense, whitish flowers. The seed is used medicinally, and as an aromatic condiment by distillers, confectioners, and perfumers in the preparation of liqueurs, cakes, scented soaps, etc. Caraway oil, fragrant and volatile, is obtained by crushing the seeds and distilling with water. It serves the same purposes as the seed.

Imports averaged 3,279,230 pounds from 1910 to 1913. In 1914 they declined to 1,909,300 pounds, compared with 3,691,831 pounds in 1913. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 382,581 | \$151,355 | \$3,826 | 2.53 |
| 1919..... | 2,013,887 | 370,343 | 20,139 | 5.44 |
| 1920..... | 1,887,587 | 146,901 | 18,876 | 12.85 |
| 1921 (9 months)..... | 2,535,121 | 132,921 | | |

CARDAMOM.

Description, uses, and production.—Cardamom is the fruit of various species of East Indian or Chinese plants of the ginger family. The true official cardamom is native to Malabar and cultivated in India. The fruit is three-celled and contains numerous small seeds, which form a pleasant, pungent spice used as a condiment and as medicine on account of its cordial and stimulative qualities.

Imports in 1914 were 80,782 pounds, valued at \$72,148. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|----------|----------|-----------|-----------------|
| Quantity (pounds)..... | 220,739 | 147,480 | 199,144 | 218,628 |
| Value..... | \$97,876 | \$64,196 | \$132,521 | \$71,250 |

Important changes in classification.—Cardamom seed is exempt from duty under paragraph 595 of the act of 1913.

CASSIA BUDS AND CASSIA.

Description and uses.—Cassia buds are the dried, unripe fruit of the cultivated tree *Cinnamomum cassia*, and are used as a spice, the flavor differing slightly from cinnamon. They are of little commercial importance. Cassia is the dried bark of the same tree and is used as a spice, in the preparation of incense, and for the production of the essential oil for flavoring material. Good cassia is sweet and aromatic, with a flavor resembling that of cinnamon.

Production.—This spice comes from Canton and Hongkong. There is no probability of its production here.

Imports of unground and ground cassia buds steadily declined from 638,979 pounds in 1908 to 23,367 pounds in 1913. In 1915, 200 pounds of ground buds were imported, and in 1917, 139,224 pounds. Imports of unground and ground cassia increased from 3,692,300 pounds in 1908 to 7,151,605 pounds in 1913. A total of 9,019,350 pounds was imported in 1917. After 1914 the ground spice ranged from 200 to 24,800 pounds a year. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

CASSIA BUDS, UNGROUND.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|---------|----------|---------|-----------|
| 1918..... | 445,647 | \$67,713 | \$4,456 | 6.58 |
| 1919..... | 18,851 | 1,646 | 189 | 11.45 |
| 1920..... | 250,842 | 26,487 | 2,508 | 9.47 |
| 1921 (9 months)..... | 399,636 | 29,553 | | |

CASSIA BUDS, GROUND.

| | Quantity. | Value. | Duty. | Per cent. |
|-----------|-----------|--------|-------|-----------|
| 1918..... | 200 | \$20 | \$6 | 30.00 |
| 1920..... | 24,800 | 7,753 | 1,799 | 23.20 |

CASSIA AND CASSIA VERA, UNGROUND.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | 7,665,048 | \$598,996 | \$76,650 | 12.80 |
| 1919..... | 6,339,857 | 608,658 | 63,309 | 10.40 |
| 1920..... | 6,642,381 | 770,844 | 66,424 | 8.62 |
| 1921 (9 months)..... | 5,093,448 | 392,794 | | |

CASSIA AND CASSIA VERA, GROUND.

| | Quantity. | Value. | Duty. | Per cent. |
|----------------------|-----------|--------|-------|-----------|
| 1919..... | 140 | \$20 | \$7 | 24.83 |
| 1920..... | 100 | 6 | 2 | 36.67 |
| 1921 (9 months)..... | 58,010 | 1,487 | | |

In 1920, of the total imports of cassia and cassia vera those from Hongkong were 38 per cent, from Dutch East Indies 32 per cent, and from China 27 per cent.

Exports were not separately stated.

CORIANDER SEED.

Description, uses, and production.—Coriander, a native of the south of Europe and of the East, is naturalized in England and in some parts of the United States. The seed is used as a flavor in cooking and as a stimulant and carminative. It is popular among the Germans, who put it in bread and liquors. Sugar-coated coriander seeds are used as confections.

Imports in 1914 were 1,238,430 pounds, valued at \$46,158. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|----------|-----------|------------------|
| Quantity (pounds)..... | 2,298,018 | 573,252 | 2,135,979 | 760,774 |
| Value..... | \$246,417 | \$42,151 | \$86,656 | \$22,018 |

Important changes in classification.—Coriander seed is transferred from the free list of the act of 1913 (par. 595).

CUMMIN SEED.

Description and uses.—Cummin seed, constituting the cummin of pharmacy, is stimulative and carminative. It is employed in the making of curry powder and in veterinary medicines.

Production.—There is no production here; the seed is imported.

Imports in 1914 were 530,350 pounds, valued at \$31,709. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 1,230,890 | 1,182,364 | 1,357,990 | 685,775 |
| Value..... | \$159,900 | \$121,670 | \$104,436 | \$42,237 |

Important changes in classification.—Cummin seed is transferred from the free list of the act of 1913 (par. 595).

CURRY.

Description, uses, and production.—Curry is a kind of sauce or relish, made of meat, fish, fruit, eggs, or vegetables, cooked with spices, such as cayenne pepper, coriander seed, ginger, garlic, etc. It is very popular in the eastern Tropics especially in India, where it originated. Curry powder, the mixture of spices used for making curry sauce, is composed of ginger, cayenne pepper, turmeric, and coriander seed, to which salt, cloves, ground cinnamon, garlic, scraped coconut, etc., may be added.

Imports in 1914 were \$11,807, about 95 per cent of which came from the United Kingdom. Since 1917 imports by calendar years of curry and curry powder have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------|---------|----------|-----------------|
| Quantity (pounds)..... | | 25,076 | 41,113 | 13,449 |
| Value..... | \$5,193 | \$9,669 | \$14,878 | \$4,132 |

Important changes in classification.—Curry and curry powder are transferred from the free list of the act of 1913 (par. 471).

FENNEL SEED.

Description, uses, and production.—The fennel grows wild in southern Europe, and is cultivated in both Europe and America. The aromatic seeds are used as a condiment and as a medicine.

Imports in 1914 were 207,135 pounds, valued at \$12,299. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|----------|----------|----------|-----------------|
| Quantity (pounds)..... | 161,662 | 178,075 | 237,668 | 65,863 |
| Value..... | \$20,067 | \$28,261 | \$20,856 | \$10,039 |

Important changes in classification.—Fennel seed is transferred from the free list of the act of 1913 (par. 595).

CINNAMON.

Description and uses.—Cinnamon is the dried bark of cultivated varieties of *Cinnamomum zeylanicum*. Its quality varies with the age of the bark and the geographical source. Chips are coarse and inferior in quality. Cinnamon is used as a spice and in making incense; its essential oil is distilled for use in perfumery and spice.

Production.—Large quantities are produced in Ceylon, the Spice Islands (Moluccas), China, Java, the Philippines, and around Singapore.

Imports of the ground and unground were 520,459 pounds in 1908 and 1,405,832 pounds in 1913. Imports of ground cinnamon have been negligible. Small amounts from the Philippines are admitted free. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

UNGROUND CINNAMON.

| | Pounds. | | | Per cent. |
|----------------------|---------|-----------|---------|-----------|
| 1918..... | 675,713 | \$115,165 | \$6,757 | 5.87 |
| 1919..... | 482,597 | 103,662 | 4,827 | 4.66 |
| 1920..... | 673,472 | 178,714 | 6,735 | 3.77 |
| 1921 (9 months)..... | 309,019 | 66,464 | | |

GROUND CINNAMON.

| | | | | |
|----------------------|-------|-------|------|-------|
| 1918..... | 1,553 | \$308 | \$77 | 25.01 |
| 1919..... | 902 | 238 | 54 | 24.22 |
| 1920..... | 1,480 | 348 | 83 | 24.31 |
| 1921 (9 months)..... | 266 | 41 | | |

CLOVES.

Description and uses.—Clove stems, the dried stem of the flower buds of *Caryophyllus aromaticus*, have a legitimate use in the production of oil of cloves.

Cloves are the dried flower buds of *Caryophyllus aromaticus*. The clove tree grows to a height of 12 to 20 feet, and rarely attains 40 feet. Cloves produce spice and the essential oil of cloves, used as a spice, as a perfume, and as a source of the chemical eugenol, in turn used in making vanillin. The last named is one of the chief flavoring substances of vanilla and, together with coumarin, is used to make artificial vanilla flavor.

Production.—Cloves grow in the Spice Islands, the Malay Peninsula, Sumatra, the West Indies, and Mascarene Islands.

Imports of cloves during 1909–1913, while cloves were on the free list, averaged per annum 4,463,043 pounds, valued at \$516,830. Ground cloves have not been imported appreciably since they were made dutiable.

Imports of clove stems were 293,316 pounds in 1909 and 32,830 pounds in 1913, then on the free list. Imports in 1914, when dutiable, were only 243 pounds, but reached 57,160 pounds in 1916. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|-------------------------------|----------------|-------------|----------|------------------------|
| CLOVES, UNGROUND. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 4,964,593 | \$1,341,137 | \$99,292 | 7.40 |
| 1919..... | 5,473,269 | 1,376,211 | 100,465 | 7.96 |
| 1920..... | 5,648,930 | 2,004,925 | 112,979 | 5.64 |
| 1921 (9 months)..... | 3,482,194 | 625,369 | | |
| CLOVES, GROUND. | | | | |
| 1918..... | 5 | \$2 | | 25.00 |
| 1919..... | 5 | 2 | | 25.00 |
| 1920..... | 26 | 6 | \$3 | 28.67 |
| CLOVE STEMS, UNGROUND. | | | | |
| 1918..... | 33,132 | \$4,276 | \$831 | 7.75 |
| 1920..... | 3,739,968 | 410,011 | 37,400 | 8.12 |
| 1921 (9 months)..... | 79,958 | 8,148 | | |
| CLOVE STEMS, GROUND. | | | | |
| 1918..... | 2,160 | \$327 | \$87 | 26.61 |
| 1919..... | 100 | 11 | 8 | 28.00 |
| 1920..... | 3 | 2 | | 21.60 |

In 1920 the imports of cloves, unground, from England were 50 per cent of the total and from British East Africa 35 per cent.

Exports are not separately shown.

GINGER.

Description and uses.—Ginger is the washed and dried, or decorticated and dried, rhizome of *Zingiber officinale*. The ginger grown in Jamaica has particular qualities of excellence and is sold as "Jamaica ginger."

Production.—The plant is an herbaceous perennial, cultivable more widely than most spices—in the Himalaya Mountains of India to an altitude of 4,000 to 5,000 feet, in the Canton (China) region, in the Malay Peninsula, in northern Australia, in West Africa, the West Indies, and Central America. A high grade, equaling the Jamaica product, is being experimentally produced in Florida.

Imports of ground and unground root totaled 7,856,401 pounds, valued at \$406,197 in 1913. On the ground root a tariff of 1 cent per pound plus 20 per cent is laid and the maximum import has remained below 6,000 pounds except in 1917, when it reached 361,050 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|------------------------------|----------------|-----------|----------|------------------------|
| UNGROUND GINGER ROOT. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 4,627,135 | \$392,092 | \$46,271 | 11.80 |
| 1919..... | 4,979,923 | 570,856 | 49,799 | 8.72 |
| 1920..... | 7,103,115 | 1,021,763 | 71,031 | 6.93 |
| 1921 (9 months)..... | 3,894,109 | 375,752 | | |

| GROUND GINGER ROOT. | | | | |
|----------------------------|-------|-------|-------|-------|
| 1918..... | 5,425 | \$328 | \$120 | 36.54 |
| 1919..... | 310 | 36 | 10 | 28.61 |
| 1920..... | 3,552 | 820 | 200 | 24.33 |
| 1921 (9 months)..... | 1,723 | 265 | | |

The bulk of the imports of ginger root unground comes from England (41 per cent), British India (15 per cent), British West Africa (16 per cent).

MACE (NOT WILD).

Description and uses.—Mace, the dried arillus of *Myristica fragrans*, is used as a spice.

Production.—(See "Nutmegs," p. 820.)

Imports were 611,005 pounds, valued at \$244,117, in 1913. With a duty of 8 cents per pound on unground mace the 1914 importation fell to 287,926 pounds, valued at \$113,162. Imports of ground mace are insignificant. Imports of mace, unground, since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 308,377 | \$98,418 | \$24,670 | 25.07 |
| 1919..... | 534,391 | 171,507 | 42,911 | 25.02 |
| 1920..... | 528,724 | 171,791 | 42,296 | 24.62 |
| 1921 (9 months)..... | 439,349 | 92,425 | | |

WILD MACE.

Description, uses, and production.—Bombay or wild mace is the arillus of the fruit of *Myristica malabarica*. The seed is oblong, tawny, and hairy, longer than the true nutmeg, and as broad. The shell is black and wrinkled longitudinally, and the kernel yields a red oily juice. The seeds are valued only for the oil or as an adulterant for true nutmeg. The arillus is used for adulterating mace.

Imports since 1913, when a tariff of 18 cents per pound was assessed on the unground article, have been insignificant. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------------|----------------|--------|--------|------------------------|
| UNGROUND WILD MACE. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,573 | \$580 | \$283 | 48.82 |
| 1920..... | 4,839 | 595 | 871 | 146.39 |
| 1921 (9 months)..... | 373 | 51 | | |
| GROUND WILD MACE. | | | | |
| 1920..... | 20 | \$4 | \$4.40 | 110.00 |
| 1921 (9 months)..... | 18,358 | 4,697 | | |

MUSTARD SEED.

Description and uses.—Mustard seed is ground into powder to make the common table mustard. It is used also for seeding.

Production.—Mustard grows wild in middle and southern Europe and western United States, where it is also cultivated. In 1909 the seed production of California was 3,168,270 pounds.

Imports in 1914 were 11,543,941 pounds, valued at \$370,964. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-----------|------------------|
| Quantity (pounds)..... | 9,768,081 | 14,226,213 | 9,063,335 | 4,916,195 |
| Value..... | \$596,157 | \$1,269,931 | \$652,064 | \$192,337 |

Thirty-two per cent of the imports come from Japan, 31 per cent from England, and 11 per cent from Denmark.

Important changes in classification.—Mustard seeds are transferred from the free list of the act of 1913 (par. 595).

GROUND MUSTARD.

Description and uses.—Black and white mustard produce seeds which are ground into powder to make the common table mustard. The two varieties when mixed make the best product. Mustard has medicinal qualities, as a rubefacient. The white plants are used for salads and the curled for greens.

Production.—Data for ground or prepared mustard are lacking.

Imports in 1913 were 1,433,118 pounds, valued at \$383,710, with revenue of \$143,311. Later imports of mustard, ground or prepared in bottles or otherwise, are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 880,527 | \$362,494 | \$59,832 | 14.57 |
| 1919..... | 1,500,358 | 797,118 | 90,021 | 11.29 |
| 1920..... | 1,566,258 | 776,400 | 98,975 | 12.10 |
| 1921 (9 months)..... | 712,317 | 384,449 | | |

Ninety-seven per cent of the above imports come from England. *Important changes in classification.*—Mustard seed is transferred from the free list of the act of 1913 (par. 595.).

NUTMEGS.

Description and uses.—Nutmeg is the dried seed of *Myristica fragrans*. The tree is somewhat bushy, growing to a height of 30 or 40 feet. The fruit, the nutmeg of commerce, is used as a spice.

Production.—It is a native of the eastern Moluccas (known as the Spice Islands), Banda, Amboina, Gilolo, and western New Guinea, and is cultivated in the Malay Peninsula, Zanzibar, and the West Indies.

Imports were 3,458,339 pounds in 1913 and 4,201,872 pounds, valued at \$661,012, with revenue of \$42,018 in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

NUTMEG, UNGROUND.

| | | | | |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 8,570,099 | \$604,677 | \$35,701 | 5.90 |
| 1919..... | 3,519,529 | 603,939 | 35,195 | 5.83 |
| 1920..... | 4,041,188 | 791,051 | 40,411 | 5.11 |
| 1921 (9 months)..... | 2,174,279 | 259,992 | | |

NUTMEG, GROUND.

| | | | | |
|----------------------|--------|-------|-------|-------|
| 1919..... | 1,000 | \$274 | \$65 | 23.65 |
| 1920..... | 83,620 | 7,151 | 1,766 | 24.70 |
| 1921 (9 months)..... | 10,066 | 661 | | |

The bulk of the imports of nutmegs, unground, comes from the Dutch East Indies (39 per cent), Netherlands, and the British West Indies."

CAYENNE PEPPER.

Description and uses.—Cayenne (or red) pepper is the dried ripe fruit of some species of capsicum. Cayenne is a hot, pungent, red pepper, while paprika is mild.

Production.—The cayenne peppers are cultivated extensively in the East Indies, Zanzibar, Japan, Africa, Mexico, and continental United States. War conditions stimulated cultivation of red pepper in the United States, especially in southern California.

Imports averaged about 5,000,000 pounds from 1909 to 1913. Imports in 1914 were 6,522,463 pounds of unground and 1,322,308 pounds of ground, totaling nearly 8,000,000 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

UNGROUND CAYENNE PEPPER.

| | Pounds. | | | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | 2,543,792 | \$307,073 | \$25,438 | 8.25 |
| 1919..... | 1,746,735 | 194,399 | 17,467 | 8.99 |
| 1920..... | 2,950,462 | 467,792 | 29,506 | 6.31 |
| 1921 (9 months)..... | 1,764,568 | 221,393 | | |

GROUND CAYENNE PEPPER.

| | | | | |
|----------------------|-----------|-----------|-----------|-------|
| 1918..... | 2,256,676 | \$504,324 | \$123,432 | 24.47 |
| 1919..... | 1,882,603 | 593,040 | 137,494 | 23.17 |
| 1920..... | 2,422,888 | 985,530 | 221,335 | 22.46 |
| 1921 (9 months)..... | 2,105,460 | 370,736 | | |

Of the unground pepper the largest proportion comes from the Dutch and British East Indies. Spain ships most of the ground article.

PAPRIKA.

Description and uses.—“Paprika,” or “sweet pepper,” is sometimes mistaken for “red pepper.” Paprika, such as “Hungarian paprika,” has a peculiar mild pungency and flavor. “Spanish paprika” is also known in the trade.

Production.—Paprika is cultivated in Hungary, Spain, and China.

Imports.—Statistics of imports of paprika are included in “Cayenne (or red) pepper.”

Suggested changes.—Omit “pepper” before “capsicum” and substitute “paprika,” transferring “and” from in front of paprika to follow “paprika,” making this provision read:

Paprika and capsicum or red pepper or cayenne pepper, unground.

BLACK PEPPER.

Description and uses.—Black pepper is the dried immature berry and white pepper the dried mature berry of *Piper nigrum*. In making white pepper the “pepper shells,” are obtained as a by-product. The shells have been used as an adulterant of black pepper.

Production.—The pepper plant is strictly tropical, being successfully cultivated only between latitudes 20° N. and 20° S., in the Spice Islands, Borneo, Ceylon, Sumatra, tropical Africa, Zanzibar, the Malay Peninsula, Java, India, Cochin-China, and southern China. It requires a heavy rainfall.

Imports of unground and ground black or white pepper in 1913, while on the free list, were 27,568,317 pounds, valued at \$2,855,183. In 1914, under a duty, they were 21,959,367 pounds, valued at

\$2,197,945, with revenue of \$181,133. Ground pepper imports in 1917 were negligible—187,182 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

UNGROUND BLACK PEPPER.

| | Pounds. | | | Per cent. |
|----------------------|------------|-------------|-----------|-----------|
| 1918..... | 31,570,899 | \$5,000,181 | \$915,709 | 6.32 |
| 1919..... | 20,312,641 | 3,289,678 | 208,126 | 6.21 |
| 1920..... | 22,687,289 | 3,842,710 | 226,872 | 5.90 |
| 1921 (9 months)..... | 28,740,391 | 2,028,765 | | |

GROUND BLACK PEPPER.

| | | | | |
|----------------------|---------|---------|---------|-------|
| 1918..... | 33,082 | \$7,524 | \$1,836 | 24.40 |
| 1919..... | 12,578 | 5,188 | 1,162 | 22.43 |
| 1920..... | 182,039 | 44,969 | 10,812 | 24.05 |
| 1921 (9 months)..... | 9,840 | 1,355 | | |

The sources of imports of pepper, black or white, unground, are as follows: Dutch East Indies 40 per cent, England 26 per cent, British Straits Settlements 14 per cent, Netherlands 13 per cent.

PIMENTO (ALLSPICE).

Description and uses.—Pimento or allspice is the dried, nearly ripe fruit of *Pimenta officinalis*. The fruit is a white or purple one-seeded drupe about the size of a pea. When ripe it has a sweet pulp which has lost much of its aromatic property, and so it is gathered immature. It is used as a spice and to distill aromatic oil of pimento.

Production.—The tree is native to the West Indies, growing in calcareous soil on the islands of Cuba, Haiti, Trinidad, the small islands of the Caribbean Sea, and in Mexico, Costa Rica, and Venezuela, but is most abundant in Jamaica.

Imports of unground pimento for 1909–1913 averaged 6,148,742 pounds, valued at \$210,158. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

UNGROUND PIMENTO.

| | Pound. | | | Per cent. |
|----------------------|-----------|-----------|----------|-----------|
| 1918..... | 3,587,125 | \$184,028 | \$26,678 | 16.28 |
| 1919..... | 2,211,648 | 180,059 | 16,587 | 10.36 |
| 1920..... | 3,621,016 | 275,108 | 37,158 | 9.87 |
| 1921 (9 months)..... | 2,289,159 | 97,117 | | |

GROUND PIMENTO.

| | | | | |
|----------------------|--------|---------|---------|-------|
| 1918..... | 82,034 | \$4,287 | \$1,473 | 34.52 |
| 1919..... | 28,656 | 8,799 | 937 | 24.67 |
| 1920..... | 42,813 | 5,376 | 1,806 | 25.97 |
| 1921 (9 months)..... | 7,821 | 2,282 | | |

PIMIENTOS.

Description and uses.—Pimientos are sweet peppers, picked when ripe. They are usually packed in oil in small cans for use in salads, fancy dressings, and condiments.

Production.—Until recently canned pimientos used in this country were almost entirely of foreign origin. In more recent years some of the South Atlantic States have begun to grow pimientos for canning purposes.

Imports.—Imports are included in "all other canned or preserved vegetables."

SAGE.

Description and uses.—Sage, the dried leaf of *Salvia officinalis*, is used as a spice, particularly in flavoring sausages.

Production.—The plant is cultivated in the Temperate Zone, the spice quality becoming inferior in the warmer regions. Our home-grown sage is superior to the Austro-Hungarian article imported before the war and much of the Italian and Greek product imported recently. Domestic production of dried sage is estimated at 30,000 to 40,000 pounds.

Imports of unground sage averaged 1,363,199 pounds, valued at \$23,268, during 1909–1913. Imports of ground sage are insignificant. Later imports of unground sage are shown as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|---------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,291,547 | \$171,686 | \$6,458 | 3.76 |
| 1919..... | 980,390 | 142,669 | 4,902 | 3.44 |
| 1920..... | 2,275,005 | 194,580 | 11,375 | 5.85 |
| 1921 (9 months)..... | 828,237 | 50,738 | | |

TURMERIC ROOT.

Description and uses.—Turmeric root is a vegetable product native to India and cultivated largely in tropical climates. It is sold in the form of a dry powder, and used principally in coloring mustard; it is also employed as a dye in foods and pharmaceutical preparations. This root has a peculiar odor and a warm, bitterish, slightly aromatic taste. In the East it is employed as an ingredient of curry powders. The coloring principle of turmeric is called curcumin.

Production.—In the preparation of turmeric, the root is cleaned, boiled, dried, and the outer skin removed. It comes chiefly from India and China, and is not produced in this country.

Import values of turmeric for the period 1910–1918 averaged \$51,423. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|------------------|
| Quantity (pounds)..... | | 1,230,229 | 1,215,057 | 463,352 |
| Value..... | \$11,278 | \$68,852 | \$66,141 | \$15,859 |

Important changes in classification.—Turmeric is transferred from the free list of the act of 1913 (par. 634).

HOARHOUND SEED.

Description and uses.—Hoarhound (or horehound) belongs to the mint family. The seed is used only for flavoring.

Production.—Hoarhound is native to southern and eastern Europe. The white variety grows in America, but no record of seed production can be found. Dealers usually handle the imported seed.

Imports of hoarhound are included under "spice seeds n. s. p. f.," below.

ALL OTHER SPICES AND SPICE SEEDS, N. S. P. F., INCLUDING HERBS OR HERB LEAVES.

Imports under this head are unimportant, the average annual value from 1909 to 1913 being only \$6,823. After the duty was changed from 3 cents a pound to 20 per centum ad valorem, the average value per annum of imports from 1914 to 1918 (fiscal years) was \$6,460. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|---------|-------|
| | <i>Pounds.</i> | | |
| 1918..... | 89,063 | \$1,813 | |
| 1919..... | 27,945 | 2,307 | |
| 1920..... | 22,538 | 1,872 | |
| 1921 (9 months)..... | 6,419 | | |

The principal sources of imports are Jamaica, 30 per cent; British East Africa, 18 per cent; England, 13 per cent.

Exports have in recent calendar years been as follows: 1918, \$480,508; 1919, \$588,462; 1920, \$516,171; 1921 (nine months), \$150,982.

The bulk of the exports are as follows: To Canada 30 per cent, to Mexico 15 per cent, to Cuba 6 per cent.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The several provisions for spices and seeds chiefly used as spices have been combined and alphabetically rearranged. Instead of the present specific duty upon unground spices, and combined specific and ad valorem rates upon ground spices, specific rates have been adopted throughout. Transfers from the free list of the act of 1913: Cardamom, coriander, cummin, fennel and mustard seed (par. 595); curry and curry powder (par. 471); and turmeric (par. 634). There are new provisions for paprika, mixed spices, and whole and canned pimientos. The importation of pepper shells is prohibited. These have no condimental value and are used for adulterating pepper. The detection of this adulteration involves an expenditure of time and expense on the part of food-control officials that is out of proportion to the importance of the trade. Allowance for dirt or other foreign matter is prohibited.

Suggested changes.—"Aniseed" is the preferred spelling for "anise seed."

PARAGRAPH 781.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 781. Teazels, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 268. Teazels, thirty per centum ad valorem.

PAR. 214. Teazels, 15 per centum ad valorem.

TEASELS.

Description and uses.—The flower heads or teazels of the teasel plant are covered with stiff, hooked bracts, which, when dried, are used by woolen mills to raise a nap on woolen cloths. Teazels are arranged on a cylinder so that their recurved hooks catch the fibers of the wool, causing them to stand up and form a nap. While strong enough for the work, the teasel hooks are sufficiently elastic to prevent breaking the cloth. The plant is a biennial, in its second year a bush about 6 feet high. Its main stalk produces the strongest and largest or "king" teasel; the larger branches, the "queens" or "mediums"; and the smaller branches, "buttons" or the smallest teazels. "Kings" are used on blankets, "buttons" on broadcloths.

Production.—Onondaga County, N. Y., raises almost the entire domestic supply of teazels; they are grown to a small extent in Oregon. In 1909 only 162 acres were devoted to this crop (110 acres in New York), with a production of 78 tons and a farm value of \$13,760.

Imports of teazels, largely "kings," are almost exclusively from France, and range in value between \$15,000 and \$75,000. Southern France produces the most wiry hooks known, useful for deep-napped woolens. Imports since 1917 have been as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|---------------------|
| 1918..... | \$11,886 | \$1,783 | <i>Per cent.</i> 15 |
| 1919..... | 22,007 | 3,301 | 15 |
| 1920..... | 32,962 | 4,945 | 15 |
| 1921 (9 months)..... | 75,545 | | |

Exports are no longer separately reported.

SCHEDULE 8.—SPIRITS, WINES, AND OTHER BEVERAGES.

PARAGRAPH 801.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 801. Liqueurs, as defined in the National Prohibition Act, when imported in compliance with the provisions of that Act, shall be dutiable at the rates hereinafter provided in this title.

ACT OF 1909.

ACT OF 1918.

SCHEDULE H.—SPIRITS, WINES, AND OTHER BEVERAGES.

SCHEDULE H.—SPIRITS, WINES, AND OTHER BEVERAGES.

[No corresponding provision.]

[No corresponding provision.]

Suggested changes.—Page 99, line 23, of H. R. 7456: "Liqueurs" should be "liquors."

Page 100, line 1, of H. R. 7456: Insert after "Act," "or any subsequent act," so as to include any later law than the national prohibition act.

PARAGRAPH 802.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 802. Brandy and other spirits manufactured or distilled from grain or other materials, cordials, liqueurs, arrack, absinthe, kirschwasser, ratafia, and bitters of all kinds containing spirits, and compounds and preparations of which distilled spirits are the component part of chief value and not specially provided for, \$5 per proof gallon.

ACT OF 1909.

ACT OF 1918.

PAR. 300. Brandy and other spirits manufactured or distilled from grain or other materials, and not specially provided for in this section, two dollars and sixty cents per proof gallon.

PAR. 302. On all compounds or preparations of which distilled spirits are a component part of chief value there shall be levied a duty not less than that imposed upon distilled spirits.

PAR. 237. Brandy and other spirits manufactured or distilled from grain or other materials, and not specially provided for in this section, \$2.60 per proof gallon.¹

PAR. 239. On all compounds or preparations of which distilled spirits are a component part of chief value there shall be levied a duty not less than that imposed upon distilled spirits.

¹ Imported spirits are subject to the duty imposed by this paragraph as well as to the internal-revenue tax.

PAR. 303. Cordials, liqueurs, arrack, absinthe, kirschwasser, ratafia, and other spirituous beverages or bitters of all kinds, containing spirits, and not specially provided for in this section, two dollars and sixty cents per proof gallon.

240. Cordials, liqueurs, arrack, absinthe, kirschwasser, ratafia, and other spirituous beverages or bitters of all kinds, containing spirits, and not specially provided for in this section, \$2.00 per proof gallon.

DISTILLED SPIRITS.

Imports under this paragraph since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|--|-----------------------|-----------|-----------|
| BRANDY. | | | |
| | <i>Proof gallons.</i> | | |
| 1918..... | 102,285 | \$447,538 | \$330,219 |
| 1919..... | 65,985 | 308,280 | 171,117 |
| 1920..... | 28,462 | 168,923 | 73,941 |
| 1921 (9 months)..... | 14,309 | 62,272 | ..... |
| GIN. | | | |
| 1918..... | 28,604 | \$59,984 | \$97,619 |
| 1919..... | 1,471 | 3,115 | 3,847 |
| 1920..... | 7,021 | 17,854 | 18,255 |
| 1921 (9 months)..... | 12,694 | 39,121 | ..... |
| RUM. | | | |
| 1918..... | 29,622 | \$31,670 | \$39,828 |
| 1919..... | 33,660 | 29,639 | 59,148 |
| 1920..... | 56,446 | 25,637 | 146,416 |
| 1921 (9 months)..... | 331 | 445 | ..... |
| CORDIALS LIQUEURS, ARRACK, ABSINTHE, KIRSHWASSER, RATAFIA, AND OTHER SPIRITUOUS BEVERAGES OR BITTERS. | | | |
| 1918..... | 28,908 | \$68,036 | \$95,123 |
| 1919..... | 12,820 | 40,790 | 33,332 |
| 1920..... | 49,915 | 196,325 | 129,779 |
| 1921 (9 months)..... | 99,189 | 274,706 | ..... |
| COMPOUNDS OR PREPARATIONS OF WHICH DISTILLED SPIRITS ARE A COMPONENT PART OF CHIEF VALUE, N. S. P. F. | | | |
| 1919..... | 6 | \$4 | \$16 |
| 1920..... | 216 | 827 | 562 |
| WHISKY. | | | |
| 1918..... | 243,121 | \$880,550 | \$876,301 |
| 1919..... | 136,765 | 437,216 | 360,360 |
| 1920..... | 118,632 | 754,929 | 308,443 |
| 1921 (9 months)..... | 137,364 | 625,063 | ..... |
| SPIRITS, MANUFACTURED OR DISTILLED, N. S. P. F., FROM GRAIN. | | | |
| 1918..... | 16,048 | \$27,493 | \$38,618 |
| SPIRITS, MANUFACTURED OR DISTILLED, N. S. P. F., FROM OTHER MATERIALS (EXCEPT GRAIN). | | | |
| 1918..... | 35,535 | \$63,792 | \$120,456 |
| 1919..... | 9 | 15 | 23 |
| 1920..... | 2,037 | 7,839 | 5,296 |
| 1921 (9 months)..... | 452 | 895 | ..... |

Exports since 1918 by calendar years are shown in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------------------|-----------|-------------|-------------|--------------------|
| WHISKY—BOURBON. | | | | |
| Quantity (proof gallons)..... | 57,454 | 247,553 | 1,196,169 | 119,125 |
| Value..... | \$160,265 | \$7,101,563 | \$2,746,644 | \$465,171 |
| WHISKY—RYE. | | | | |
| Quantity (proof gallons)..... | 72,910 | 842,942 | 2,119,692 | 32,892 |
| Value..... | \$240,300 | \$1,660,816 | \$5,374,121 | \$193,083 |
| RUM. | | | | |
| Quantity (proof gallons)..... | 184,635 | 120,519 | 96,943 | 32,657 |
| Value..... | \$191,197 | \$179,769 | \$90,688 | \$18,100 |
| ALL OTHER DISTILLED SPIRITS. | | | | |
| Quantity (proof gallons)..... | 126,322 | 247,238 | 902,108 | 8,987 |
| Value..... | \$452,034 | \$699,549 | \$1,364,944 | \$65,447 |

Important changes in classification.—Paragraphs 237, 239, and 240, act of 1913, have been combined in this paragraph.

PARAGRAPH 803.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 803. Champagne and all other sparkling wines, \$6 per proof gallon.

ACT OF 1909.

ACT OF 1913.

PAR. 306. Champagne and all other sparkling wines, in bottles containing each not more than one quart and more than one pint, nine dollars and sixty cents per dozen; containing not more than one pint each and more than one-half pint, four dollars and eighty cents per dozen; containing one-half pint each or less, two dollars and forty cents per dozen; in bottles or other vessels containing more than one quart each, in addition to nine dollars and sixty cents per dozen bottles, on the quantity in excess of one quart, at the rate of three dollars per gallon; but no separate or additional duty shall be levied on the bottles.

PAR. 243. Champagne and all other sparkling wines, in bottles containing each not more than one quart and more than one pint, \$9.60 per dozen; containing not more than one pint each and more than one-half pint, \$4.80 per dozen; containing one-half pint each or less, \$2.40 per dozen; in bottles or other vessels containing more than one quart each, in addition to \$9.60 per dozen bottles, on the quantity in excess of one quart, at the rate of \$3 per gallon; but no separate or additional duty shall be levied on the bottles.

SPARKLING WINES.

Imports of wines containing not more than 24 per cent of alcohol—champagne and all other sparkling, in bottles—since 1917 are shown in the following table:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|----------------|---------|---------|------------------------|
| CONTAINING ONE-HALF PINT OR LESS. | | | | |
| | <i>Dozens.</i> | | | <i>Per cent.</i> |
| 1918..... | 864 | \$4,545 | \$2,074 | 45.62 |
| 1919..... | 20 | 145 | 48 | 33.10 |
| 1920..... | 16 | 106 | | |
| 1921 (9 months)..... | | | | |

CONTAINING MORE THAN ONE-HALF AND NOT MORE THAN ONE PINT.

| | | | | |
|----------------------|--------|-----------|-----------|-------|
| 1918..... | 43,739 | \$404,530 | \$209,947 | 51.90 |
| 1919..... | 5,824 | 65,581 | 27,955 | 42.63 |
| 1920..... | 9,152 | 88,663 | 43,930 | 49.55 |
| 1921 (9 months)..... | 9,017 | 100,479 | | |

CONTAINING MORE THAN ONE PINT AND NOT MORE THAN ONE QUART.

| | | | | |
|----------------------|--------|-------------|-----------|-------|
| 1918..... | 68,147 | \$1,212,178 | \$654,211 | 53.97 |
| 1919..... | 12,888 | 276,463 | 124,688 | 45.09 |
| 1920..... | 18,653 | 330,357 | 159,899 | 48.39 |
| 1921 (9 months)..... | 16,107 | 346,286 | | |

Imports of champagne and other sparkling wines—quantity in bottles or vessels in excess of 1 quart per bottle or vessel—were 308 gallons in 1918, since when no imports have been recorded.

Exports of all wines for the calendar years 1918–1921 are shown below:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|-------------|---------------------|
| Quantity (gallons)..... | 3,225,048 | 4,926,425 | 4,573,587 | 15,474 |
| Value..... | \$2,040,815 | \$4,764,765 | \$3,279,341 | \$27,714 |

Important changes in classification.—The duty has been put entirely on the gallon basis, instead of on the basis of one dozen bottles with a gallon basis for quantities in excess of one quart (par. 243, act of 1913); and the provision excepting the bottles from a separate duty has been dropped (they would be dutiable at one-third the regular rates under par. 809).

PARAGRAPH 804.

H. R. 7456.

SENATE AMENDMENTS.

PAB. 804. Still wines, including ginger wine or ginger cordial, vermouth, and rice wine or sake, and similar beverages not specially provided for, \$1.25 per gallon: *Provided*, That any of the

H. R. 7456.

SENATE AMENDMENTS.

foregoing articles specified in this paragraph when imported containing more than 24 per centum of alcohol shall be classed as spirits and pay duty accordingly.

ACT OF 1909.

ACT OF 1913.

PAR. 307. Still wines, including ginger wine or ginger cordial, vermouth, and rice wine or sake, and similar beverages not specially provided for in this section, in casks or packages other than bottles or jugs, if containing fourteen per centum or less of absolute alcohol, forty-five cents per gallon; if containing more than fourteen per centum of absolute alcohol, sixty cents per gallon. In bottles or jugs, per case of one dozen bottles or jugs, containing each not more than one quart and more than one pint, or twenty-four bottles or jugs containing each not more than one pint, one dollar and eighty-five cents per case; and any excess beyond these quantities found in such bottles or jugs shall be subject to a duty of six cents per pint or fractional part thereof, but no separate or additional duty shall be assessed on the bottles or jugs: *Provided*, That any wines, ginger cordial, or vermouth imported containing more than twenty-four per centum of alcohol shall be classed as spirits and pay duty accordingly: * * *

PAR. 244. Still wines, including ginger wine or ginger cordial, vermouth, and rice wine or sake, and similar beverages not specially provided for in this section, in casks or packages other than bottles or jugs, if containing 14 per centum or less of absolute alcohol, 45 cents per gallon; if containing more than 14 per centum of absolute alcohol, 60 cents per gallon. In bottles or jugs, per case of one dozen bottles or jugs, containing each not more than one quart and more than one pint, or twenty-four bottles or jugs containing each not more than one pint, \$1.85 per case; and any excess beyond these quantities found in such bottles or jugs shall be subject to a duty of 6 cents per pint or fractional part thereof, but no separate or additional duty shall be assessed on the bottles or jugs: *Provided*, That any wines, ginger cordial, or vermouth imported containing more than 24 per centum of alcohol shall be classed as spirits and pay duty accordingly: * * *

STILL WINES.

Imports of all still wines containing not more than 24 per cent of alcohol have been as follows since 1917:

| Calendar year. | Value. | Duty. | Equivalent ad valorem. |
|-----------------|-------------|-------------|------------------------|
| 1918 | \$4,794,324 | \$2,305,396 | 48.1 |
| 1919 | 1,276,793 | 532,462 | 41.7 |
| 1920 | 399,926 | 411,462 | 41.1 |
| 1921 (9 months) | 962,086 | | |

Important changes in classification.—The duty has been put entirely on the gallon basis instead of partly per gallon and partly per case with a pint basis for excess quantities (par. 244, act of 1913) and the provision excepting the bottles and jugs from a separate duty has been dropped (they would be dutiable at one-third the regular rates under par. 809). The provision requiring wines, cordials, brandy, etc., to be packed in packages containing not less than one dozen bottles or jugs, or be assessed as if the package contained at least one dozen has been eliminated; also the specific provision for regulations determining the percentage of alcohol in wines and fruit juices.

PARAGRAPH 805.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 805. Ale, porter, stout, beer, and fluid malt extract, \$1 per gallon; malt extract, solid or condensed, 60 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 308. Ale, porter, stout, and beer, in bottles or jugs, forty-five cents per gallon, but no separate or additional duty shall be assessed on the bottles or jugs; otherwise than in bottles or jugs, twenty-three cents per gallon.

PAR. 245. Ale, porter, stout, and beer, in bottles or jugs, 45 cents per gallon, but no separate or additional duty shall be assessed on the bottles or jugs; otherwise than in bottles or jugs, 29 cents per gallon.

PAR. 309. Malt extract, fluid, in casks, twenty-three cents per gallon; in bottles or jugs, forty-five cents per gallon; solid or condensed, forty-five per centum ad valorem.

PAR. 246. Malt extract, fluid, in casks 23 cents per gallon; in bottles or jugs, 45 cents per gallon; solid or condensed, 45 per centum ad valorem.

MALT LIQUORS.

Imports of malt liquors since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------|-----------------|-----------|-----------|
| | <i>Gallons.</i> | | |
| 1918..... | 381,091 | \$388,506 | \$126,877 |
| 1919..... | 11,998 | 10,493 | 3,894 |
| 1920..... | 8 | 8 | 4 |

Exports of malt liquors since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|------|------|------|---------------------|
|--|------|------|------|---------------------|

IN BOTTLES.

| | | | | |
|------------------------------|-------------|-------------|-----------|---------|
| Quantity (dozen quarts)..... | 1,077,593 | 1,006,927 | 371,812 | 3,700 |
| Value..... | \$2,075,767 | \$2,179,809 | \$747,550 | \$8,937 |

IN OTHER COVERINGS.

| | | | | |
|-------------------------|----------|----------|---------|---------|
| Quantity (gallons)..... | 97,160 | 26,638 | 11,388 | 1,425 |
| Value..... | \$36,479 | \$16,474 | \$7,390 | \$1,459 |

Important changes in classification.—One rate has been provided for ale, porter, stout, beer, and fluid malt extract, regardless of the character of the containers, and the provision excepting from separate duty bottles and jugs containing ale, porter, stout, and beer has been dropped. (They would be dutiable at one-third the regular rates under par. 809.) The articles contained in this paragraph were covered by two paragraphs in the act of 1909 (308 and 309) and in the act of 1913 (245 and 246).

MALT EXTRACT.

Description and uses.—Two distinct articles are known as malt extract. One is a strong, heavy beer, used both as a beverage and as a tonic; the other, a viscous, semisolid substance, containing about 45 per cent solid matter and less than 2 per cent alcohol, used medicinally and as an emulsifying agent. A form of the latter, easily convertible into beer by the addition of yeast, sugar, and water, has recently appeared on the market.

Imports of fluid malt extract were valued at \$12,187 in 1914 and of solid and condensed malt extract at \$767. Nearly all came from the United Kingdom. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--------------------------|-----------------|--------|---------|------------------------|
| FLUID IN BOTTLES. | | | | |
| | <i>Gallons.</i> | | | <i>Per cent.</i> |
| 1918..... | 2 | \$1 | | 90.00 |
| 1919..... | 1 | 4 | | 11.25 |
| 1920..... | 3,243 | 3,204 | \$1,450 | 45.55 |
| 1921 (9 months)..... | 1,227 | 2,030 | | |

| FLUID IN CASKS. | | | | |
|-------------------------|-------|---------|-------|-------|
| 1920 ¹ | 1,678 | \$2,723 | \$386 | 14.17 |
| 1921 (9 months)..... | 240 | 350 | | |

¹ No imports of fluid malt extract in casks in 1918 and 1919.

| SOLID OR CONDENSED. | | | | |
|----------------------------|----------------|------|------|-------|
| | <i>Pounds.</i> | | | |
| 1918..... | | \$44 | \$30 | |
| 1920..... | 56 | 15 | 7 | 45.00 |
| 1921 (9 months)..... | 1,507 | 340 | | |

PARAGRAPH 806.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 806. Cherry juice, prune juice, or prune wine, and all other fruit juices and fruit sirups, not specially provided for, containing less than one-half of 1 per centum of alcohol, 70 cents per gallon; containing one-half of 1 per centum or more of alcohol, 70 cents per gallon and in addition thereto \$5 per proof gallon on the alcohol contained therein.

ACT OF 1909.

PAR. 810. Cherry juice and prune juice, or prune wine, and other fruit juices, and fruit sirup, not specially provided for in this section, containing no alcohol or not more than eighteen per centum of alcohol, seventy cents per gallon; if containing more than eighteen per centum of alcohol, seventy cents per gallon and in addition thereto two dollars and seven cents per proof gallon on the alcohol contained therein.

ACT OF 1913.

PAR. 247. Cherry juice and prune juice, or prune wine, and other fruit juices, and fruit sirup, not specially provided for in this section, containing no alcohol or not more than 18 per centum of alcohol, 70 cents per gallon; if containing more than 18 per centum of alcohol, 70 cents per gallon and in addition thereto \$2.07 per proof gallon on the alcohol contained therein.

CHERRY JUICE, PRUNE JUICE, ETC.

Description and uses.—Cherry juice and other fruit juices are obtained by pressing or crushing the fresh fruit; the sirups are made by mixing sugar with the fruit. Nonalcoholic juices or combinations of them, and especially grape juice, are widely used as beverages, fruit sirups and crushed fruits in flavoring soda water and other "soft drinks" and confections. Fortified fruit juices, made by the addition of from 15 to 17 per cent of alcohol to prevent fermentation, are utilized entirely in making cordials and other alcoholic beverages. Prune juice, similarly made, is used in blending whisky and flavoring chewing tobacco.

Production of nonalcoholic fruit juices and sirups is extensive, the domestic output being wholly consumed here. Juices made abroad are usually fortified. In 1916 the output of grape juice was 6,000,000 gallons, made principally in New York and Ohio. California contributed only 150,000 gallons, the European grapes grown in that State not being adapted to this purpose. Some competition in cherry, blackberry, raspberry, and other fruit juices may be expected from France, Germany, and Austria—where methods of manufacture and handling are highly developed—when a satisfactory substitute is provided for the alcohol used to prevent fermentation.

Imports of cherry and other fruit juices and sirups in 1914 were 65,295 gallons, valued at \$56,795; of prune juice or wine, 23,932 gallons, valued at \$17,462. Prior to the war these alcoholic juices were derived chiefly from France, Germany, and Austria. Imports since 1917 of all fruit juices and sirups have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------|-----------|---------|---------|
| | Gallons. | | |
| 1918..... | 3,165 | \$7,478 | \$2,226 |
| 1919..... | 4,850 | 8,938 | 1,134 |
| 1920..... | 22,747 | 44,744 | 3,065 |

Important changes in classification.—The dividing line as to alcoholic content has been changed from 18 per cent to one-half of 1 per cent.

PARAGRAPH 807.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 807. Ginger ale, ginger beer, lemonade, soda water, and similar beverages containing no alcohol, and beverages containing less than one-half of 1 per centum of alcohol, not specially provided for, 15 cents per gallon.

ACT OF 1909.

ACT OF 1913.

PAR. 311. Ginger ale, ginger beer, lemonade, soda water, and other similar beverages containing no alcohol, in plain green or colored, molded or

PAR. 248. Ginger ale, ginger beer, lemonade, soda water, and other similar beverages containing no alcohol, in plain green or colored, molded or

ACT OF 1909.

ACT OF 1913.

pressed, glass bottles, containing each not more than three-fourths of a pint, eighteen cents per dozen; containing more than three-fourths of a pint each and not more than one and one-half pints, twenty-eight cents per dozen; but no separate or additional duty shall be assessed on the bottles; if imported otherwise than in plain green or colored, molded or pressed, glass bottles, or in such bottles containing more than one and one-half pints each, fifty cents per gallon, and in addition thereto duty shall be collected on the bottles, or other coverings, at the rates which would be chargeable thereon if imported empty. Beverages not specially provided for containing not more than two per centum of alcohol shall be assessed for duty under this paragraph.

pressed, glass bottles, containing each not more than one-half pint, 12 cents per dozen; containing each more than one-half pint and not more than three-fourths of a pint, 18 cents per dozen; containing more than three-fourths of a pint each and not more than one and one-half pints, 28 cents per dozen; but no separate or additional duty shall be assessed on the bottles; if imported otherwise than in plain green or colored, molded or pressed, glass bottles, or in such bottles containing more than one and one-half pints each, 50 cents per gallon, and in addition thereto duty shall be collected on the bottles, or other coverings, at the rates which would be chargeable thereon if imported empty. Beverages not specially provided for containing not more than 2 per centum of alcohol shall be assessed for duty under this paragraph.

SOFT DRINKS.

Description and uses.—Ginger ale or ginger beer is made by adding a small quantity of ginger or capsicum extract and sugar to water. For lemonade or lemon beer, citric acid or lemon juice is similarly used. Soda water, seltzer, and vichy are waters impregnated with carbonic acid gas. Other nonalcoholic or "soft" drinks, such as root beer, orangeade, sarsaparilla, fruit phosphates, cream soda, birch beer, juniper ale, pop, lemon soda, and various well-known proprietary drinks consist mainly of sweetened carbonated water with some flavoring matter. Near-beer, hop ale, and similar cereal beverages are also included.

Production of carbonated beverages and "soft" drinks in 1914 was valued at \$58,401,000, derived from 5,463 establishments capitalized at \$53,233,000, employing over 15,000 persons, paying wages of \$8,864,000, and using materials valued at \$26,779,000. In 1919 the output of 5,112 establishments was valued at \$130,673,000. These figures include artificial mineral waters and lime and grape juices. The industry is well established in every State—New York, Pennsylvania, Georgia, Illinois, Massachusetts, and Alabama leading in the order named.

Imports of ginger ale and ginger beer in 1914 were valued at \$374,515; lemonade, soda water, and similar beverages imported were valued at \$65,740. Later statistics follow:

| Calendar year. | Value. | Duty. |
|---|----------|---------|
| GINGER ALE AND GINGER BEER. | | |
| 1918..... | \$40,215 | \$3,819 |
| 1919..... | 53,436 | 6,637 |
| 1920..... | 87,528 | 11,927 |
| 1921 (9 months)..... | 95,862 | |
| LEMONADE, SODA WATER, AND SIMILAR BEVERAGES. | | |
| 1918..... | \$17,676 | \$2,308 |
| 1919..... | 33,895 | 5,172 |
| 1920..... | 28,318 | 3,958 |
| 1921 (9 months)..... | 20,646 | |

Exports of "other beverages," comprising cider, ginger ale, mineral water, and soda water, amounted to \$375,919 in 1914 and \$509,872 in 1918.

Important changes in classification.—The duty has been put entirely on the gallon basis instead of partly per dozen bottles and partly per gallon (par. 248, act of 1913). The alcoholic content of beverages not specially provided for has been changed from "not more than 2 per centum" to "less than one-half of 1 per centum." The provisions for duty or exemption from duty on bottles have been eliminated. The bottles would be dutiable at one-third the regular rates under paragraph 809.

PARAGRAPH 808.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 808. All mineral waters and all imitations of natural mineral waters, and all artificial mineral waters not specially provided for, 10 cents per gallon.

ACT OF 1909.

ACT OF 1913.

PAR. 312. All mineral waters and all imitations of natural mineral waters, and all artificial mineral waters not specially provided for in this section, in bottles or jugs containing not more than one pint, twenty cents per dozen bottles; if containing more than one pint and not more than one quart, thirty cents per dozen bottles; if imported in bottles or in jugs containing more than one quart, twenty-four cents per gallon; if imported otherwise than in bottles or jugs, eight cents per gallon; and in addition thereto, on all of the foregoing, duty shall be collected upon the bottles or other containers at one-third of the rates that would be charged thereon if imported empty or separately.

PAR. 249. All mineral waters and all imitations of natural mineral waters, and all artificial mineral waters not specially provided for in this section, in bottles or jugs containing not more than one-half pint, 10 cents per dozen bottles; if containing more than one-half pint and not more than one pint, 15 cents per dozen bottles; if containing more than one pint and not more than one quart, 20 cents per dozen bottles; if imported in bottles or in jugs containing more than one quart, 18 cents per gallon; if imported otherwise than in bottles or jugs, 8 cents per gallon; and in addition thereto, on all of the foregoing, duty shall be collected upon the bottles or other containers at one-third of the rates that would be charged thereon if imported empty or separately.

MINERAL WATERS.

Description.—Mineral water, bottled for table or medicinal use, is the commercial name of spring and well water having mineral contents possessing physiological properties.

Artificial mineral waters and imitations of natural mineral waters, made by adding sodium or magnesium sulphates, hydrogen sulphide, or other sulphureous or saline substances to water, are often of marked therapeutic value and widely used.

Production of mineral waters in 1916 was 55,928,491 gallons, valued at \$5,735,035, and obtained from 802 commercial springs in 47 States or Territories, chief among them Wisconsin (25 per cent of the total), New York (12 per cent), California (8.7 per cent), and Maine (6 per cent).

Imports of natural and artificial mineral waters were 3,364,676 gallons, valued at \$955,788 in 1913, and 1,172,440 gallons, valued at \$624,302 in 1916. Germany, France, and Austria were formerly the principal sources. Later statistics follow:

| Calendar year. | Value. | Duty. |
|----------------------|---------|---------|
| 1913..... | 924,788 | 839,567 |
| 1919..... | 116,948 | 16,742 |
| 1920..... | 208,901 | 42,485 |
| 1921 (9 months)..... | 116,877 | |

Exports.—Large quantities of a few domestic waters are exported, but statistics are not available.

Important changes in classification.—The duty has been put entirely on the gallon basis instead of partly per dozen bottles or jugs and partly per gallon (par. 249, act of 1913). The provision for duty at one-third the regular rates on bottles and other containers has been dropped from this paragraph. The bottles and jugs would be dutiable at one-third the regular rates under paragraph 809.

PARAGRAPH 809.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 809. When any article provided for in this title is imported in bottles or jugs, duty shall be collected upon the bottles or jugs at one-third the rate provided on the bottles or jugs if imported empty or separately.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

Important changes in classification.—This is a new general provision.

Suggested changes.—Page 101, line 10, of H. R. 7456: "Title" should be "schedule."

REVENUE ACT **PARAGRAPH 810.**

H. R. 7456.

SENATE AMENDMENTS.

PAB. 810. Each and every gauge or wine gallon of measurement shall be counted as at least 1 proof gallon; and the standard for determining the proof of brandy and other spirits or liquors of any kind when imported shall be the same as that which is defined in the laws relating to internal revenue. The Secretary of the Treasury, in his discretion, may authorize the ascertainment of the proof of wines, cordials, or other liquors and fruit juices by distillation or otherwise, in cases where it is impracticable to ascertain such proof by the means prescribed by existing law or regulations.

ACT OF 1909.

ACT OF 1913.

PAB. 801. Each and every gauge or wine gallon of measurement shall be counted as at least one proof gallon; and the standard for determining the proof of brandy and other spirits or liquors of any kind imported shall be the same as that which is defined in the laws relating to internal revenue; *Provided*, That it shall be lawful for the Secretary of the Treasury, in his discretion, to authorize the ascertainment of the proof of wines, cordials, or other liquors, by distillation or otherwise, in cases where it is impracticable to ascertain such proof by the means prescribed by existing law or regulations: * * *

PAB. 238. Each and every gauge or wine gallon of measurement shall be counted as at least one proof gallon; and the standard for determining the proof of brandy and other spirits or liquors of any kind imported shall be the same as that which is defined in the laws relating to internal revenue: *Provided*, That it shall be lawful for the Secretary of the Treasury, in his discretion, to authorize the ascertainment of the proof of wines, cordials, or other liquors, by distillation or otherwise, in cases where it is impracticable to ascertain such proof by the means prescribed by existing law or regulations: * * *

PARAGRAPH 811.

H. R. 7456.

SENATE AMENDMENTS.

PAB. 811. No lower rate or amount of duty shall be levied, collected, and paid on the articles enumerated in paragraph 802 of this title than that fixed by law for the description of first proof; but it shall be increased in proportion for any greater strength than the strength of first proof, and all imitations of brandy, spirits, or wines imported by any names whatever shall be subject to the highest rate of duty provided for the genuine articles respectively intended to be represented, and in no case less than \$5 per gallon: *Provided*, That any brandy or other spirituous or distilled liquors imported in any sized cask, bottle, jug, or other packages, of or from any country, dependency, or province under whose

H. R. 7456. SENATE AMENDMENTS.

laws similar sized casks, bottles, jugs, or other packages of distilled spirits, wine, or other beverage put up or filled in the United States are denied entrance into such country, dependency, or province, shall be forfeited to the United States.

ACT OF 1909.

PAR. 304. No lower rate or amount of duty shall be levied, collected, and paid on brandy, spirits, and other spirituous beverages than that fixed by law for the description of first proof; but it shall be increased in proportion for any greater strength than the strength of first proof, and all imitations of brandy or spirits or wines imported by any names whatever shall be subject to the highest rate of duty provided for the genuine articles respectively intended to be represented, and in no case less than one dollar and seventy-five cents per gallon.

PAR. 301. * * * *And provided further*, That any brandy or other spirituous or distilled liquors imported in any sized cask, bottle, jug, or other packages, of or from any country, dependency, or province under whose laws similar sized casks, bottles, jugs, or other packages of distilled spirits, wine, or other beverage put up or filled in the United States are denied entrance into such country, dependency, or province, shall be forfeited to the United States; and any brandy or other spirituous or distilled liquor imported in a cask of less capacity than ten gallons from any country shall be forfeited to the United States.

Important changes in classification.—This paragraph is made up of paragraph 241 and part of paragraph 238, act of 1913. The provision for the forfeiture of brandy and other spirituous or distilled liquor imported in a cask of less capacity than ten gallons has been eliminated.

Suggested changes.—Page 102, line 3, of H. R. 7456: Should not "title" be "schedule"?

Page 102, lines 9 and 10, of H. R. 7456: "Proof" should apparently be inserted between "per" and "gallon."

ACT OF 1913.

PAR. 241. No lower rate or amount of duty shall be levied, collected, and paid on brandy, spirits, and other spirituous beverages than that fixed by law for the description of first proof; but it shall be increased in proportion for any greater strength than the strength of first proof, and all imitations of brandy or spirits or wines imported by any names whatever shall be subject to the highest rate of duty provided for the genuine articles respectively intended to be represented; and in no case less than \$1.75 per gallon.

PAR. 238. * * * *And provided further*, That any brandy or other spirituous or distilled liquors imported in any sized cask, bottle, jug, or other packages, of or from any country, dependency, or province under whose laws similar sized casks, bottles, jugs, or other packages of distilled spirits, wine, or other beverage put up or filled in the United States are denied entrance into such country, dependency, or province, shall be forfeited to the United States; and any brandy or other spirituous or distilled liquor imported in a cask of less capacity than ten gallons from any country shall be forfeited to the United States.

PARAGRAPH 812.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 812. There shall be no constructive or other allowance for breakage, leakage, or damage on wines, liquors.

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SENATE AMENDMENTS.

cordials, or distilled spirits, except that when it shall appear to the collector of customs from the gauger's return, verified by an affidavit by the importer to be filed within five days after the delivery of the merchandise, that a cask or package has been broken or otherwise injured in transit from a foreign port and as a result thereof a part of its contents, amounting to 10 per centum or more of the total value of the contents of the said cask or package in its condition as exported, has been lost, allowance therefor may be made in the liquidation of the duties.

ACT OF 1909.

PAR. 307. * * * *And provided further,* That there shall be no constructive or other allowance for breakage, leakage, or damage on wines, liquors, cordials, or distilled spirits * * *

ACT OF 1913.

PAR. 244. * * * *And provided further,* That there shall be no constructive or other allowance for breakage, leakage, or damage on wines, liquors, cordials, or distilled spirits, except that when it shall appear to the collector of customs from the gauger's return, verified by an affidavit by the importer to be filed within five days after the delivery of the merchandise, that a cask or package has been broken or otherwise injured in transit from a foreign port and as a result thereof a part of its contents amounting to 10 per centum or more of the total value of the contents of the said cask or package in its condition as exported, has been lost, allowance therefor may be made in the liquidation of the duties. * * *

PARAGRAPH 813.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 813. No wines, spirits, or other liquors or articles provided for in this title containing one-half of 1 per centum or more of alcohol shall be imported or permitted entry except on a permit issued therefor by the Commissioner of Internal Revenue, and any such wines, spirits, or other liquors or articles imported or brought into the United States without a permit shall be seized and forfeited in the same manner as for other violations of the customs laws.

¹This proviso concluded with the following sentence:
 "Wines, cordials, brandy, and other spirituous liquors, including bitters of all kinds, and bay rum or bay water, imported in bottles or jugs, shall be packed in packages containing not less than one dozen bottles or jugs in each package, or duty shall be paid as if such package contained at least one dozen bottles or jugs, and in addition thereto, duty shall be collected on the bottles or jugs at the rates which would be chargeable thereon if imported empty. The percentage of alcohol in wines and fruit juices shall be determined in such manner as the Secretary of the Treasury shall by regulation prescribe."

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

Important changes in classification.—The provision is new.
Suggested changes.—Page 103, line 6, of H. R. 7456: "Title" should be "schedule."

PARAGRAPH 814.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 814. The Secretary of the Treasury is hereby authorized and directed to make all rules and regulations necessary for the enforcement of the provisions of this title.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

Important changes in classification.—The provision is new.
Suggested changes.—Page 103, line 15, of H. R. 7456: "Title" should be "schedule."

SCHEDULE 9.—COTTON MANUFACTURES.

PARAGRAPH 901.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 901. Cotton yarn, including warps, in any form, not bleached, dyed, colored, combed, or plied, of numbers not exceeding number 40, one-fifth of 1 cent per number per pound; exceeding number 40 and not exceeding number 120, 8 cents per pound and, in addition thereto, one-fourth of 1 cent per number per pound for every number in excess of number 40; exceeding number 120, 28 cents per pound: *Provided*, That none of the foregoing, of numbers not exceeding number 100, shall pay less duty than 5 per centum ad valorem and, in addition thereto, for each number, one-fifth of 1 per centum ad valorem; nor of numbers exceeding number 100, less than 25 per centum ad valorem.

Cotton yarn, including warps, in any form, bleached, dyed, colored, or plied, of numbers not exceeding number 40, one-fourth of 1 cent per number per pound; exceeding number 40 and not exceeding number 120, 10 cents per pound and, in addition thereto, three-tenths of 1 cent per number per pound for every number in excess of number 40; exceeding number 120, 34 cents per pound: *Provided*, That none of the foregoing, of numbers not exceeding number 100, shall pay less duty than 7 per centum ad valorem and, in addition thereto, for each number, one-fifth of 1 per centum ad valorem; nor of numbers exceeding number 100, less than 27 per centum ad valorem.

Any of the foregoing yarns, if combed, shall pay in addition to the rates of duty provided in the preceding paragraph, if exceeding number 9 and not exceeding number 40, 1 cent per pound; if exceeding number 40, 2 cents per pound.

Cotton waste, manufactured or otherwise advanced in value, cotton card laps, sliver, and roving, 5 per centum ad valorem.

ACT OF 1909.

SCHEDULE I.—COTTON MANUFACTURES.

PAR. 313. Cotton thread and carded yarn warps or warp yarn, in singles, whether on beams or in bundles, skeins, or cops, or in any other form, except spool thread of cotton, crochet, darning, and embroidery cottons, hereinafter provided for, not colored, bleached, dyed, or advanced beyond the condition of singles by grouping or twisting two or more single yarns together, two and one-half cents per pound on all numbers up to and including number fifteen, one-sixth of a cent per number per pound on all numbers exceeding number fifteen and up to and including number thirty, and one-fifth of a cent per number per pound on all numbers exceeding number thirty: *Provided*, That none of the foregoing shall pay a less rate of duty than fifteen per centum ad valorem; colored, bleached, dyed, combed, or advanced beyond the condition of singles by grouping or twisting two or more single yarns together, whether on beams, or in bundles, skeins, or cops, or in any other form, except spool thread of cotton, crochet, darning, and embroidery cottons, hereinafter provided for, six cents per pound on all numbers up to and including number twenty-four, and on all numbers exceeding number twenty-four and up to number eighty, one-fourth of one cent per number per pound; on number eighty and up to number two hundred, three-tenths of one cent per number per pound; on number two hundred and above, sixty cents per pound, and one-tenth of one cent per number per pound additional for every number in excess of number two hundred; cable-laid yarns or threads, made by grouping or twisting two or more grouped or twisted yarns or threads together, not colored, bleached, or dyed, four-tenths of one cent per number per pound; colored, bleached, or dyed, nine-twentieths of one cent per number per pound: *Provided further*, That said threads and yarns, colored, bleached, dyed, combed, advanced beyond the condition of singles, and cable-laid yarns or threads, as hereinbefore provided, except those (other than cable-laid threads and yarns) finer than number one hundred and forty shall not pay a less rate of duty than twenty per centum ad valorem:

ACT OF 1913.

SCHEDULE I.—COTTON MANUFACTURES.¹

PAR. 250. Cotton thread and carded yarn, warps, or warp yarn, whether on beams or in bundles, skeins, or cops, or in any other form, not combed, bleached, dyed, mercerized, or colored, except spool thread of cotton, crochet, darning and embroidery cottons, hereinafter provided for, shall be subject to the following rates of duty:

Numbers up to and including number nine, 5 per centum ad valorem; exceeding number nine and not exceeding number nineteen, 7½ per centum ad valorem; exceeding number nineteen and not exceeding number thirty-nine, 10 per centum ad valorem; exceeding number thirty-nine and not exceeding number forty-nine, 15 per centum ad valorem; exceeding number forty-nine and not exceeding number fifty-nine, 17½ per centum ad valorem; exceeding number fifty-nine and not exceeding number seventy-nine, 20 per centum ad valorem; exceeding number seventy-nine and not exceeding number ninety-nine, 22½ per centum ad valorem; exceeding number ninety-nine, 25 per centum ad valorem. When combed, bleached, dyed, mercerized, or colored, they shall be subject to the following rates of duty: Numbers up to and including number nine, 7½ per centum ad valorem; exceeding number nine and not exceeding number nineteen, 10 per centum ad valorem; exceeding number nineteen and not exceeding number thirty-nine, 12½ per centum ad valorem; exceeding number thirty-nine and not exceeding number forty-nine, 17½ per centum ad valorem; exceeding number forty-nine and not exceeding number fifty-nine, 20 per centum ad valorem; exceeding number fifty-nine and not exceeding number seventy-nine, 22½ per centum ad valorem; exceeding number seventy-nine and not exceeding number ninety-nine, 25 per centum ad valorem; exceeding number ninety-nine, 27½ per centum ad valorem. Cotton waste and flocks, manufactured or otherwise advanced in value, cotton card laps, roping, sliver, or roving, 5 per centum ad valorem.

¹ 7 cents per pound, in addition to the rates of duty imposed thereon by existing law, is imposed by par. 17 of the emergency tariff act of May 27, 1921, on manufactures of which cotton having a staple of 1½ inches or more in length is the component material of chief value.

ACT OF 1913.

ACT OF 1913.

And provided further, That all the foregoing threads and yarns as hereinbefore provided, when mercerized or subjected to any similar process, shall pay, in addition to the foregoing specific rates of duty, one-fortieth of one cent per number per pound; cotton card laps, roping, sliver, or roving, thirty-five per centum ad valorem. Cotton waste and flocks, manufactured or otherwise advanced in value, twenty per centum ad valorem.

COTTON YARN.

(See Report, T. I. S.—12.)

Description and uses.—Cotton yarn is spun from roving, and may be of upland, American staple, Egyptian, sea-island, or other cotton; it may be carded or combed, ring spun or mule spun, made with varying degrees of twist from extra soft up to extra hard; it may be unbleached, bleached, printed, dyed, or colored; plain or finished (gassed, mercerized, prepared, polished); and it may be in the single or doubled or cabled. There are many varieties of cotton yarn, and several modifying adjectives are required for the precise identification of any particular count. The relative values depend on various factors, but particularly on the material used and the count to which spun.

Number or count of yarn means the number of 840-yard hanks required to weigh 1 pound. No. 1 cotton yarn measures 840 yards to the pound and No. 100 cotton yarn measures 84,000 yards to the pound; the higher the count, the finer the yarn.

Production.—In quantity the United States ranks first, followed by the United Kingdom, British India, Japan, France, Germany, Russia, and Italy. In 1914 domestic production amounted to 2,170,578,612 pounds. Of the 2,467,914,386 pounds domestic output in 1919, the makers consumed about 75 per cent. Of the 625,071,000 pounds, valued at \$460,479,000, offered for sale in 1919, the knitting industry was the largest purchaser. In domestic spinning the normal limit is about 100s warp and 120s filling, while 93 per cent of the output consists of coarse and medium counts not above 40s. The United Kingdom leads in number of spindles and supplies a major portion of the fine and special yarns used in international trade.

Imports are less than 0.5 per cent of domestic consumption, the maximum being 10,564,304 pounds in 1917. During the 30 fiscal years ended June 30, 1920, imports averaged 4,964,209 pounds, valued at \$3,425,668 per annum. Imports were 6,853,235 pounds, valued at \$4,092,072 in 1914. The larger portion consists of two-ply unbleached yarns mule spun in England from Egyptian cotton. About 60 per cent are gassed or otherwise finished. Lace yarns, mostly "prepared" or flattened for use in brass bobbins, constitute the leading import. The second largest import is of soft-spun yarns for mercerization and for combination with silk in knitting and in the weaving of broad and narrow fabrics. The main count imported is two-ply 78s, and the main competitive range is from 58s to 78s.

Imports are supplemental rather than competitive, and as the domestic industry develops the average count imported steadily tends upward. The tariff plays a minor part in this trade.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 3,975,200 | \$6,336,365 | \$1,470,781 |
| 1919..... | 3,979,107 | 7,185,392 | 1,680,126 |
| 1920..... | 9,922,973 | 23,926,370 | 5,445,245 |
| 1921 (9 months)..... | 2,236,431 | 5,127,719 | |

Exports of cotton yarn were valued at \$716,036 in 1914. During and since the war they have increased greatly, exceeding imports. Exports are mainly of counts under 40s, knitting yarns leading. Argentina, Canada, Hongkong, and Colombia were the leading buyers in 1920.

Exports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|--------------|--------------|---------------------|
| Quantity (pounds)..... | 13,355,800 | 20,699,124 | 24,099,399 | 11,077,263 |
| Value..... | \$3,846,694 | \$14,488,630 | \$20,014,949 | \$4,435,440 |

Important changes in classification.—Paragraph 901 is intended to cover all types and varieties of cotton yarn except the special yarns which are put up in short lengths for use in handwork. It does not include any sewing thread. Since sewing thread and yarns for handwork are more specifically provided for in paragraph 902 it is unnecessary that paragraph 901 should note their exception; the phrase used in the 1913 act (par. 250) "except spool thread of cotton, crochet, darning and embroidery cottons, hereinafter provided for" has therefore been omitted.

Since paragraph 901 relates solely to cotton yarn, it is appropriately headed "Cotton yarn, including warps, in any form." In most foreign tariffs "cotton yarn" is considered inclusive and exclusive, but to prevent any possibility of the courts' construing cotton yarn in the form of warps (a number of ends gathered together, sized or not sized, on beams or in balls or other form) as further advanced than cotton yarn, there have been added the words "including warps." The phrase "in any form" has been substituted for the present wording (par. 250, act of 1913) "whether on beams or in bundles, skeins or cops, or in any other form" as being simpler and fully as inclusive.

As in previous acts, cotton yarns have been classified as "basic" and "advanced," each with its own progressive rates of duty. The basic term "not bleached, dyed, colored, combed, or plied," refers solely to grey carded single yarns. Advanced yarns include those that are bleached, dyed, colored, or plied, and an additional duty is imposed when they are combed. The term "colored" is used in addition to the term "dyed" in order to cover printed yarns, and also yarns which are made of two or more rovings or two or more

yarns only one of which may be dyed. The term "plied" means that two or more yarns have been twisted together to form ply yarn. The act of 1913 provides no differential for ply yarns which in the gray are dutiable under the basic rates; in H. R. 7456 a differential is provided for ply yarns, as was the case in the act of 1909. This differential, however, is not intended to include grouped yarns. Imports of grouped yarns, that is, single yarns wound together without twisting, are small and almost entirely for use in electrical wire covering. There is apparently no object in including grouped yarns with ply yarns since the cost per pound of multiple winding is usually less than the cost of single-end winding; the more ends wound together side by side the greater the weight obtained in a given time and hence the less the unit cost.

The term "plied" includes not only two or more single yarns twisted together but also cabled yarns made by twisting together two or more ply yarns. The act of 1909 provided a further differential for cabled yarns over ordinary ply yarns, but this has been omitted for the reason that practically all imports consist of fine cabled yarns, particularly 130/9 and 140/9, known as harness-twine or heald yarn, needed for making loom harness for the silk industry; these must be made so carefully and are required in amounts so small that domestic manufacturers do not find it profitable to attempt their manufacture.

The progressive rates are levied, as in preceding acts, on the yarn count, that is, the number of 840-yard hanks that weigh 1 pound. The higher the count the finer the yarn, and, other things being equal, the higher the percentage of labor costs; therefore the duty increases progressively with the yarn number. The progressive rates on advanced yarns are higher than those on the basic gray single yarns, and increase at a faster rate of progression. Group progression was used in the act of 1913, but, as it involves a jump in the rates of duty between each group, individual-count progression used in the act of 1909 is more logical. In the revised classification both basic and advanced yarns have one rate of progression up to and including No. 40, and another and steeper rate of progression above No. 40 up to and including No. 120, above which the rate becomes stationary. The change in the rate of progression, on both basic and advanced yarns, at No. 40 is made because that number marks the normal ring-spinning limit of yarns made from short-stapled upland cotton not over $1\frac{1}{8}$ inches in length. Above No. 120 there is rarely any domestic yarn made for sale; the stoppage of the advance in duties at this point should stimulate the production of lace, fine ply voiles, and other goods which require extra high count yarns not produced in this country.

It is inadvisable to break up the smooth rate of progression and complicate the paragraph by inserting a flat rate of duty on coarse yarns up to 10s, as imports of such yarns are small, being less than 1 per cent of the total yarn import. Aside from a few special knitting yarns, they consist mainly of turkey-red yarns for border and name work on towels; these towel yarns are in demand because they are fast dyed rather than because they are low priced. There is likewise no object in changing the rate of advance of duties at 15s, 20s, 24s, or 30s, such as occurred in tariffs before the American industry attained its

full growth, and the same rate of progression can well be used from the coarsest up to No. 40s.

The act of 1909 provided a cumulative differential for yarns subjected to mercerization and the act of 1913 included mercerized yarns in the advanced classification. Testimony secured by the Tariff Commission shows that skein mercerization is as cheap in this country as abroad, and that warp mercerization is considerably cheaper here; also that this was the normal condition prior to the war. Such being the case, it has been deemed advisable to omit any differential for mercerizing, particularly as none has been used for other finishing processes such as preparing, polishing, or gassing.

The act of 1909 (par. 313) provided a minimum ad valorem rate of 15 per cent flat for all single gray yarns and a minimum ad valorem rate of 20 per cent flat for advanced yarns not exceeding No. 140, above which there was no minimum. H. R. 7456 substitutes progressive ad valorem minimums for both basic and advanced yarns up to No. 100, above which the rate remains stationary. (For more detailed discussion see Chap. VI of Tariff Information Series, No. 12, entitled, "Cotton Yarn.")

Suggested changes.—There is apparently no provision for unbleached combed yarns up to No. 9. There is also doubt whether the provision beginning "any of the foregoing yarns," page 104, line 17, relates to the first part of the paragraph. If it does not there is no provision for any unbleached combed yarns. It is suggested that lines 17 to 21, page 104, be omitted and the word "combed" be inserted after the word "colored" in line 5, page 104, which would make the part of the paragraph relating to "bleached, dyed, etc." exactly complementary to the first part of the paragraph relating to "not bleached, dyed, etc."

COTTON CARD LAPS, SLIVER, AND ROVING.

Description, uses, and production.—Raw cotton in the bale is opened in the mills and there partially cleaned and made into laps, usually 40 inches wide and about 18 inches in diameter. These laps are then run through the card and drawn down into a loosely compressed but untwisted rope called a sliver. After further attenuation and cleaning a small amount of twist is inserted in the sliver, which thereupon becomes roving, and this is further attenuated and twisted into yarn. The amount of cotton card laps, sliver, and roving produced for sale in 1919 was 4,260,000 pounds, valued at \$1,956,000.

Imports.—Laps, sliver, and roving are ordinarily not articles of commerce, owing to the difficulty of handling them without damage and because spinning mills have their own preparing machinery. Imports are usually negligible. In 1914 they amounted to \$367.

Imports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------|---------|------|-----------|--------------------|
| Pounds..... | | | 1 100,612 | |
| Value..... | \$4,627 | | \$31,684 | |
| Duty..... | 221 | | 84 | |

¹ Includes 100,000 pounds, valued at \$30,000, from Philippine Islands.

Exports.—None recorded.

COTTON WASTE, MANUFACTURED OR OTHERWISE ADVANCED IN VALUE.

Description, uses, and production.—Waste occurs in each process of manufacture. A part of this waste is remanufactured in the mills where made and part is sold for manufacture elsewhere. Waste is on the free list (par. 467), but when bleached, dyed, manufactured, or otherwise advanced in value is dutiable under this paragraph.

Imports in 1914 were 45,147 pounds, valued at \$2,182.

Imports for the calendar years 1918-1920 were as follows:

| | 1918 | 1919 | 1920 |
|-------------|------|-------|------|
| Pounds..... | 400 | 1,500 | 500 |
| Value..... | \$72 | \$137 | \$56 |
| Duty..... | 4 | 9 | 3 |

Exports.—None recorded.

Suggested changes.—The deletion of the phrase "cotton waste, manufactured or otherwise advanced in value, not specially provided for," is suggested, with the intent that all cotton waste, in whatever condition, shall fall under paragraph 1557. Imports are insignificant and will undoubtedly continue so, whether dutiable or free. Cotton waste which has been made into card laps, sliver, roving, yarn, or finished articles will, of course, take the same rates as apply to such merchandise made from raw cotton.

PARAGRAPH 902.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 902. Cotton sewing thread; crochet, darning, embroidery, and knitting cottons, put up for handwork, in lengths not exceeding eight hundred and forty yards; one-half of 1 cent per hundred yards: *Provided*, That none of the foregoing shall pay a less rate of duty than 17 nor more than 33½ per centum ad valorem. In no case shall the duty be assessed on a less number of yards than is marked on the goods as imported.

ACT OF 1909.

ACT OF 1913.

PAR. 314. Spool thread of cotton, crochet, darning, and embroidery cottons, on spools, reels, or balls, containing on each spool, reel, or ball, not exceeding one hundred yards of thread, six cents per dozen; exceeding one hundred yards on each spool, reel, or ball, for every additional hundred yards or fractional part thereof in excess of one hundred, six cents per dozen spools, reels, or balls; if in

PAR. 251. Spool thread of cotton, crochet, darning, and embroidery cottons, on spools, reels, or balls, or in skeins, cones, or tubes, or in any other form, 15 per centum ad valorem.

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skeins, cones or tubes, containing less than six hundred yards each, one-half of one cent for each one hundred yards or fractional part thereof: *Provided*, That in no case shall the duty be assessed upon a less number of yards than is marked on the spools, reels, cones, tubes, skeins, or balls: *And provided further*, That none of the foregoing shall pay a less rate of duty than twenty per centum ad valorem.

COTTON SEWING THREAD AND "COTTONS."

(See Report T. I. S.—12.)

Description and uses.—Cotton sewing thread is ply or cable yarn that has been finished by polishing; it is usually either bleached or dyed. It may be two, three, or four-ply, or six-cord cabled; the last named is usually put up on spools for the retail trade and the former on tubes, cones, or large bobbins for the use of garment makers.

The count of cotton yarn indicates the number of 840-yard hanks required to weigh 1 pound. Sewing thread, however, is numbered or lettered arbitrarily, and the same is true of one class of cotton yarns, namely, those known as "cottons." This term refers solely to yarns, usually soft spun and in two, three, four, or eight fold, put up in short lengths for handwork—not to those put up in the longer lengths customary for machine work. Knitting cotton is similar to crochet, darning, and embroidery cottons, the four terms often being used interchangeably.

Production of cotton thread in 1914 was 26,507,028 pounds, valued at \$22,917,099; in 1919 it was recorded as 58,096,000 pounds, valued at \$57,125,000, but included a considerable quantity manufactured on a contract basis, for which the cost of materials was not included in the value of products. The production of "cottons" for handwork was not recorded separately from other cotton yarns. For these reasons exact comparison with imports is impossible.

The United Kingdom is the only large exporter of cotton sewing thread, though a substantial amount is normally exported from Germany and smaller amounts from Switzerland, Italy, Belgium, France, and Japan.

Imports of cotton sewing thread and "cottons" during the 30 fiscal years ended June 30, 1920, averaged in value \$798,089 per annum. Imports in 1914 were valued at \$2,066,346.

Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|-------------------------|-------------|-----------|
| 1918..... | 100 yards 50,688,323 | \$1,871,885 | \$280,753 |
| 1919..... | 46,474,869 | 1,851,957 | 277,794 |
| 1920..... | 52,056,369 | 3,302,142 | 495,321 |
| 1921 (9 months) ¹ | 24,058,166 | 1,362,577 | ..... |

¹Includes 135,693 pounds, valued at \$484,250, under the emergency tariff act.

Imports of cotton sewing thread, which are small, come mainly from England; imports of "cottons" for handwork, most largely from Alsace, constitute the bulk of the imports under this paragraph.

Exports of cotton sewing thread and "cottons," mainly the former, are larger than imports. For the last four calendar years exports have been valued as follows: 1918, \$2,824,776; 1919, \$4,367,762; 1920, \$4,471,617; 1921 (9 months), \$1,498,329.

The chief purchasers of American cotton sewing thread in 1920 were Canada, Philippine Islands, Cuba, Mexico, and Australia.

Important changes in classification.—Paragraph 902 covers cotton sewing thread, for hand or machine work, and special yarns which are put up in short lengths for handwork. These two classes of goods are grouped for the reason that they are usually numbered or lettered arbitrarily without reference to the true yarn count. Instead of the progressive rates based on the yarn count, as used in the preceding paragraph for cotton yarns intended for machine work, there has been adopted a system of progressive rates based on the length. The flat rate per hundred yards results in the duty per pound advancing in proportion to the fineness of the yarns for handwork and likewise in proportion to the fineness of the sewing thread.

"Cotton sewing thread," the first class of articles here covered, is the term agreed upon by both manufacturers and importers. "Spool thread of cotton," as used in preceding tariffs, was a misnomer, as imports of cotton thread, when intended for use by garment makers, are put up on tubes, cones, or large bobbins, instead of on spools.

"Crochet, darning, embroidery, and knitting cottons, put up for handwork," clearly defines the particular class of cotton yarns which are excepted from the provisions of the preceding paragraph, on cotton yarn and here specifically provided for because of the arbitrary numbering ordinarily employed. The provisions of the acts of 1897, 1909, and 1913 are extended or at least clarified by the addition of the word "knitting." "Knitting cottons" are so similar to other "cottons" or soft-spun yarns here provided for that the labeling is often "Cottons for crocheting, embroidering, or knitting," yet under the act of 1913 it is possible to levy a different rate on the same yarn if invoiced as knitting cotton from that which would apply were it invoiced as crocheting cotton. This anomaly is avoided by the use of the above wording.

The term "cottons" had its origin in the fact that most of the short lengths of yarn used for handwork are of a soft and loosely twisted or "cottony" character, and although some are fully as hard twisted as ordinary yarns for machine work the use of the term "cottons" instead of "yarns" implies that this provision is limited to yarns for handwork. By the use of the specific wording "put up for handwork" confusion of meaning is avoided and short lengths of yarn put up for machine work are prevented from coming in under this paragraph. Practically the only short lengths of yarn used in machine work are the minute bobbins known as schiffli or bobbin yarns, which are wound on a bare spindle and used on embroidery machines to fasten in place the embroidery yarns proper. As these schiffli yarns, whatever their length, are similar to yarns used in machine knitting and other industries and are numbered

according to the true yarn count, they should be dutiable at the progressive rates provided in paragraph 901. It is not intended that any yarns used for machine work should be imported under the provisions of paragraph 902.

Ordinarily it is not economically feasible to use as short lengths for machine work as are preferred for handwork, and a clear line of demarcation between ordinary yarns for machine work and special yarns for handwork is afforded by the phrasing "in lengths not exceeding 840 yards." Yarn in lengths of more than 840 yards, if imported for handwork, would be dutiable under H. B. 7456 as ordinary cotton yarn. The appraiser at New York, however, states that such importations are rare and that 840 yards, which is the length of one hank as used in cotton yarn numbering, is the logical point of demarcation between yarns for machine work and yarns for handwork.

The act of 1909 bracketed together sewing thread and yarns for handwork and assessed a rate of 6 cents per dozen spools of not over 100 yards each on either class put up on spools, reels, or balls, and a rate of one-half cent per 100 yards on either put up in skeins, cones, or tubes. The two rates come to the same thing, one-half cent per 100 yards, but the arrangement is illogical in that no distinction is drawn between the two dissimilar articles, "sewing thread" and "yarns for handwork," whereas a distinction is made as to the entirely immaterial matter of the way the two should be put up for sale. The new wording is designed to improve import statistics, in that there will be separate records for sewing thread and yarns for handwork, irrespective of how each may be put up. Cotton yarns in short lengths for handwork are imported in substantial amounts, whereas imports of cotton sewing thread are small.

Both minimum and maximum rates of duty have been provided for articles in paragraph 902. The provision, also used in the act of 1909, that the duty shall not be levied on a less number of yards than is marked on the goods as imported, is again inserted as a preventive measure against the fraudulent marking of lengths.

Suggested changes.—Attention may be called to the fact that the rate of one-half cent per 100 yards on cotton sewing thread makes the duty per pound higher than that provided for in paragraph 903 on any countable cotton cloth, including Jacquard woven fancies. For instance, a No. 24 six-cord thread made of No. 50 yarn has a finished length of about 6,760 yards per pound, and a No. 60 three-cord thread made of No. 50 yarn has a finished length of about 13,520 yards per pound. The duty of one-half cent per 100 yards would mean a duty of 38.8 and 67.6 cents per pound, respectively, on six-cord and three-cord sewing thread made from No. 50 yarn. In contrast, the specific duty on cotton cloth, printed, dyed, colored, or woven-figured, with No. 50 average yarn count, would be 28.5 cents per pound, and the specific duty on No. 50 cotton yarn, printed, dyed, colored, or plied, if combed, would be 15 cents a pound.

PARAGRAPH 908.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 903. Cotton cloth, not bleached, printed, dyed, colored, or woven-figured, containing yarns the average number of which does not exceed number 40, forty one-hundredths of 1 cent per average number per pound; exceeding number 40, 16 cents per pound, and, in addition thereto, fifty-five one-hundredths of 1 cent per average number per pound for every number in excess of number 40: *Provided*, That none of the foregoing, when containing yarns the average number of which does not exceed number 100, shall pay less duty than 9 per centum ad valorem and, in addition thereto, for each number, one-fifth of 1 per centum ad valorem; nor when exceeding number 100, less than 29 per centum ad valorem.

Cotton cloth, bleached, containing yarns the average number of which does not exceed number 40, forty-five one-hundredths of 1 cent per average number per pound; exceeding number 40, 18 cents per pound and, in addition thereto, three-fifths of 1 cent per average number per pound for every number in excess of number 40: *Provided*, That none of the foregoing, when containing yarns the average number of which does not exceed number 100, shall pay less duty than 13 per centum ad valorem and, in addition thereto, for each number, one-fifth of 1 per centum ad valorem; nor when exceeding number 100, less than 33 per centum ad valorem.

Cotton cloth, printed, dyed, colored, or woven-figured, containing yarns the average number of which does not exceed number 40, fifty-five one-hundredths of 1 cent per average number per pound; exceeding number 40, 22 cents per pound and, in addition thereto, sixty-five one-hundredths of 1 cent per average number per pound for every number in excess of number 40: *Provided*, That none of the foregoing, when containing yarns the average number of which does not exceed number 100, shall pay less duty than 13 per centum ad valorem and, for each number, one-fifth of 1 per centum ad valorem; nor when exceeding number 100, less than 33 per centum ad valorem. Plain gauze or leno woven cotton nets or nettings shall be classified for duty as cotton cloth.

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PAR. 315. Cotton cloth, valued at not over seven cents per square yard, not bleached, dyed, colored, stained, painted, or printed, and not exceeding fifty threads to the square inch, counting the warp and filling, one cent per square yard; if bleached, and valued at not over nine cents per square yard, one and one-fourth cents per square yard; if dyed, colored, stained, * * * or printed, and valued at not over twelve cents per square yard, two cents per square yard; cotton cloth, not bleached, dyed, colored, stained, painted, or printed, exceeding fifty and not exceeding one hundred threads to the square inch, counting the warp and filling, and valued at not over seven cents per square yard, not exceeding six square yards to the pound, one and one-fourth cents per square yard; exceeding six and not exceeding nine square yards to the pound, one and one-half cents per square yard; exceeding nine square yards to the pound, one and three-fourths cents per square yard; cotton cloth, not bleached, dyed, colored, stained, painted, or printed, not exceeding one hundred threads to the square inch, counting the warp and filling, and valued at over seven and not over nine cents per square yard, two and one-fourth cents per square yard; valued at over nine and not over ten cents per square yard, two and three-fourths cents per square yard; valued at over ten and not over twelve and one-half cents per square yard, four cents per square yard; valued at over twelve and one-half and not over fourteen cents per square yard, five cents per square yard; valued at over fourteen cents per square yard, six cents per square yard, but not less than twenty-five per centum ad valorem; cotton cloth, exceeding fifty and not exceeding one hundred threads to the square inch, counting the warp and filling, if bleached, and valued at not over nine cents per square yard, not exceeding six square yards to the pound, one and one-half cents per square yard; exceeding six and not exceeding nine square yards to the pound, one and three-fourths cents per square yard; exceeding nine square yards to the pound, two and one-fourth cents per square yard; cotton cloth, not exceeding one hundred threads to the square inch, counting the warp and filling, if bleached, and valued at over nine and not over eleven cents per square yard, two and three-fourths cents per square yard; valued at over eleven and not

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PAR. 252. Cotton cloth, not bleached, dyed, colored, stained, painted, printed, woven figured, or mercerized, containing yarns the average number of which does not exceed number nine, $7\frac{1}{2}$ per centum ad valorem; exceeding number nine and not exceeding number nineteen, 10 per centum ad valorem; exceeding number nineteen and not exceeding number thirty-nine, $12\frac{1}{2}$ per centum ad valorem; exceeding number thirty-nine and not exceeding number forty-nine, $17\frac{1}{2}$ per centum ad valorem; exceeding number forty-nine and not exceeding number fifty-nine, 20 per centum ad valorem; exceeding number fifty-nine and not exceeding number seventy-nine, $22\frac{1}{2}$ per centum ad valorem; exceeding number seventy-nine and not exceeding number ninety-nine, 25 per centum ad valorem; exceeding number ninety-nine, $27\frac{1}{2}$ per centum ad valorem. Cotton cloth when bleached, dyed, colored, stained, * * * printed, woven figured, or mercerized, containing yarn the average number of which does not exceed number nine, 10 per centum ad valorem; exceeding number nine and not exceeding number nineteen, $12\frac{1}{2}$ per centum ad valorem; exceeding number nineteen and not exceeding number thirty-nine, 15 per centum ad valorem; exceeding number thirty-nine and not exceeding number forty-nine, 20 per centum ad valorem; exceeding number forty-nine and not exceeding number fifty-nine, $22\frac{1}{2}$ per centum ad valorem; exceeding number fifty-nine and not exceeding number seventy-nine, 25 per centum ad valorem; exceeding number seventy-nine and not exceeding number ninety-nine, $27\frac{1}{2}$ per centum ad valorem; exceeding number ninety-nine, 30 per centum ad valorem; plain gauze or leno woven cotton nets or nettings shall be classified for duty as cotton cloth.

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over twelve cents per square yard, four cents per square yard; valued at over twelve and not over fifteen cents per square yard, five cents per square yard; valued at over fifteen and not over sixteen cents per square yard, six cents per square yard; valued at over sixteen cents per square yard, seven cents per square yard, but not less than twenty-five per centum ad valorem; cotton cloth, exceeding fifty and not exceeding one hundred threads to the square inch, counting the warp and filling, if dyed, colored, stained, * * * or printed, and valued at not over twelve cents per square yard, not exceeding six square yards to the pound, two and three-fourths cents per square yard; exceeding six and not exceeding nine square yards to the pound, three and one-fourth cents per square yard; exceeding nine square yards to the pound, three and one-half cents per square yard; cotton cloth, not exceeding one hundred threads to the square inch, counting the warp and filling, if dyed, colored, stained, * * * or printed, and valued at over twelve and not over twelve and one-half cents per square yard, three and three-fourths cents per square yard; valued at over twelve and one-half and not over fifteen cents per square yard, five cents per square yard; valued at over fifteen and not over seventeen and one-half cents per square yard, six and one-half cents per square yard; valued at over seventeen and one-half and not over twenty cents per square yard, seven and one-half cents per square yard; valued at over twenty cents per square yard, nine cents per square yard, but not less than thirty per centum ad valorem.

PAR. 316. Cotton cloth, not bleached, dyed, colored, stained, painted, or printed, exceeding one hundred and not exceeding one hundred and fifty threads to the square inch, counting the warp and filling, and not exceeding four square yards to the pound, one and one-half cents per square yard; exceeding four and not exceeding six square yards to the pound, two cents per square yard; exceeding six and not exceeding eight square yards to the pound, two and one-half cents per square yard; exceeding eight square yards to the pound, two and three-fourths cents per square yard; any of the foregoing valued at over nine and not over ten cents per square yard, three cents per square yard; valued at over ten but not over twelve and one-half cents per square yard, four and

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three-eighths cents per square yard; valued at over twelve and one-half and not over fourteen cents per square yard, five and one-half cents per square yard; valued at over fourteen and not over sixteen cents per square yard, six and one-half cents per square yard; valued at over sixteen cents per square yard, eight cents per square yard, but not less than thirty per centum ad valorem; if bleached, and not exceeding four square yards to the pound, two and one-half cents per square yard; exceeding four and not exceeding six square yards to the pound, three cents per square yard; exceeding six and not exceeding eight square yards to the pound, three and one-half cents per square yard; exceeding eight square yards to the pound, three and three-fourths cents per square yard; any of the foregoing, bleached, and valued at over eleven and not over twelve cents per square yard, four and one-fourth cents per square yard; valued at over twelve and not over fifteen cents per square yard, five and one-fourth cents per square yard; valued at over fifteen and not over sixteen cents per square yard, six and one-half cents per square yard; valued at over sixteen and not over twenty cents per square yard, eight cents per square yard; valued at over twenty cents per square yard, ten cents per square yard, but not less than thirty-five per centum ad valorem; if dyed, colored, stained, * * * or printed, and not exceeding four square yards to the pound, three and one-half cents per square yard; exceeding four and not exceeding six square yards to the pound, three and three-fourths cents per square yard; exceeding six and not exceeding eight square yards to the pound, four and one-fourth cents per square yard; exceeding eight square yards to the pound, four and one-half cents per square yard; any of the foregoing, dyed, colored, stained, * * * or printed, and valued at over twelve and one-half but not over fifteen cents per square yard, five and one-fourth cents per square yard; valued at over fifteen and not over seventeen and one-half cents per square yard, seven cents per square yard; valued at over seventeen and one-half but not over twenty cents per square yard, eight cents per square yard; valued at over twenty cents per square yard, ten cents per square yard but not less than thirty-five per centum ad valorem.

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PAR. 317. Cotton cloth, not bleached, dyed, colored, stained, painted, or printed, exceeding one hundred and fifty and not exceeding two hundred threads to the square inch, counting the warp and filling, and not exceeding three and one-half square yards to the pound, two cents per square yard; exceeding three and one-half and not exceeding four and one-half square yards to the pound, two and three-fourths cents per square yard; exceeding four and one-half and not exceeding six square yards to the pound, three cents per square yard; exceeding six square yards to the pound, three and one-half cents per square yard; any of the foregoing valued at over ten and not over twelve and one-half cents per square yard, four and three-eighths cents per square yard; valued at over twelve and one-half and not over fourteen cents per square yard, five and one-half cents per square yard; valued at over fourteen and not over sixteen cents per square yard, six and one-half cents per square yard; valued at over sixteen and not over twenty cents per square yard, eight cents per square yard; valued at over twenty cents per square yard, ten cents per square yard, but not less than thirty-five per centum ad valorem; if bleached, and not exceeding three and one-half square yards to the pound, two and three-fourths cents per square yard; exceeding three and one-half and not exceeding four and one-half square yards to the pound, three and one-half cents per square yard; exceeding four and one-half and not exceeding six square yards to the pound, four cents per square yard; exceeding six square yards to the pound, four and one-fourth cents per square yard; any of the foregoing bleached, and valued at over twelve and not over fifteen cents per square yard, five and one-fourth cents per square yard; valued at over fifteen and not over sixteen cents per square yard, six and one-half cents per square yard; valued at over sixteen and not over twenty cents per square yard, eight cents per square yard; valued at over twenty cents per square yard, ten cents per square yard, but not less than thirty-five per centum ad valorem; if dyed, colored, stained, * * * or printed, and not exceeding three and one-half square yards to the pound, four and one-fourth cents per square yard; exceeding three and one-half and not exceeding four and one-half square yards to the pound, four and one-half

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cents per square yard; exceeding four and one-half and not exceeding six square yards to the pound, four and three-fourths cents per square yard; exceeding six square yards to the pound, five cents per square yard; any of the foregoing, dyed, colored, stained, * * * or printed, and valued at over twelve and one-half and not over fifteen cents per square yard, six cents per square yard; valued at over fifteen and not over seventeen and one-half cents per square yard, seven cents per square yard; valued at over seventeen and one-half and not over twenty cents per square yard, eight cents per square yard; valued at over twenty cents per square yard, ten cents per square yard but not less than forty per centum ad valorem.

PAR. 318. Cotton cloth not bleached, dyed, colored, stained, painted, or printed, exceeding two hundred and not exceeding three hundred threads to the square inch, counting the warp and filling, and not exceeding two and one-half square yards to the pound, three and one-half cents per square yard; exceeding two and one-half and not exceeding three and one-half square yards to the pound, four cents per square yard; exceeding three and one-half and not exceeding five square yards to the pound, four and one-half cents per square yard; exceeding five square yards to the pound, five cents per square yard; any of the foregoing valued at over twelve and one-half and not over fourteen cents per square yard, five and one-half cents per square yard; valued at over fourteen and not over sixteen cents per square yard, six and one-half cents per square yard; valued at over sixteen and not over twenty cents per square yard, eight cents per square yard; valued at over twenty cents per square yard, ten cents per square yard, but not less than forty per centum ad valorem; if bleached, and not exceeding two and one-half square yards to the pound, four and one-half cents per square yard; exceeding two and one-half and not exceeding three and one-half square yards to the pound, five cents per square yard; exceeding three and one-half and not exceeding five square yards to the pound, five and one-half cents per square yard; exceeding five square yards to the pound, six cents per square yard; any of the foregoing, bleached, and valued at over fifteen and not over sixteen cents per square

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yard, six and one-half cents per square yard; valued at over sixteen and not over twenty cents per square yard, eight cents per square yard; valued at over twenty and not over twenty-five cents per square yard, eleven and one-fourth cents per square yard; valued at over twenty-five cents per square yard, twelve and one-half cents per square yard, but not less than forty per centum ad valorem; if dyed, colored, stained, * * * or printed, and not exceeding three and one-half square yards to the pound, six and one-fourth cents per square yard; exceeding three and one-half square yards to the pound, seven cents per square yard; any of the foregoing, dyed, colored, stained, * * * or printed, and valued at over seventeen and one-half and not over twenty cents per square yard, eight cents per square yard; valued at over twenty and not over twenty-five cents per square yard, eleven and one-fourth cents per square yard; valued at over twenty-five cents per square yard, twelve and one-half cents per square yard, but not less than forty per centum ad valorem.

PAR. 319. Cotton cloth not bleached, dyed, colored, stained, painted, or printed, exceeding three hundred threads to the square inch, counting the warp and filling, and not exceeding two square yards to the pound, four cents per square yard; exceeding two and not exceeding three square yards to the pound, four and one-half cents per square yard; exceeding three and not exceeding four square yards to the pound, five cents per square yard; exceeding four square yards to the pound, five and one-half cents per square yard; any of the foregoing valued at over fourteen and not over sixteen cents per square yard, six and one-half cents per square yard; valued at over sixteen and not over twenty cents per square yard, eight cents per square yard; valued at over twenty and not over twenty-five cents per square yard, eleven and one-fourth cents per square yard; valued at over twenty-five cents per square yard, twelve and one-half cents per square yard, but not less than forty per centum ad valorem; if bleached and not exceeding two square yards to the pound, five cents per square yard; exceeding two and not exceeding three square yards to the pound, five and one-half cents per square yard; exceeding three and not exceeding four square yards to the pound, six cents per square yard; exceeding four

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square yards to the pound, six and one-half cents per square yard; any of the foregoing, bleached, and valued at over sixteen and not over twenty cents per square yard, eight cents per square yard; valued at over twenty and not over twenty-five cents per square yard, eleven and one-fourth cents per square yard; valued at over twenty-five cents per square yard, twelve and one-half cents per square yard, but not less than forty per centum ad valorem; if dyed, colored, stained, * * * or printed, and not exceeding three square yards to the pound, six and one-half cents per square yard; exceeding three square yards to the pound, eight cents per square yard; any of the foregoing, dyed, colored, stained, * * * or printed, and valued at over twenty and not over twenty-five cents per square yard, eleven and one-fourth cents per square yard; valued at over twenty-five cents per square yard, twelve and one-half cents per square yard, but not less than forty per centum ad valorem.

COUNTABLE COTTON CLOTHS.

(See Survey I-3.)

Description and uses.—Cotton cloth is a term used to include all loom-woven fabrics in the piece if over 12 inches in width, whether made on a plain loom or on looms with dobby, Jacquard, or other special attachments. Paragraph 903 includes all cotton cloths except the following, more specifically provided for elsewhere: Lappets and swivel (par. 905); sateens woven with 8 or more harness (par. 905); tire fabrics (par. 905); filled or coated cotton cloths, including tracing cloth, oilcloths, and window hollands (par. 906); waterproof cloth (par. 906); those containing silk or artificial silk (par. 907); Jacquard woven upholstery cloths (par. 908); pile fabrics (par. 909); and table damask (par. 910).

The main points of demarcation between cloths are the yarn counts and their spacing (ends and picks per square inch), the weave, the weight, the width, and the finish. All of these affect the cost, but the average yarn count is, in most cases, the primary cost-determining factor.

All cloths are included in the five-color classification: unbleached, bleached, printed, piece-dyed, and yarn-dyed. According to weave, cloths may be divided into plain fabrics (including plain-woven, twill, and sateen), figured fabrics (made with the assistance of special attachments such as dobbies, Jacquards, lappets, or swivels), and pile fabrics. The majority of cotton cloths are plain, made of unbleached yarns not over 40s count, have between 80 and 200 threads per square inch, and are between 25 and 45 inches in width.

Production in 1914 of woven goods, including plain, figured, and pile fabrics (but excluding narrow fabrics of 12 inches and under).

amounted to 6,813,540,681 square yards, valued at \$489,985,277, from 672,754 looms, of which 30.9 per cent were automatic. Corresponding statistics for 1919 were 6,232,842,000 square yards (1,819,980,000 pounds), valued at \$1,487,723,000, produced on 691,738 looms, of which 51.3 per cent were automatic. The United States has more automatic looms than are contained in all other countries. The main cotton-cloth producing States are Massachusetts, South Carolina, North Carolina, Rhode Island, and Georgia.

Imports of countable cotton cloth are less than 1 per cent of domestic consumption. Annual imports during the 30 fiscal years ended June 30, 1920, averaged 53,916,530 square yards, valued at \$9,310,821. Imports in 1914 were 58,821,496 pounds, valued at \$11,523,829. The United Kingdom has always supplied the bulk of such cotton cloths as were required from abroad, particularly dyed linings (including venetians); fine, plain white goods, such as muslins, cambrics, lawns, and voiles; high-grade gingham; piques; and fancy shirtings and dress goods. Switzerland supplies fine white goods, such as lawns, organdies, and dotted Swiss; and France supplies principally plain and novelty dress goods. Imports from Germany are mainly novelty dress goods. Imports from Japan are chiefly of the specialty known as "Japanese crêpe."

Imports of cotton cloths are supplementary, rather than directly competitive, and are confined largely to goods of a quality or finish different from the domestic. Investigation by the Tariff Commission shows that the bulk of the imported cloths are sold on the American market at higher prices than are obtained for the nearest comparable and competitive domestic cloths. Certain cloths, such as dotted Swisses, and transparent organdies of extremely fine yarn count, are not made here at all.

Recent statistics of imports follow:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|----------------------|--------------|-------------|
| | <i>Square yards.</i> | | |
| 1918..... | 37,450,688 | \$12,599,751 | \$2,292,642 |
| 1919..... | 47,846,024 | 17,047,814 | 3,675,772 |
| 1920..... | 124,446,600 | 44,913,694 | 9,867,887 |
| 1921 (9 months) ¹ | 76,137,895 | 34,435,900 | ..... |

¹ Includes 2,144,088 square yards, valued at \$4,422,170, under the emergency tariff act.

Exports have exceeded imports in every year since 1875, and the net result of American foreign trade in countable cotton cloth during the fiscal years 1821-1920 was a favorable trade balance of almost half a billion dollars. This is shown as follows:

One hundred years of imports and exports of countable cotton cloth.

| Fiscal years. | Total imports. | Total exports. | Balance of trade. |
|----------------------|----------------|----------------|----------------------------|
| 1821-1875..... | \$583,867,993 | \$156,955,090 | ¹ \$427,912,903 |
| 1876-1920..... | 331,939,762 | 1,238,715,376 | ² \$906,775,614 |
| Total 1821-1920..... | 915,807,755 | 1,394,670,466 | ² \$478,862,711 |

¹ Unfavorable.

² Favorable.

Exports during the 30 fiscal years 1891-1920 averaged per annum 120,037,028 linear yards, valued at \$10,861,189. Exports in 1914 were 414,860,013 yards, valued at \$28,844,627. Exports now include a great variety of fabrics, not only coarse-yarn sheetings, drills, denims, and cotton trouserings, and medium-yarn prints, sateens, gingham, and voiles, but also fine-yarn goods such as India linons and Persian lawns, and fancy fabrics, including those made with silk and artificial silk ornamentation. During the past decade the main purchasers have been the Philippine Islands, Cuba, China, Central America, Canada, Colombia, and Mexico.

Exports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-----------------|-----------------|-----------------|---------------------|
| Quantity (yards)..... | 544, 174, 574 | 683, 045, 326 | 818, 750, 954 | 303, 811, 476 |
| Value..... | \$107, 819, 833 | \$151, 997, 817 | \$238, 153, 567 | \$62, 967, 806 |

Important changes in classification.—Paragraph 903 covers all cotton cloth in the piece, not specially provided for. The fabrics here included are known as "countable cotton cloths," because the threads have to be counted in ascertaining the average yarn count on which the progressive duties are based; this term distinguishes them, on the one hand, from the *eo nomine* cloths where the threads do not have to be counted in ascertaining the duty, and, on the other, from articles made of cotton cloth.

Countable cotton cloths have been divided into the three classes—namely, basic, bleached, and printed, dyed, colored, or woven-figured. The basic classification includes only unbleached plain (i. e., plain-woven, twilled, or sateen) cloths, listed as "not bleached, printed, dyed, colored, or woven-figured." The word "colored" is used, in addition to the terms "printed" and "dyed," in order to cover cloths made with printed, dyed, or partly dyed yarns.

The term "stained" has been omitted as tautological. A stained cloth must necessarily be dyed either in the yarn or in the piece and would undoubtedly be covered by the terms "dyed" or "colored." The appraiser at New York has no record of any cloth listed as stained. The term "painted" has been omitted as of no effect, because such cloth is more specifically provided for in paragraph 906 as "coated" cloth. The appraiser at New York states that in his opinion no administrative difficulty will ensue because of the omission of the two terms mentioned.

The differential on mercerized cloth has been omitted because of representations made to the Tariff Commission to the effect that cloths are mercerized more cheaply in this country than abroad.

In levying progressive rates of duty on cotton cloth it is necessary to set up some standard on which to base the progression. Under preceding acts experience with double standards, such as the thread count and weight, and triple standards, such as the thread count, weight, and value, has demonstrated the advisability of using the single standard of the official average yarn count derived by simple arithmetic from the thread count and weight. Any standard that is adopted must be more or less arbitrary, because of the many types of cotton cloth, but conversion costs vary more in conformity to the variation in average yarn count than to any other factor or group of

factors. The average yarn count as a standard on which to base progressive rates of duty is therefore the most scientific and equitable that can be devised; and it has the further merit of being easy of administration. The same standard is used in the act of 1913, but with group progression, entailing a jump in rates of duty between successive groups of cloths, and with ad valorem rates. There have been here substituted individual count progression and specific rates.

Cloth duties have usually been stated in terms of cents per square yard. "Cents per pound" has been substituted as being easy of application and as facilitating the correct adjustment of duties to values. In whatever terms stated, prices on cotton cloth are primarily based on the pound, since both cotton and cotton yarn are sold by the pound. Yarns and cloths are so closely related that progressive rates of duty on the one should be adjusted with regard to the other; this is difficult unless a common base is used, and the only one possible is the pound.

Over 90 per cent of the domestic cotton yarns and of cloths made therefrom do not exceed No. 40; this marks the ordinary ring-spinning limit of short-staple upland cotton of not over $1\frac{1}{8}$ inches in length. For cotton cloth, as for cotton yarn, it has therefore been deemed advisable to have one rate of progression apply up to No. 40 yarn count, and to use another and somewhat steeper rate of progression on cloths made of finer yarns.

For each of the three divisions of cloth there are provided not only progressive specific rates of duty, but also minimum ad valorem rates. As the main competition from abroad is on cloths with average yarn counts between 40 and 100, the minimum ad valorem rates of duty are made progressive up to No. 100 and thereafter remain stationary.

PARAGRAPH 904.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 904. The term cotton cloth, or cloth, wherever used in this schedule, unless otherwise specially provided for, shall be held to include all woven fabrics of cotton, in the piece, whether figured, fancy, or plain, and shall not include any article, finished or unfinished, made from cotton cloth. In the ascertainment of the condition of the cloth or yarn upon which the duties imposed upon cotton cloth are made to depend, the entire fabric and all parts thereof shall be included. The average number of the yarn in cotton cloth herein provided for shall be obtained by taking the length of the thread or yarn to be equal to the distance covered by it in the cloth in the condition as imported, except that all clipped threads shall be measured as if continuous; in counting the threads all ply yarns shall be separated into singles and the count taken of the total singles; the weight shall be taken after any excessive sizing is removed by boiling or other suitable process.

ACT OF 1909.

PAR. 320. The term cotton cloth, or cloth, wherever used in the paragraphs of this schedule, unless otherwise specially provided for, shall be held to include all woven fabrics of cotton in the piece or cut in lengths, whether figured, fancy, or plain, the warp and filling threads of which can be counted by unraveling or other practicable means, and shall not include any article, finished or unfinished, made from cotton cloth. In determining the count of threads to the square inch in cotton cloth, all the warp and filling threads, whether ordinary or other than ordinary, and whether clipped or unclipped, shall be counted. In the ascertainment of the weight and value, upon which the duties, cumulative or other, imposed upon cotton cloth are made to depend, the entire fabric and all parts thereof, and all the threads of which it is composed, shall be included. The terms bleached, dyed, colored, stained, mercerized, painted, or printed, wherever applied to cotton cloth in this schedule, shall be taken to mean respectively all cotton cloth which either wholly or in part has been subjected to any of these processes, or which has any bleached, dyed, colored, stained, mercerized, painted, or printed threads in or upon any part of the fabric.

Important changes in classification.—Paragraph 253 of the act of 1913 is adopted almost without change as suitable phrasing to define the use of the official average yarn count as the basic standard of progression. The phrase "in the paragraphs of" is omitted as unnecessary.

The first sentence of paragraph 904 defines cotton cloth and states that it does not include any articles made from cotton cloth. The second sentence states that, in ascertaining the condition of the cloth for dutiable purposes, the entire fabric and all parts thereof shall be included; this wording is clear and there has been no litigation as to its meaning.

The average number of the yarn is next stated to mean the number as ascertained by the "straight-line" method, whereby all yarn in the cloth is considered as lying in a straight line without regard to contraction. This official average-yarn count is easily ascertainable, by simple arithmetic, from the number of single threads per square inch and the weight. The Treasury has not only stated rules governing the calculation, but has published tables wherein it can be found for any cloth without calculation.

Since by the straight-line method of paragraph 904 the yarn length and the cloth length, in any given weight of cloth, are regarded as being the same, whereas the yarn length, by reason of the threads having to bend around each other, is actually greater than the cloth length, it is obvious that the official average yarn count will, except in the case of clipped fabrics, be less than the

ACT OF 1913.

PAR. 253. The term cotton cloth, or cloth, wherever used in the paragraphs of this schedule, unless otherwise specially provided for, shall be held to include all woven fabrics of cotton, in the piece, whether figured, fancy, or plain, and shall not include any article, finished or unfinished, made from cotton cloth. In the ascertainment of the condition of the cloth or yarn upon which the duties imposed upon cotton cloth are made to depend, the entire fabric and all parts thereof shall be included. The average number of the yarn in cotton cloth herein provided for shall be obtained by taking the length of the thread or yarn to be equal to the distance covered by it in the cloth in the condition as imported, except that all clipped threads shall be measured as if continuous; in counting the threads all ply yarns shall be separated into singles and the count taken of the total singles; the weight shall be taken after any excessive sizing is removed by boiling or other suitable process.

actual average yarn count. This, however, does not affect its value as a standard between different cloths.

It is to be noted that the expression "except that all clipped threads shall be measured as if continuous" raises the average yarn count (by reason of the use of the actual weight of the fabric after it is clipped together with a longer length of yarn than is actually contained therein) of all fabrics with clipped threads. This serves to raise the rate of duty above that which would apply to a cloth constructed in the same way but not clipped, and thus automatically provides a differential for any extra cost involved in making clip spot fabrics.

PARAGRAPH 905.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 905. Cotton cloth with extra threads introduced by means of the lappet or swivel shall be dutiable at the rate on the basic cloth and, in addition thereto, 7½ per centum ad valorem.

Cotton sateens, woven with eight or more harness, shall pay, in addition to the rate on cotton cloth, 10 per centum ad valorem.

Tire fabric or fabric for use in pneumatic tires, including cord fabric, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 323. In addition to the duty or duties imposed upon cotton cloth by the various provisions of this section, there shall be paid the following cumulative duties, the intent of this paragraph being to add such duty or duties to those to which the cotton cloth would be liable if the provisions of this paragraph did not exist, namely: On all cotton cloth in which other than the ordinary warp and filling threads are used to form a figure or fancy effect, whether known as lappets or otherwise, one cent per square yard if valued at not more than seven cents per square yard, and two cents per square yard if valued at more than seven cents per square yard; on all cotton cloth mercerized or subjected to any similar process, one cent per square yard.

PAR. 330. * * * tire fabric or fabric suitable for use in pneumatic tires, * * * made of cotton or other vegetable fiber, and india rubber, or of which cotton or other vegetable fiber is the component material of chief value, * * * forty-five per centum ad valorem; * * *

[No corresponding provision for cotton sateens.]

PAR. 262. * * * tire fabric or fabric suitable for use in pneumatic tires, * * * made of cotton or other vegetable fiber, or of which cotton or other vegetable fiber is the component material of chief value, or of cotton or other vegetable fiber and india rubber, * * * 25 per centum ad valorem; * * *

[No corresponding provision for the other commodities; see par. 252.]

LAPPETS AND SWIVELS; SATEENS; TIRE FABRICS.

(See Survey I-4 and Report T. I. S.—10.)

Description and uses.—Lappets are cloths ornamented in zigzag patterns by extra warp threads introduced by means of needle bars. Lappets are usually cheap fabrics which have a certain limited demand for curtain and dress use. Swivels are cloths ornamented in small spot or figured patterns by extra filling threads introduced by a series of small shuttles operated by rack and pinion. After the regular shuttle carrying the ground filling has been thrown through the shed of the warp, a special shed is opened for the introduction of the small shuttles carrying the decorative threads, and each of these in its traverse covers only the distance required for the figure to be produced. Each swivel shuttle can, if desired, carry a different color; a single figure will, however, seldom exceed two colors. The most staple form of swivel goods is the "dotted Swiss," consisting of one-color or white dots on a one-color or white lawn ground.

Cotton cloths which are constructed in the same manner as silk satins, with the object of producing a smooth and lustrous surface, are termed sateens. In sateens the face is practically all warp or all filling, according to whether it is a warp sateen or a filling sateen, and the interlacings of the yarns predominating on the face are so scattered as to prevent any obvious twill or other design, and to permit the face yarns to float loose between points of interlacing. The long floats lying side by side hide the interlacings and deflect the light in one direction, thus giving the smooth lustrous effect. This luster is improved by mercerizing, schreiner, and other special finishing processes. Sateens are plain cloths made on ordinary cam looms using five or more harness; where there are a large number of threads to the inch the dobby-head lift is substituted. Venetian linings are mainly sateens woven with eight or more harness and finished to resemble silk linings.

Tire fabric, or fabric for use in pneumatic tires, includes various types of cotton cloths used, together with rubber, in making automobile tires. Cord fabric is a peculiar type of tire fabric, consisting of a number of cords held parallel by occasional picks of filling; a typical cord fabric has 26 ends per inch of 28/5 ply yarn cabled 3-fold, and 2½ picks per inch of 28s single yarn. These fabrics are usually woven in wide widths, particularly the 48, 54, and 60 inch.

Production of lappets is not recorded, but is known to be small. Cotton swivels are not now made in the United States. Production of twills and sateens in 1914 amounted to 392,109,000 square yards, valued at \$32,892,000; in 1919, to 424,478,000 square yards (131,537,000 pounds), valued at \$101,057,000, but it is not shown how much of this consisted of sateens woven with 8 or more harness. Prior to the war 8-harness venetians were largely imported, but the demand is now mainly supplied by domestic mills.

Production in 1919 of tire duck was 121,745,000 square yards (128,174,000 pounds), valued at \$143,086,000; and of other tire fabrics 36,806,000 square yards (29,917,000 pounds), valued at \$32,602,000. The United States produces over 80 per cent of the automobile tires of the world, and a corresponding amount of the tire fabric.

Imports of lappets, swivels, and sateens are not separately recorded. It is known, however, that lappets constitute a minor item, whereas swivels and sateens are among the most important of the countable cotton cloth imports, although the importation of the latter, mainly 8-harness venetians, has declined before the increasing domestic competition. Venetians are almost entirely from England, whereas cotton swivels are mainly the products of hand looms in Switzerland and France.

Imports of tire fabrics amounted to 2,542 yards, valued at \$4,726, in 1919; and to 48,246 square yards, valued at \$55,637, in 1920. Imports during the first nine months of 1921 were 8,017 square yards, valued at \$2,837.

Exports of the three classes of cotton cloths here mentioned are not recorded separately. Exports of 8-harness warp sateens are known to be fairly substantial. Exports of tire fabrics are probably small, but there is a large export, particularly to Europe, of automobile tires into which such fabric enters.

Important changes in classification.—Paragraph 905 provides special rates of duty, higher than those applying under the provisions of paragraph 903, to three special types of cotton cloths, viz, to lappets and swivels, to sateens woven with eight or more harness, and to tire fabrics.

Lappets and swivels are given a differential over other cloths of the same construction and weight in order to compensate for any extra cost involved in their manufacture. The act of 1909, in paragraph 323, likewise provided for such differential "on all cotton cloth in which other than the ordinary warp and filling threads are used to form a figure or fancy effect." This provision applied to three, and only three, types of cloth; that is (1) cloths in which extra warp threads are introduced by means of the lappet attachment, (2) cloths in which extra filling threads are introduced by means of the swivel attachment, and (3) cloths in which certain threads are allowed to float, to be afterwards removed by shearing or clipping. The third class is, as previously noted, given a differential by means of the provision in paragraph 904 that all clipped threads shall be counted as if continuous. This leaves only two cloths of the 1909 grouping, viz, lappets and swivels, and these are here provided for by name and given a differential rate of duty that is cumulative on the basic cloth. In applying this cumulative rate it will be necessary to ascertain the number of threads per square inch in the basic cloth, together with the weight after the extra figuring threads are removed, in order to ascertain the official average yarn count and the regular duty applicable thereto under paragraph 903, and then to add thereto the cumulative differential rate here provided.

The second part of this paragraph, providing for a cumulative differential on sateens woven with eight or more harness, is an entirely new provision. It is intended particularly to cover venetians and grey goods to be finished into venetians. Venetians are dyed and mercerized and schreinered cloths of close texture, most of them being 8-harness sateens, which are used for various purposes, particularly for linings. Prior to the war cotton venetians were almost entirely imported and constituted the largest item in the list of

countable cotton cloths. Their manufacture in this country developed during the war and is now substantial.

The third section of this paragraph covers tire fabrics. Heretofore these have been provided for in the "small wares" paragraph, but as they are wide fabrics they are more logically placed here as special cloths.

Suggested changes.—The advisability of a special differential on sateens woven with eight or more harness is questionable. The manufacture of venetians is now firmly established, and it would seem that such cloths should be dutiable under paragraph 903 at whatever progressive rates are provided for other countable cotton cloths. Since venetians constitute one of the largest items of imported countable cotton cloths, the levying of additional duty would mean a substantial increase in the average rate of duty applicable to countable cotton cloths. It would also necessitate the examination of every sateen to determine whether it is made with eight or more harness, and this would add considerably to the work of customs examiners. This provision might well be omitted, with the intent that all cotton sateens fall under paragraph 903.

PARAGRAPH 906.

E. R. 7456.

SENATE AMENDMENTS.

PAR. 906. Tracing cloth, 5 cents per square yard and 17 per centum ad valorem; cotton window hollands, all oilcloths (except silk oilcloths and oilcloths for floors), and filled or coated cotton cloths not specially provided for, 8 cents per square yard and 17 per centum ad valorem; waterproof cloth composed wholly or in chief value of cotton or other vegetable fiber, whether or not in part of india rubber, 5 cents per square yard and 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 321. * * * Cotton cloth filled or coated, all oilcloths (except silk oilcloths and oilcloths for floors), and cotton window Hollands, three cents per square yard and twenty per centum ad valorem; tracing cloth, five cents per square yard and twenty per centum ad valorem.

PAR. 347. * * * waterproof cloth composed of cotton or other vegetable fiber, whether composed in part of india rubber or otherwise, ten cents per square yard and twenty per centum ad valorem.

[See opposite Par. 903 for painted cotton cloth, omitted there where stars appear.]

PAR. 254. * * * tracing cloth, 30 per centum ad valorem; cotton cloth filled or coated, all oilcloths (except silk oilcloths and oilcloths for floors), and cotton window hollands, 25 per centum ad valorem; waterproof cloth composed of cotton or other vegetable fiber, or of which cotton or other vegetable fiber is the component material of chief value or of cotton or other vegetable fiber and india rubber, 25 per centum ad valorem.

[See opposite Par. 903 for painted cotton cloth, omitted there where stars appear.]

SPECIAL CLOTHS (COATED, FILLED, OR WATERPROOF).

(See Survey I-4.)

GENERAL.

Paragraph 906 covers special cloths (filled, coated, or waterproof), which were provided for in preceding acts with very similar wording. Since tracing cloth, window hollands, and oilcloths are all filled, coated, or filled and coated, those not specifically mentioned are provided for in a basket clause: "and filled or coated cotton cloths not specially provided for."

A filled cloth is one in which all the interstices are filled flush with the top of the weave with a filler of starch or other material, the whole being smoothed down in the operation of the filling machine so as to leave the weave evident through the starch or other materials applied. The filler makes the cloth opaque or nearly opaque, and adds to the weight and stiffness. Among the various filling substances are starch, china clay, chalk, plaster of Paris, white lead, glue, Glauber's salt, and glucose. Typical examples of filled cloths are window hollands and heavily sized grey shirtings.

A coated cloth may be more or less filled in the interstices, but the primary requisite is that the surface be coated with a plaster finish at the expense of the face. The coating materials consist of varnish, paint, pigments, etc. Typical examples of coated cloths are those used in the sign-painting trade, and those used for tags, bookbinder's cloth, and imitation vellum, "green cloth" (a fabric treated with a solution of copper and wax and used in making artificial flowers), artificial leather, and the like. A coated cloth is usually, but not necessarily, opaque. Transparent goods such as tracing cloth and "near glass" (used for covering goods on the counter and for making certain styles of lamp shades) are classed as coated cloth.

TRACING CLOTH.

Description and uses.—Tracing cloth is a plain-woven cloth, almost always of cotton, that is processed by filling and coating to make a smooth transparent fabric, glazed on one side but dull finished on the other, that will take ink without blurring. It is used by draftsmen, architects, and engineers in duplicating drawings of plans for buildings, machinery, and construction work in general. The transparent cloth is placed over the original plan and the lines inked in; this is then put over blue-print paper and exposed to sunlight, or to such high-power artificial light as the arc or the mercury globe, in order to secure blue-print reproductions. Specially prepared tracing paper, although not so durable as the tracing cloth, finds considerable use as a cheaper substitute.

Production.—The manufacture of tracing cloth in the United States was inaugurated about 1906 by a firm which ceased production in 1914. Another firm, started in 1911, developed to a point where it supplied about half of the domestic demand, but closed down in 1921. In both instances the failure to survive was due to the preference of the trade for the old-established British brands; right or wrong, they regarded the domestic article as of inferior quality. Another company now being formed will undertake manufacture in 1922.

Imports are almost entirely from England, mainly from one firm which is an amalgamation of several firms manufacturing various types of coated and filled cloths. Tracing cloth was first mentioned in the act of 1909. During the period from August 6, 1909, to June 30, 1920, inclusive, annual imports averaged 2,339,565 square yards, valued at \$484,414. Imports in 1914 were 2,051,693 square yards, valued at \$347,028.

Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|-------------------|-----------|-----------|
| | <i>Sq. yards.</i> | | |
| 1918..... | 3,037,266 | \$961,077 | \$258,323 |
| 1919..... | 1,346,996 | 460,907 | 140,942 |
| 1920..... | 2,753,192 | 1,167,082 | 350,125 |
| 1921 (9 months) ¹ | 606,377 | 271,854 | ..... |

¹ Includes 3,745 pounds, valued at \$12,407, under the emergency tariff act.

Exports are not recorded.

COTTON WINDOW HOLLANDS.

Description and uses.—Cotton window hollands are used in making roller shades for windows and doors. They are ordinary cotton sheetings which have been filled to make them more or less opaque, and are finished by bleaching, or dyeing, and beetling.

Production is not recorded, but is steadily increasing and supplies the great bulk of the domestic demand.

Imports are mainly from one Scotch firm which has a long-established trade and which finds a limited market, at a higher price than the domestic, on the basis of superior finish. These goods, which are mainly in ecru and other light shades, are finished slowly and carefully with old-fashioned wooden faller beetles, whereas domestic goods are, as a rule, beetled by quicker-acted steel hammers.

Cotton window hollands constitute the bulk of the goods which are brought together in import statistics under the title "cotton cloth filled or coated, all oilcloths (except silk oilcloths and oilcloths for floors), and cotton window hollands." Annual imports of this class of goods during the period August 6, 1909, to June 30, 1920, inclusive, averaged 2,197,164 square yards, valued at \$350,383. In 1914 they were 3,018,050 square yards, valued at \$420,775.

Recent figures for such inclusive imports have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|-----------------|-----------|----------|
| | <i>Sq. yds.</i> | | |
| 1918..... | 813,835 | \$190,853 | \$47,713 |
| 1919..... | 612,764 | 219,650 | 54,913 |
| 1920..... | 930,299 | 322,410 | 80,693 |
| 1921 (9 months) ¹ | 383,020 | 140,409 | ..... |

¹ Includes 10,253 pounds, valued at \$10,518, under emergency tariff act.

Exports are not recorded, but are substantial. Australia is one of the main markets and is reported to prefer American-made window hollands in the deeper colors because these are mineral dyed and faster to sunlight than any produced in Europe.

OILCLOTHS (EXCEPT OF SILK AND FOR FLOORS).

Description and uses.—The oilcloths included in paragraph 906 are for covering tables, shelves, and walls, and for upholstering automobiles, carriages, couches, etc. For the first-named purpose a thin pliable cotton cloth, usually of light sheeting or print-cloth, is used. This cloth is covered with several coatings of linseed oil, benzine, ocher, or other pigments, china clay sometimes being added for weighting, and is usually finished by printing and varnishing. Oilcloth for upholstering is known as enameled cloth and is made on a cotton base of sheeting, duck, twill, or sateen, which is sized, coated, and varnished; specially engraved rollers are usually employed to impress on the surface grained finishes of various kinds.

Production in 1914 was 59,358,872 square yards of table oilcloth, valued at \$6,025,348, and 18,357,097 square yards of enameled oilcloth, valued at \$2,495,255. Production in 1919 of oilcloth made on a cotton back consisted of 39,842,000 square yards, valued at \$13,147,000, of table, shelf, and wall oilcloth, and 8,461,000 square yards, valued at \$3,421,000, of enameled oilcloth.

Imports are not recorded separately but are reported to be small.

Exports of "oilcloth and linoleum other than for floors" were valued at \$666,684 in 1914 (fiscal year), and at \$1,281,507 in 1918, \$1,936,544 in 1919, \$3,618,835 in 1920 (calendar years), and at \$1,191,189 for the first nine months of 1921.

FILLED OR COATED COTTON CLOTHS, N. S. P. F.

Description and uses.—Among cloths falling under this clause are artificial leather made on a cotton base, book cloths, buckram and similar cloths stiffened by filling or coating and used for padding suits, "green cloth" used in artificial flower manufacture, tag cloths, imitation vellum, heavily sized shirtings, "near glass," and various other specialties.

Production in 1919 of artificial leather consisted of 3,332,000 square yards, valued at \$3,923,000, of pyroxylin coated textiles; and 10,300,000 square yards, valued at \$4,821,000, of other than pyroxylin coated. Production of other specialties here included is not recorded.

Imports are not recorded separately but are reported to be small.

Exports are not recorded.

WATERPROOF CLOTH.

Description and uses.—Waterproof cloths under paragraph 906 include all those made of cotton or other vegetable fiber, with or without the addition of india rubber, not otherwise specially mentioned.

Waterproof cloths are used for raincoats, auto tops, dress shields, infants' wear, in hospitals, and for many other purposes. Any cloth that is impervious to water, or that is substantially so and intended to turn water, may be classed as a waterproof cloth. Some fabrics invoiced as waterproof cloths and held to be so dutiable are simply close-woven cotton cloths which have undergone no special treatment; others are made by cementing together two cloths (such as the duplex fabric made of a printed cloth and a dyed cloth and used for raincoats) that are otherwise not waterproof. The waterproof cloths

used in domestic trade have for the most part, however, been subjected to various finishing processes, the nature and extent of which are dependent on the service that is expected of the particular goods.

Production of waterproof cloths in the United States is large and constantly increasing. There are no data as to the extent of the output, but it is known to run into millions of dollars.

Imports were 258,207 square yards, valued at \$88,427 in 1914. fiscal year. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|-----------------|-----------|----------|
| | <i>Sq. yds.</i> | | |
| 1918..... | 270,495 | \$190,279 | \$47,570 |
| 1919..... | 61,173 | 39,146 | 9,746 |
| 1920..... | 160,500 | 121,106 | 30,276 |
| 1921 (9 months) ¹ | 96,758 | 73,536 | |

¹ Includes 1,363 pounds, valued at \$3,286, under the emergency tariff act.

PARAGRAPH 907.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 907. Cloth in chief value of cotton, containing silk or artificial silk, 8 cents per square yard and 17 per centum ad valorem; *Provided*, That none of the foregoing shall pay a less rate of duty than 33½ per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 321. Cloth, composed of cotton or other vegetable fiber and silk, whether known as silk-striped sleeve linings, silk stripes, or otherwise, of which cotton or other vegetable fiber is the component material of chief value, eight cents per square yard and thirty per centum ad valorem; *Provided*, That no such cloth shall pay a less rate of duty than fifty per centum ad valorem. * * *

PAR. 254. Cloth composed of cotton or other vegetable fiber and silk, whether known as silk-striped sleeve linings, silk stripes, or otherwise, of which cotton or other vegetable fiber is the component material of chief value, * * * 30 per centum ad valorem; * * *.

COTTON CLOTH CONTAINING SILK OR ARTIFICIAL SILK.

(See Survey I-4.)

Description and uses.—Cotton-weaving mills are large users of silk and artificial silk for the production of such fabrics as silk-striped shirtings, sleeve linings, and voiles, and fancy gingham and other fabrics containing silk figures. Cotton mills now dominate the trade in many lines of silk-and-cotton fancies. In recent years artificial silk has been employed as a substitute for silk in the ornamentation of various types of cotton cloth.

Production figures are not separately recorded, except in the case of one type of cotton cloth, silk-striped shirtings, of which there were 33,866,000 square yards (5,854,000 pounds), valued at \$12,379,000, produced in 1919. The total is much larger than this, as there has been a marked and steady increase in the use of silk and artificial silk by the cotton industry. The silk industry is also a large user

of cotton, but most silk-and-cotton mixed goods produced in silk mills have silk as the component material of chief value.

Imports are negligible as compared with the domestic production. During the 30 fiscal years ended June 30, 1920, imports averaged only 149,583 square yards, valued at \$43,397. In 1914 they were 213,147 square yards, valued at \$67,254.

Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|-----------------|----------|----------|
| | <i>Sq. yds.</i> | | |
| 1918..... | 127,467 | \$61,550 | \$18,465 |
| 1919..... | 84,618 | 45,580 | 14,574 |
| 1920..... | 199,833 | 113,478 | 34,043 |
| 1921 (9 months)..... | 276,206 | 70,553 | ..... |

¹ Includes 12,158 pounds, valued at \$33,491, under the emergency tariff act.

Exports of cotton cloth containing silk or artificial silk are not recorded separately, but are larger than imports.

Important changes in classification.—Two changes have been made in the wording previously in use.

The phrase "or other vegetable fiber" has been omitted in order to confine this paragraph exclusively to cloths in chief value of cotton; this was done in consonance with the desire to restrict, so far as feasible, each schedule to the material to which it relates, and also because there are few imports of cloths in chief value of any vegetable fiber, other than cotton, which contain silk or artificial silk; if imported, such cloths should fall under schedule 10.

The second change is the inclusion of cloths, in chief value of cotton, which contain artificial silk. Under the act of 1913 such cloths fell under the basket paragraph of the cotton schedule. One reason for their inclusion here is to avoid the administrative necessity of determining whether the stripes or other ornamental effects in a cloth chiefly of cotton are silk or artificial silk.

The wording has been shortened by the omission of terms such as "silk-striped sleeve linings" and "silk stripes," as these are fully covered without specific mention.

PARAGRAPH 908.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 908. Tapestries, and other Jacquard woven upholstery cloths, in the piece or otherwise, composed wholly or in chief value of cotton or other vegetable fiber, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 326. * * * tapestries, and other Jacquard figured upholstery goods, weighing over six ounces per square yard, composed wholly or in chief value of cotton or other vegetable fiber; any of the foregoing, in the piece or otherwise, fifty per centum ad valorem.

PAR. 258. * * * tapestries, and other Jacquard figured upholstery goods, composed wholly or in chief value of cotton or other vegetable fiber; any of the foregoing, in the piece or otherwise, 35 per centum ad valorem; * * *.

JACQUARD-WOVEN UPHOLSTERY CLOTHS IN THE PIECE OR OTHERWISE.

(See Survey I-4.)

Description and uses.—The term "Jacquard-woven upholstery cloths," includes two classes of cloth: (1) Heavy fabrics, such as tapestries, brocades, brocatelles, damasks, armures, and "pocket cloths," which are used not only for covering furniture, walls, seats in railway coaches and in inclosed automobiles, but as wall hangings, portières, pillow tops, table covers, and mantel and bureau scarfs; and (2) light-weight clipped fabrics, such as madras muslin, used mainly as curtains. The paragraph, as worded, includes only cloths of cotton or other vegetable fiber, woven on a Jacquard loom and intended for upholstery use. These Jacquard-woven upholstery cloths usually have patterns of much larger size and more elaborate character than those used in Jacquard-woven cloths for dress use. The words "or otherwise" after "in the piece" extends the meaning to include tapestry panels and also curtains and other articles made from Jacquard-woven upholstery cloths.

Production of cotton tapestries in 1914 was 10,138,000 square yards, valued at \$5,412,000; and in 1919, 21,656,000 square yards (9,580,000 pounds), valued at \$17,157,000. The production of madras muslin and other Jacquard-woven upholstery cloths is not recorded separately. Philadelphia is the main center of production.

Imports during the period from August 6, 1909, to June 30, 1920, inclusive, averaged \$608,633 in value per annum, with no record as to quantity. This figure includes substantial amounts of Jacquard figured net and lace which were, by judicial interpretation, permitted entry under paragraph 258 of the act of 1913.

Imports in the fiscal year 1914 was valued at \$634,617.

Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|-----------------|-----------|-----------|
| | <i>Sq. yds.</i> | | |
| 1918..... | | \$413,420 | \$141,097 |
| 1919..... | 1,195,923 | 422,269 | 147,591 |
| 1920..... | 6,111,494 | 2,683,002 | 939,001 |
| 1921 (9 months) ¹ | 3,426,892 | 1,768,974 | |

¹ Includes 110,079 pounds, valued at \$260,018, under the emergency tariff act.

Exports are not recorded.

Important changes in classification.—The wording of the two previous acts—"tapestries, and other Jacquard figured upholstery goods"—has been changed to "Tapestries, and other Jacquard woven upholstery cloths." This was done to prevent Jacquard figured nets and laces, which logically should be dutiable at the higher rates provided for net and lace, from being entered at the rates here provided for special types of Jacquard woven cloth. The act of 1909, by the proviso "weighing over six ounces per square yard," accomplished the same ends, but the omission of this weight limitation in the 1913 wording led to decisions which have permitted large amounts of goods to come in at a lower rate (35 per cent) than is imposed on

nets, nettings, and laces (60 per cent) in the lace paragraph (358, act of 1913). Plain net now pays 60 per cent duty under the said paragraph 358, but the more expensive Jacquard figured net, if for curtain use, is admitted under paragraph 258 of the act of 1913 at 35 per cent ad valorem. Domestic manufacturers oppose the reinsertion of the weight proviso, which would throw madras muslins into the countable cotton-cloth paragraph, and the wording of paragraph 908 puts madras muslin with heavier woven Jacquard cloths and yet excludes net and lace, which are provided for in paragraph 1430 at higher rates of duty. The Jacquard is an attachment that is used on looms, braiding machines, lace machines, etc., to attain fancy effects, and all fabrics so made are Jacquard figured. Only cloth is woven (net and lace are "made," not woven, and the operator of a lace machine is known as a "lace maker" and not as a weaver), and further strength is added to the use of the word "cloth" by employing "Jacquard woven" in place of "Jacquard figured."

Paragraph 258 of the act of 1913 includes not only Jacquard figured upholstery goods but also cotton chenille and articles made of Jacquard woven goods. Specific mention of these has been omitted because of their small importance. Cotton chenilles have gone out of style, being mainly replaced by tapestries and other goods for upholstery, and imports are negligible. Their omission here permits them to fall without specific mention under the pile fabric paragraph 909. Imports of "Jacquard figured manufactures of cotton"—that is, articles made of Jacquard figured cloth, not specially provided for—are also normally small; they include a variety of articles of little importance individually, and omission of specific mention is with the intent that they fall under the basket paragraph 920.

PARAGRAPH 909.

H. E. 7456.

SENATE AMENDMENTS.

PAR. 909. Pile fabrics, composed wholly or in chief value of cotton, including plush and velvet ribbons, cut or uncut, whether or not the pile covers the whole surface, and manufactures, in any form, made or cut from cotton pile fabrics, 33½ per centum ad valorem; terry-woven fabrics, composed wholly or in chief value of cotton, and manufactures, in any form, made or cut from terry-woven fabrics, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 325. Plushes, velvets, velveteens, corduroys, and all pile fabrics, cut or uncut, whether or not the pile covers the entire surface; any of the foregoing composed of cotton or other vegetable fiber, except flax, not bleached, dyed, colored, stained, painted, or printed, nine cents per square yard and twenty-five per centum ad valo-

PAR. 257. Plushes, velvets, plush or velvet ribbons, velveteens, corduroys, and all pile fabrics, cut or uncut, whether or not the pile covers the entire surface; any of the foregoing composed wholly or in chief value of cotton or other vegetable fiber, except flax, hemp, or ramie; and manufactures or articles in any form, including

ACT OF 1909.

rem; if bleached, dyed, colored, stained, painted, or printed, twelve cents per square yard and twenty-five per centum ad valorem: *Provided*, That corduroys composed of cotton or other vegetable fiber, weighing seven ounces or over per square yard, shall pay a duty of eighteen cents per square yard and twenty-five per centum ad valorem: *Provided further*, That manufactures or articles in any form including such as are commonly known as bias dress facings or skirt bindings, made or cut from plushes, velvets, velveteens, corduroys, or other pile fabrics composed of cotton or other vegetable fiber, shall be subject to the foregoing rates of duty and in addition thereto ten per centum ad valorem: *Provided further*, That none of the articles or fabrics provided for in this paragraph shall pay a less rate of duty than forty-seven and one-half per centum ad valorem.

ACT OF 1913.

such as are commonly known as bias dress facings or skirt bindings, made or cut from plushes, velvets, velveteens, corduroys, or other pile fabrics composed of cotton or other vegetable fiber, except flax, hemp, or ramie, 40 per centum ad valorem.

PAR. 264. * * * bath mats, * * * wash rags or cloths * * * any of the foregoing made of cotton, or of which cotton is the component material of chief value, not embroidered nor in part of lace and not otherwise provided for, 25 per centum ad valorem.

PAR. 358. * * * coach, carriage, and automobile laces, * * * 60 per centum ad valorem.

COTTON PILE FABRICS AND MANUFACTURES OF.

(See Survey I-4.)

Description and uses.—Cotton pile fabrics may be divided into two broad classes: (1) Velveteen, corduroy, velvet, and plush, and (2) Turkish toweling and other terry-woven fabrics. The production of both classes of fabrics in the United States has been steadily increasing.

Pile fabrics consist of a foundation cloth covered in whole or in part by short projecting ends or loops made with an extra set of threads. In the case of velveteen and corduroy this extra set of threads consists of filling whereas in the case of velvet and plush it consists of warp. Filling piles are always cut whereas warp piles may be either cut or loop (uncut). Terry-woven fabrics are made by a different method from that used for other pile fabrics and usually have uncut loops on both sides of the cloth.

Velveteens are used for dress and upholstery purposes, also for handbags and shoe tops, and for lining jewelry and silverware boxes. Corduroys are velveteen cords; the finer varieties are used for children's clothing and dress fabrics, whereas the coarser varieties are used for riding trousers and skirts and for suits of men engaged in rough labor and field sports. Cotton plushes are used for cloaks, as upholstery material, etc. Terry cloths are used as Turkish toweling and for bath robes, wash cloths, bathroom mats, etc.

Manufactures of pile fabrics here dutiable include, particularly, portières and other articles used for upholstery and decorative purposes. They do not include any wearing apparel as this is more specifically provided for in paragraph 918.

Production of cotton pile fabrics in 1914 included 29,129,000 square yards of velveteens, velvets, plushes, and corduroys, valued at \$8,540,000, and 75,799,000 square yards of terry-woven fabrics valued at

\$9,805,000; in 1919, 20,444,000 square yards of velveteens, velvets, and plushes, 19,863,000 square yards of corduroy, 31,506,000 square yards of Turkish towels and toweling, and 442,000 square yards of other terry weaves, a total of 72,255,000 square yards (43,686,000 pounds), valued at \$51,251,000. The main producers of cotton velveteens, corduroys, and plushes are Pennsylvania, Rhode Island, Massachusetts, and New York; the main producers of Turkish toweling and other terry weaves are North Carolina, Georgia, and Pennsylvania.

Imports of cotton pile fabrics during the 30 fiscal years ended June 30, 1920, averaged 5,250,351 square yards, valued at \$1,815,449 annually. The record import was of 15,917,514 square yards in 1897. Imports in 1914 were 4,100,503 square yards, valued at \$2,204,224. Imports of manufactures of cotton pile fabrics were first recorded in 1898 and during the fiscal years 1898-1920 averaged in value only \$45,652 per annum. With the continued development of the domestic industry the field for foreign pile fabrics of cotton has been narrowed down to those of exceptionally high grade and to specialties such as hand-cut velvets. Although imports fluctuate, the tendency is downwards.

Imports of cotton pile fabrics since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|--------------------|-----------|-----------|
| | <i>Square yds.</i> | | |
| 1918..... | 747,676 | \$508,207 | \$239,283 |
| 1919..... | 589,385 | 712,032 | 284,813 |
| 1920..... | 925,281 | 969,756 | 387,902 |
| 1921 (9 months) ¹ | 189,209 | 244,749 | ..... |

¹ Includes 11,968 pounds, valued at \$29,522, under the emergency tariff act.

Imports of manufactures of cotton pile fabrics since 1917 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) ¹ . |
|------------|----------|----------|-----------|-----------------------------------|
| Value..... | \$19,398 | \$55,854 | \$179,960 | \$80,381 |
| Duty..... | 7,759 | 22,342 | 71,984 | ..... |

¹ Includes 2,505 pounds, valued at \$7,446, under the emergency tariff act.

Exports of cotton pile fabrics are not recorded separately but are substantial. An indication is afforded by the Canadian statistics which for the fiscal year ended March 31, 1921, show imports from the United States of cotton velveteens, velvets, and plushes valued at \$320,246; of towels valued at \$285,995; and of toweling in the web valued at \$37,268, although there is not shown how much of the two latter items were terry woven.

Important changes in classification.—The term "cotton pile fabrics" is used as inclusive, and specific mention of plushes, velvets, velveteens, and corduroys has been omitted as unnecessary. Terry-woven fabrics are also pile fabrics, but as they are cheaper articles they are provided for by name at a lower rate of duty than is applied to other pile fabrics of cotton. As heretofore, the paragraph

includes manufactures of pile fabrics. To secure the inclusion of manufactures of pile fabrics which properly belong here, particularly Turkish towels, terry-woven bath mats and wash cloths, and velvet polishing cloths, the phrase "nor made of pile fabrics" was inserted after the provision for towels, etc., in paragraph 911.

PARAGRAPH 910.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 910. Table damask, composed wholly or in chief value of cotton, and manufactures, in any form, composed wholly or in chief value of such damask, 28 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 331. Cotton table damask, forty per centum ad valorem; manufactures of cotton table damask or of which cotton table damask is the component material of chief value, not specially provided for in this section, forty per centum ad valorem.

PAR. 263. Cotton table damask, and manufactures of cotton table damask, or of which cotton table damask is the component material of chief value, not specially provided for in this section, 25 per centum ad valorem.

COTTON TABLE DAMASK, AND MANUFACTURES OF.

(See Survey I-4.)

Description and uses.—Damask fabrics are usually woven on Jacquard looms, although some varieties are made on dobby looms, and show ornamental patterns, usually elaborate in character, such as fruit, foliage, scrolls, and vases. The figures in the patterns are made by alternately exchanging warp for filling surface and vice versa. The surface threads of the figures lie at right angles to the surface threads of the background, and the rays of light falling on the fabric are dispersed and the pattern is brought out in bold relief, even though the entire fabric be white. Damasks for upholstery fall under the provisions of paragraph 908; damasks dutiable under paragraph 910 are restricted to the specific class known as table damask. While these are generally bleached goods, some are made in colors, e. g., Turkey red damask, made of red and white yarns. Cotton table damask, although mainly Jacquard woven, is made of coarse yarns, between 16s and 30s, from ordinary upland cotton. Cotton table damask is cheaper than linen table damask, for which it is substituted, and is being made in this country in increasing quantities.

Cotton table damask refers to the woven cloth; the principal manufactures are table cloths, napkins, and doilies.

Production in 1919 amounted to 27,400,000 square yards (10,495,000 pounds), valued at \$9,507,000. North Carolina, Georgia, Massachusetts, and Maine are the leading producers.

Imports during the 30 fiscal years ended June 30, 1920, averaged in value \$463,875 per annum. The values imported in 1914 amounted to \$503,341. The record import, so far as values are concerned, was in the fiscal year 1920, a total of \$1,662,643, of which \$796,727 consisted of cotton table damask in the piece, and \$865,916 of manufactures thereof. Quantities were not recorded, but taking into con-

sideration the high prices of 1920, it is probable that the \$759,491 worth imported in 1904 was the high-water mark as to quantity. The scarcity and high price of linen have led to the increased use of cotton table damask. Statistics of imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|----------------------|-----------|-----------|
| COTTON TABLE DAMASK. | | | |
| | <i>Square yards.</i> | | |
| 1918..... | | \$645,706 | \$161,427 |
| 1919..... | 1,284,583 | 565,496 | 141,374 |
| 1920..... | 1,148,159 | 667,688 | 151,623 |
| 1921 (9 months) ¹ | 574,056 | 268,174 | ..... |

MANUFACTURES OF COTTON TABLE DAMASK.

| | | | |
|------------------------------------|--|-----------|-----------|
| 1918..... | | \$459,994 | \$114,999 |
| 1919..... | | 625,984 | 156,496 |
| 1920..... | | 934,371 | 233,593 |
| 1921 (9 months) ² | | 612,090 | ..... |

¹ Includes 13,874 pounds, valued at \$17,687, under the emergency tariff act.

² Includes 8,356 pounds, valued at \$8,790, under the emergency tariff act.

Exports are not recorded but are known to be fairly substantial.

Important changes in classification.—This paragraph covers the same class of goods as those provided for in paragraph 263 of the act of 1913, that is, cotton table damask and manufactures of; the wording has been clarified and condensed.

Suggested changes.—Various types of cotton cloth, such as muslins, Chinese nankeens, coarse colored cottons, and cotton duck, have in the past been made dutiable at relatively high rates during certain periods, and have then dropped back to a tariff level with other cotton cloths. Cotton table damask affords an example of a cloth on which the same procedure might be followed. It is made of coarse counts, the domestic industry supplies the great bulk of the demand, and there is a substantial export. The Tariff Commission is unable to find any reason for the *eo nomine* designation of this cloth at a distinct rate of duty, particularly as the progressive rates of duty levied on other countable cotton cloths under paragraph 903 cover many Jacquard fabrics of much finer yarns and higher percentage of labor cost. Specific mention of manufactures of cotton table damask might be continued for purposes of statistical record.

It is therefore suggested that paragraph 910 be reworded "Manufactures of cotton table damask, in any form, composed wholly or in chief value of cotton," with the intent that cotton table damask in the piece fall under the progressive rates of duty in paragraph 903 without specific mention.

PARAGRAPH 911.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 911. Quilts or bedspreads, composed wholly or in chief value of cotton, woven of two or more sets of warp threads or of two or more sets

H. R. 7456.

SENATE AMENDMENTS.

of filling threads, 30 per centum ad valorem; other quilts or bedspreads, wholly or in chief value of cotton, 20 per centum ad valorem; sheets, pillowcases, blankets, towels, polishing cloths, dust cloths, and mop cloths, composed wholly or in chief value of cotton, not Jacquard figured or terry-woven, nor made of pile fabrics, and not specially provided for, 20 per centum ad valorem; table and bureau covers, centerpieces, runners, scarfs, napkins, and doilies, made of plain-woven cotton cloth, and not specially provided for, 23 per centum ad valorem.

ACT OF 1909.

[No corresponding provision.]

ACT OF 1913.

PAR. 264. Towels. * * * quilts, blankets, polishing cloths, mop cloths. * * * sheets, pillowcases, * * * any of the foregoing made of cotton, or of which cotton is the component material of chief value, not embroidered nor in part of lace and not otherwise provided for, 25 per centum ad valorem.

[No corresponding provision for the other commodities.]

HOUSEHOLD ARTICLES OF COTTON.

Description and uses.—Quilts, also termed bedspreads, coverlets, and counterpanes, are used as bed covering. The four main types are Marseilles, satin, crochet, and dimity. The first three are Jacquard woven, usually in elaborate designs of bold character. All four are loom-woven fabrics, which are usually finished by bleaching, and with hemmed or bound edges. Honeycomb and Alhambra quilts are of the same class as crochet quilts, differing principally in the type of design used. The term "quilts" also includes padded bed coverings, such as the comfortable. Sheets are made of plain-woven cloth, cut and hemmed in various sizes. Pillowcases are made of plain-woven cloth, some of it tubular, cut to appropriate lengths, sewed, and hemmed at one end. Towels covered by this paragraph refer to ordinary plain and huck towels, and do not include Jacquard-woven towels or Turkish towels. Blankets covered by this paragraph refer to ordinary plain or twilled blankets, and do not include Jacquard-woven blankets. Polishing cloths are small squares of napped cotton fabric, usually flannel, used in the household for polishing and dusting metal, glass, and wood; also in the harness trade and in the automobile-accessory business. Polishing cloths made of velveteen, such as is used for polishing silverware, are dutiable under paragraph 909. Dust cloths are similar to polishing cloths, but are given specific mention because heretofore dutiable under the basket paragraph. Mop cloths are used for scrubbing and may be either plain or leno woven; the filling is usually of cotton waste, jute, or other cheap material. The phrasing "table and bureau covers, centerpieces, runners, scarfs, napkins, and doilies" is used to cover a class

of imports known in the trade as "Japanese blue prints," consisting of articles made of coarse sheeting which has been stencil-dyed in indigo, and imports similar thereto.

Production in 1919 of bedspreads and quilts (crochet, Marseilles, and satin) was 24,072,000 square yards (12,700,000 pounds), valued at \$10,245,000; of sheets and pillowcases, 20,817,000 square yards (5,019,000 pounds), valued at \$3,369,000; of cotton blankets of all kinds, 96,621,000 square yards (42,321,000 pounds), valued at \$32,640,000; of towels and toweling (not terry woven), bath mats, wiping and polishing cloths (not pile woven), 43,327,000 square yards (20,809,000 pounds), valued at \$16,786,000. The production of dimity and ripplette quilts is not recorded. Japanese blue prints are also not separately shown in production statistics. Such articles, made in imitation of Japanese designs, were first manufactured during the war, but as the basic cloth is better made than the Japanese, they lack the "oriental novelty" of the imported blue prints and reach a somewhat different class of trade.

Imports in the fiscal year 1914 of quilts and blankets were valued at \$116,892; polishing cloths, mop cloths, wash cloths, at \$63,077; sheets and pillowcases, at \$4,836. Imports of huck towels are not recorded separately from imports of Turkish towels, but the total for towels and bath mats was \$154,326 in 1914; most of these were terry woven. Imports of household articles of cotton during the calendar years 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|--|----------------|-----------|----------|
| COTTON BLANKETS AND QUILTS. | | | |
| | <i>Number.</i> | | |
| 1918..... | | \$144,926 | \$36,232 |
| 1919..... | 54,476 | 168,895 | 42,204 |
| 1920..... | 66,817 | 387,074 | 96,769 |
| 1921 (9 months) ¹ | 45,908 | 147,433 | |
| COTTON SHEETS AND PILLOWCASES. | | | |
| 1918..... | | \$15,563 | \$3,891 |
| 1919..... | 4,911 | 6,134 | 1,534 |
| 1920..... | 16,946 | 22,317 | 5,298 |
| 1921 (9 months) ² | 18,265 | 21,042 | |
| COTTON TOWELS AND BATH MATS. | | | |
| 1918..... | | \$59,305 | \$14,849 |
| 1919..... | 236,927 | 49,940 | 12,487 |
| 1920..... | 410,489 | 108,682 | 27,171 |
| 1921 (9 months) ³ | 205,554 | 48,513 | |
| COTTON CLOTHS FOR POLISHING, MOP CLOTHS, AND WASH CLOTHS. | | | |
| 1918..... | | \$7,555 | \$1,889 |
| 1919..... | | 7,023 | 1,756 |
| 1920..... | | 37,723 | 9,431 |
| 1921 (9 months) ⁴ | | 28,378 | |

¹ Includes 10,315 pounds, valued at \$10,915, under the emergency tariff act.

² Includes 752 pounds, valued at \$6,026, under the emergency tariff act.

³ Includes 2,973 pounds, valued at \$2,676, under the emergency tariff act.

⁴ Includes 1,902 pounds, valued at \$707, under the emergency tariff act.

Exports are not recorded, but are substantial. Their volume is indicated by Canadian statistics which show imports from the United States for the fiscal year ended March 31, 1921, valued as follows: Bed quilts or spreads, \$235,932; sheets and pillowcases, \$125,595; blankets, \$257,622; also \$285,995 worth of towels, the greater part of which, however, may have been of Turkish towels. It is obvious that, with the exception of Japanese blue prints, exports are larger than imports of the articles covered by this paragraph.

Important changes in classification.—In the act of 1918 a number of articles were removed from a basket paragraph of the preceding act and provided for *eo nomine* in paragraph 264. Paragraph 911 is a revision of this paragraph. It comprises four brackets.

The first two brackets cover cotton quilts and bedspreads of all kinds, composed wholly or in chief value of cotton. It is intended that Marseilles and satin quilts shall be assessed one rate of duty, and all other quilts another and lower rate.

The third bracket covers sheets, pillowcases, blankets, towels, polishing cloths, dust cloths, and mop cloths, wholly or in chief value of cotton, when not Jacquard or pile woven. Ordinary cotton blankets are here dutiable but Jacquard woven cotton blankets will fall under basket paragraph 920. Ordinary cotton towels, including huck, are here dutiable; Turkish towels are dutiable under paragraph 910; Jacquard woven towels, not terry, fall under paragraph 920. Ordinary polishing cloths are here dutiable; those made of velveteen, such as Selvyt, are dutiable under paragraph 910. Dust cloths have been taken out of the basket paragraph and given specific mention. Mention of bath mats and wash cloths is omitted because imports are almost entirely terry-woven fabrics which will be dutiable under paragraph 910. Mention of batting has been omitted, letting it go back under the basket paragraph, because imports are small and this article does not properly belong with the others here enumerated.

The fourth bracket is entirely new and has been inserted, not for the purpose of securing a higher rate, but to insure statistical record of the largest items now included under the basket paragraph. These are "Japanese blue prints" and similar articles. These "blue prints," such as covers, centerpieces, etc., are usually stencil-dyed with reproductions of Mount Fuji, rural scenes, flowers, foliage, birds, etc., the basic cloth being mainly coarse sheeting.

PARAGRAPH 912.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 912. Fabrics with fast edges not exceeding twelve inches in width, and articles made therefrom; tubings, garters, suspenders, braces, cords, tassels, and cords and tassels; all the foregoing composed wholly or in chief value of cotton or of cotton and india rubber, and not specially provided for, 25 per centum ad valorem; spindle banding, and lamp, stove, or candle wicking, made of cotton or other vege-

H. R. 7456.

SENATE AMENDMENTS.

table fiber, 10 cents per pound and 12½ per centum ad valorem; boot, shoe, or corset lacings, made of cotton or other vegetable fiber, 15 cents per pound and 12½ per centum ad valorem; loom harness, healds, and collets, made wholly or in chief value of cotton or other vegetable fiber, 25 cents per pound and 20 per centum ad valorem; labels for garments or other articles, composed of cotton or other vegetable fiber, 50 cents per pound and 20 per centum ad valorem; belting, for machinery, composed wholly or in chief value of cotton or other vegetable fiber, or cotton or other vegetable fiber and india rubber, 20 per centum ad valorem.

ACT OF 1909.

PAR. 330. Bone casings, garters, * * * suspenders and braces, and tubing, any of the foregoing made of cotton * * * and india rubber, or of which cotton * * * is the component material of chief value, and not embroidered by hand or machinery, forty-five per centum ad valorem; spindle banding, woven, braided or twisted lamp, stove, or candle wicking made of cotton or other vegetable fiber, ten cents per pound and fifteen per centum ad valorem; loom harness, healds or collets made of cotton or other vegetable fiber, or of which cotton or other vegetable fiber is the component material of chief value, fifty cents per pound and twenty-five per centum ad valorem; boot, shoe, and corset lacings made of cotton or other vegetable fiber, twenty-five cents per pound and fifteen per centum ad valorem; labels, for garments or other articles, composed of cotton or other vegetable fiber, fifty cents per pound and thirty per centum ad valorem; belting for machinery made of cotton or other vegetable fiber and india rubber, or of which cotton or other vegetable fiber is the component material of chief value, thirty per centum ad valorem.

PAR. 349. * * * bands, bandings, belts, beltings, bindings, cords, * * * ribbons, tapes, webs, and webbings; * * * all of the foregoing, composed wholly or in chief value of cotton, * * * or other vegetable fiber, or of cotton, * * * or other vegetable fiber and india rubber, or of cotton, * * * or other vegetable fiber, india rubber, and metal, and not elsewhere specially provided for in this section,

ACT OF 1913.

PAR. 262. Bandings, belts, beltings, bindings, bone casings, cords, tassels, cords and tassels, garters, * * * suspenders and braces, and fabrics with fast edges not exceeding twelve inches in width, all of the foregoing made of cotton * * * or of which cotton * * * is the component material of chief value; or of cotton * * * and india rubber, and not embroidered by hand or machinery; spindle banding, woven, braided, or twisted lamp, stove, or candle wicking made of cotton or other vegetable fiber; loom harness, healds, or collets made of cotton or other vegetable fiber, or of which cotton or other vegetable fiber is the component material of chief value; boot, shoe, and corset lacings made of cotton or other vegetable fiber; and labels for garments or other articles, composed of cotton or other vegetable fiber, 25 per centum ad valorem; belting for machinery made of cotton or other vegetable fiber and india rubber, or of which cotton or other vegetable fiber is the component material of chief value, 15 per centum ad valorem.

PAR. 358. * * * coach, carriage, and automobile laces, * * * 60 per centum ad valorem.

H. R. 7456.

SENATE AMENDMENTS.

sixty per centum ad valorem: *Provided*, That no article composed wholly or in chief value of one or more of the materials or goods specified in this paragraph, shall pay a less rate of duty than the highest rate imposed by this section upon any of the materials or goods of which the same is composed:

* * *

COTTON SMALL WARES.

Description and uses.—Paragraph 912 includes narrow woven fabrics which have not been ornamented after leaving the loom, manufactures of such narrow woven fabrics, and certain articles made by braiding or twisting together yarns or threads. These “small wares” are confined mainly to those of which cotton is the component material of chief value. Similar small-wares paragraphs are to be found in the other three textile schedules.

“Fabrics with fast edges not exceeding 12 inches in width” is an inclusive term for narrow woven fabrics, as distinguished from cloth which is a woven fabric over 12 inches in width. These narrow woven fabrics, such as tapes, ribbons, bandings, beltings, bindings, webbings, etc., are made on narrow-ware looms which produce a number of them simultaneously by means of numerous small shuttles positively driven by means of a rack and pinions. Articles made therefrom include bands, belts, cartridge belts, gun slings, webs, saddle girths, etc. Tubings are tubular woven products of the narrow-ware loom; they are used in stem work for artificial flowers, as bone casings in corset manufacture, and for various other purposes. Garters, suspenders, and braces are articles made from narrow fabrics, usually from elastic webbings which are woven with elastic threads in the warp. Cords are made by braiding or cabling three or more threads. Tassels are pendent ornaments ending in a tuft of loose threads or cords. Cords and tassels are formed by securing tassels to cords. Spindle banding is used on spinning machines in transmitting power to the spindles; one type is a cord made by braiding or twisting together rovings or yarns, whereas another type is a narrow woven tape. Wicking for candles is usually a twisted or cabled yarn; wicking for oil-burning lamps and stoves may be either braided or tubular woven. Lacings for boots, shoes, and corsets may be round, flat, or braided; they are usually made on the braiding machine. Loom harness consists of a number of heddles or healds, each with an opening or eye tied in the center, stretched side by side on a flat frame; it is used on the loom, after the warp threads are drawn through the heddle eyes, to govern the order in which the warp threads are interlaced with the filling during weaving. Healds are made from harness twine to form constituent parts of the loom harness. Collets are cords used to hold the loom harness in position on the loom and are made of either flax or cotton. Woven labels for use on garments or other articles are made on a ribbon loom with Jacquard attachment. Belting for machinery is, in the narrower widths, made on webbing looms; the wider widths differ from the other woven fabrics under this paragraph in that they are made on heavy fly-shuttle looms.

Production in 1919 was valued at \$40,724,000, as against \$11,525,000 in 1914. It includes \$15,196,000 of round braids (including shoe and corset laces); \$15,104,000 of tape and webbing (not elsewhere specified); \$626,000 of banding, belts, and belting (not over 12 inches in width); \$624,000 of labels, woven figured; and \$424,000 of spindle banding.

Imports in 1914 were valued at \$844,552. Imports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------------------|-----------|-----------|-----------|---------------------|
| Narrow wares ¹ | \$782,217 | \$332,421 | \$275,797 | \$133,227 |
| Garters, suspenders, and braces..... | (1) | 22,364 | 31,945 | 86,696 |
| Cords and tassels..... | (1) | 17,582 | 45,693 | 26,143 |
| Wicking, and spindle banding..... | 15,044 | 7,930 | 8,045 | 5,226 |
| Lacings, boot, shoe, and corset..... | 11,718 | 1,640 | 11,555 | 10,794 |
| Loom harness, heads, and collars..... | 11,606 | 10,193 | 12,188 | 10,137 |
| Labels for garments..... | 8,359 | 5,831 | 35,466 | 27,921 |
| Belting for machinery..... | 666,240 | 550,970 | 804,353 | 196,692 |

¹ Includes imports recorded as "fabrics with fast edges not exceeding 12 inches in width," "bandings, bindings, and bone casings" and "belts and beltings."

² Included in (1) without separate record.

Exports are not recorded. Canadian statistics show imports from the United States for the fiscal year ended March 31, 1921, amounting to \$289,994 for cotton tape, \$89,348 for braces and suspenders, \$56,447 for lamp wicks, and \$174,717 for cotton belting.

Important changes in classification.—This is the small-wares paragraph of the cotton schedule, and, with few exceptions, is confined to products of the narrow-ware or ribbon loom and to articles made from such products. It is therefore appropriately begun with the words "Fabrics with fast edges, not exceeding twelve inches in width, and articles made therefrom." In both manufacture and trade woven fabrics wider than 12 inches are known as cloth.

Fabrics with fast edges not exceeding 12 inches in width necessarily include all narrow woven wares and it is not necessary to mention bandings, beltings, bindings, webbings, tapes, ribbons, or other specific articles. Narrow strips cut from cloth can not be so included, because they are not made with fast edges, and they would be dutiable as the cloth of which they are made. Articles made from narrow woven fabrics necessarily include bands, belts, webs, etc., without specific mention.

The term "tubings" has been retained because such narrow woven fabrics are a special form of narrow wares in that they are woven as tubes and therefore have no edges. "Bone casings" has been omitted because it is included under the term tubings. Specific mention of "garters, suspenders, braces" is retained to avoid their being classed as wearing apparel. "Cords, tassels, cords and tassels" are specifically mentioned because they are not woven fabrics and have heretofore been listed with woven small wares. The peculiar wording of this provision is due to a judicial decision that, for tariff purposes, a cord with a tassel attached is not a cord or a tassel but both.

The revised wording confines the provisions of this paragraph on the above articles to those composed wholly or in chief value of cotton or of cotton and india rubber. Small wares of vegetable

fibers other than cotton belong in the small-wares paragraph of Schedule 10; in a few instances paragraph 912 includes by specific mention small wares of other vegetable fibers, mainly because of their small importance and for ease of administration.

Narrow wares ornamented by embroidery or lace are more specifically provided for in paragraph 1480 and it is not necessary to note such exclusion from this or other paragraphs.

In addition to the foregoing, this paragraph assigns a special rate of duty to spindle banding and to wicking. This rate applies irrespective of how these goods are made and it is not necessary to say "woven, braided, or twisted." Separate rates are also provided for boot, shoe, and corset lacings, by whatever process made; for loom harness, healds, and collets; for labels for garments or other articles; and for belting for machinery.

The principal difference between paragraph 262 of the act of 1913 and paragraph 912 of H. R. 7456 is not in the class of articles included, but in the wording which clarifies the phraseology relating to narrow woven fabrics and articles made therefrom.

"Tire fabric or fabric suitable for use in pneumatic tires" does not properly belong with small wares, as it is a specially constructed cloth that is usually 48 inches or more in width. It has, therefore, been more appropriately placed with other special cloths in paragraph 905.

PARAGRAPH 913.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 913. Knit fabric, in the piece, composed wholly or in chief value of cotton or other vegetable fiber, made on a warp-knitting machine, 35 per centum ad valorem; made on other than a warp-knitting machine, 28 per centum ad valorem.

ACT OF 1909.

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[No corresponding provision; dutiable under basket paragraph 392, at 45 per centum ad valorem.]

[No corresponding provision; dutiable under basket paragraph 260, at 30 per centum ad valorem.]

COTTON KNIT FABRIC.

(See Survey I-6.)

Description and uses.—The article here covered is cotton knit fabric in the piece. There are several varieties, but essential differences exist between those made on warp-knitting machines and those made on circular or on flat weft-knitting machines. The structure of a warp-knit fabric is composed of any number of warp threads as in a woven fabric, but held together by interlocking loops instead of by other threads. The resultant fabric has only a slight stretch, will not ravel, and can be produced with such fine, closely knit loops that it is difficult to distinguish from a woven cloth. A variety often known as "atlas cloth" has been especially developed for gloves; by means of a finishing process, called suëding, it is made to resemble chamois or similar soft-finish leathers. Further improvements have

resulted in the duplexing process, a union of two thicknesses of the fabric, whereby the suèded surface appears on both sides. Other cotton knit fabric is usually made on circular knitting machines, which operate rapidly and produce the fabric in tubular form. Underwear, cheaper grades of gloves, and other garments are cut from fabric knit in this manner. Special types of knit fabric are made for lining rubber shoes and a thin, cheap grade is used for covering meats.

Production.—Practically all of the glove establishments make their own suèded fabric, so that very little is offered for sale. Hence the census figures for 1919—165,000 square yards, valued at \$380,000—represent only a small proportion of the total, which was estimated at over 1,000,000 square yards for that year. The warp-knitting industry is of comparatively recent origin in the United States, as prior to the war practically all suèded gloves were imported. The manufacture of knit cotton fabrics for garments is an integral part of the knit-garment industry, and probably the entire production, which, because of the size of this industry, must be enormous, is consumed in the knitting mills.

Imports and exports.—None recorded.

Important changes in classification.—This entire paragraph is new. Knit cotton fabric in the piece has not been specially mentioned in previous tariff acts, but because of the growth of the knit-goods industry, and especially the manufacture of fabric gloves, in this country, it has been deemed advisable to include it here. Imports under this paragraph may never be large, but there is the possibility that "atlas cloth" will be imported from Germany, where a superior quality can be produced at less cost. It seems desirable to secure statistical enumeration so that any development of this trade can be made known.

PARAGRAPH 914.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 914. Gloves, composed wholly or in chief value of cotton or other vegetable fiber, made of fabric knit on a warp-knitting machine, 40 per centum ad valorem; made of fabric knit on other than a warp-knitting machine, 33½ per centum ad valorem; made of woven fabric, 23 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 328. * * * Men's and boys' cotton gloves, knitted or woven, valued at not more than six dollars per dozen pairs, fifty cents per dozen pairs and forty per centum ad valorem; valued at more than six dollars per dozen pairs, fifty per centum ad valorem.

[Women's cotton gloves, not being specifically provided for, were held dutiable as cotton wearing apparel, under paragraph 324, at 50 per centum ad valorem.]

PAR. 260. * * * Gloves by whatever process made, composed wholly or in chief value of cotton, 35 per centum ad valorem.

COTTON GLOVES.

(See Survey I-6.)

Description and uses.—Cotton gloves made of warp-knit fabric are usually known by the trade name, suèded or chamoisette gloves, because of the finish which resembles suède or chamois leather. This fabric, often called "atlas cloth," is finely knit and will not ravel. (See par. 913.) Other knit gloves are lisle gloves, which include many varieties of women's dress gloves, made from severely gassed yarn, and the cheap gloves, made from goods knit on a "circular" machine, such as are commonly used by policemen and undertakers. Woven fabric gloves are work gloves of canvas or cotton flannel, often reinforced with leather, or, for husking, with metal.

Production values of various kinds of cotton gloves for 1918 were estimated as follows: Work gloves, \$4,000,000 to \$5,000,000, the bulk produced in the Middle West; gloves of "circular" cloth, \$500,000; lisle gloves, \$2,000,000; and suèded cotton gloves, \$8,450,000 (1,300,000 dozen pairs). The three last-named classes are made chiefly in New York State. Before the war the manufacture of cotton gloves was confined largely to work and "circular" gloves, our supply of lisle and suèded gloves coming almost wholly from Germany. After 1914, and until the resumption of trade with Germany, production grew so rapidly that at least one-half the lisle and practically all the suèded gloves required for domestic use were made in this country. The quick revival of glove imports caused many domestic manufacturers to curtail production.

Imports of cotton gloves during the fiscal year ended June 30, 1914, were 1,523,728 dozen pairs, valued at \$2,184,039. These were mainly women's suèded gloves from Germany. The decreased imports during the war were mainly lisle gloves from Japan. Germany was again the main source in 1920.

Imports since 1917 have been recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|---------------------|-----------|-----------|
| | <i>Dozen pairs.</i> | | |
| 1918..... | 368,038 | \$544,048 | \$190,417 |
| 1919..... | 159,374 | 269,650 | 94,378 |
| 1920..... | 304,015 | 1,078,081 | 377,328 |
| 1921 (9 months) ¹ | 813,604 | 2,727,487 | ..... |

¹ Includes 327,764 pounds, valued at \$1,226,147 under the emergency tariff act.

Exports are not recorded.

Important changes in classification.—Gloves composed wholly or in chief value of cotton or other vegetable fiber are here divided into three tariff classes, because each class represents a distinct phase of the industry and presents an entirely different tariff problem. The description "made of fabric knit on a warp-knitting machine" has been used in preference to the various trade-marked names of materials. For the same reason "warp-knitting machine" instead of "Tricot" or other special type of machine has been given because the former describes a general type which would cover any future patents or inventions of similar machines. Few woven-fabric gloves are imported, but the classification has been added to make the paragraph comprehensive as well as definite.

PARAGRAPH 915.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 915. Hose and half-hose, fashioned, seamless, or mock-seamed, finished or unfinished, composed of cotton or other vegetable fiber, made wholly or in part on knitting machines, or knit by hand, valued at not more than \$1 per dozen pairs, 35 cents per dozen pairs; valued at more than \$1 and not more than \$1.50 per dozen pairs, 45 cents per dozen pairs; valued at more than \$1.50 and not more than \$2 per dozen pairs, 65 cents per dozen pairs; valued at more than \$2 and not more than \$3 per dozen pairs, \$1.20 per dozen pairs; valued at more than \$3 and not more than \$5 per dozen pairs, \$2 per dozen pairs; and, in addition thereto, on all of the foregoing, 12½ per centum ad valorem; valued at more than \$5 per dozen pairs, 35 per centum ad valorem.

Hose and half-hose, finished or unfinished, made or cut from knitted fabric composed of cotton or other vegetable fiber, and not specially provided for, 23 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 327. Stockings, hose and half-hose, made on knitting machines or frames, composed of cotton or other vegetable fiber, and not otherwise specially provided for in this section, thirty per centum ad valorem.

PAR. 328. Stockings, hose and half-hose, selvedged, fashioned, narrowed, or shaped wholly or in part by knitting machines or frames, or knit by hand, including such as are commercially known as seamless stockings, hose and half-hose and clocked stockings, hose and half-hose, all of the above composed of cotton or other vegetable fiber, finished or unfinished, valued at not more than one dollar per dozen pairs, seventy cents per dozen pairs; valued at more than one dollar per dozen pairs, and not more than one dollar and fifty cents per dozen pairs, eighty-five cents per dozen pairs; valued at more than one dollar and fifty cents per dozen pairs, and not more than two dollars per dozen pairs, ninety cents per dozen pairs; valued at more than two dollars per dozen pairs, and not more than three dollars per dozen pairs, one dollar and twenty cents per dozen pairs; valued at more than three dollars per dozen pairs, and not more than five dollars per dozen pairs, two dollars per dozen pairs; and in

PAR. 259. Stockings, hose and half-hose, made on knitting machines or frames, composed of cotton or other vegetable fiber, and not otherwise specially provided for in this section, 20 per centum ad valorem.

PAR. 260. Stockings, hose and half-hose, selvedged, fashioned, narrowed, or shaped wholly or in part by knitting machines or frames, or knit by hand, including such as are commercially known as seamless stockings, hose and half-hose, and clocked stockings, hose and half-hose, all of the above composed of cotton or other vegetable fiber, finished or unfinished; if valued at not more than 70 cents per dozen pairs, 30 per centum ad valorem; if valued at more than 70 cents, and not more than \$1.20 per dozen pairs, 40 per centum ad valorem; if valued at more than \$1.20 per dozen pairs, 50 per centum ad valorem. * * *

ACT OF 1909.

ACT OF 1913.

addition thereto, upon all the foregoing, fifteen per centum ad valorem; valued at more than five dollars per dozen pairs, fifty-five per centum ad valorem. * * *

COTTON HOSIERY.

(See Survey I-6.)

Description and uses.—Hosiery is of three general types: Full-fashioned, seamless, and "cut." Full-fashioned hosiery is knitted flat, shaped by the increase or diminution of the number of stitches in the width, and selvaged ready for seaming. After the leg of a full-fashioned stocking is knit it is transferred to another machine for the formation of the foot. Besides this there are the processes of seaming and of looping the toe and heel. Seamless stockings are made in tubular form on circular machines, usually automatic, and come from the machine complete except for the toe, which must be seamed or looped. Sometimes a mock seam is added to such stockings to make them resemble the full fashioned. Ribbed hose or ribbed-topped socks require two machines for the knitting.

Full-fashioned hosiery fits better and is more elastic than seamless; but seamless hosiery is cheaper, as the circular machine is more productive and the labor cost therefore less.

"Cut" hosiery is an inferior grade of hosiery cut out of long tubular webs made on large circular machines, or from the good portions of other kinds of hose spoiled in the making.

Production of cotton hosiery in 1914 amounted to 61,409,575 dozen pairs, valued at \$59,631,474; in 1919, to 60,613,000 dozen pairs, valued at \$84,366,000. In 1909 cotton hosiery constituted 91 per cent; in 1914, 82 per cent; and in 1919, 72 per cent of the total quantity of hosiery produced in the United States. From 1914 to 1919 the decline was actual as well as relative. A considerable quantity of women's fine cotton stockings was formerly imported, but during the war the extension of flat knitting enabled the domestic industry to supply all demands, though silk, mixed silk, and to some extent artificial silk, for various reasons, especially the high price of cotton, encroached upon the cotton hosiery market. In 1914 Pennsylvania was by far the first State in production, North Carolina was second, and Tennessee third. The industry in the South is growing rapidly, and so far is almost entirely in seamless hosiery. There is very little manufacture of "cut" hosiery in the United States at the present time and the salvaging of imperfect hose is probably the only reason for its continuance.

Imports of seamless and full-fashioned hosiery in 1914 were 1,846,862 dozen pairs, valued at \$2,770,781. Prewar imports were almost entirely from Germany, and consisted mainly of full-fashioned hosiery for women.

Imports of cut hosiery in 1914 were 347,509 dozen pairs, valued at \$178,897. These were mainly from Germany, and consisted largely of hosiery for infants.

Imports of hosiery since 1917 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). ¹ |
|---|-----------|-----------|-----------|----------------------------------|
| SEAMLESS AND FULL-FASHIONED HOSIERY. | | | | |
| Quantity (dozen pairs)..... | 94,611 | 56,349 | 139,831 | 331,265 |
| Value..... | \$124,655 | \$124,453 | \$640,132 | \$739,780 |
| Duty..... | \$64,129 | \$67,667 | \$917,718 | ..... |

¹ Includes 130,244 pounds, valued at \$360,365, under the emergency tariff act.

CUT HOSIERY.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|---------|---------|----------|---------------------|
| Quantity (dozen pairs)..... | 13,749 | 7,164 | 14,506 | 129,366 |
| Value..... | \$7,641 | \$6,622 | \$16,311 | \$96,846 |
| Duty..... | \$1,528 | \$1,324 | \$3,202 | ..... |

¹ Includes 6,749 pounds, valued at \$13,133, under the emergency tariff act.

Exports of cotton hosiery are much larger than imports. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|--------------|--------------|--------------|---------------------|
| Quantity (dozen pairs)..... | 5,574,343 | 9,477,338 | 11,575,656 | 1,954,594 |
| Value..... | \$13,258,474 | \$26,682,666 | \$37,679,665 | \$5,019,645 |

The main purchasers in 1920 were England, Cuba, Australia, France, Argentina, Sweden, and Denmark.

Important changes in classification.—As hose and half hose are inclusive, the word “stockings” has been omitted as superfluous. For the same reason the words “selvedged,” “narrowed,” and “frames” have been omitted. The full-fashioned hose comes from the knitting machine as a selvedged piece of material and a stocking could not be selvedged except by being shaped or fashioned in the knitting. Even if designed to apply to the shaped material for hose not sewed into form the term “selvedged” would be unnecessary because of the provision for unfinished hose. “Narrowed” would also mean fashioned as the shape of a fashioned hose is given by “narrowing” or decreasing the number of loops in the width at certain places. A “narrowed” hose is not necessarily full fashioned but the revised wording does not specify full fashioned, nor does it give separate classifications to seamless and to full-fashioned hose, hence hose which is seamless but partly fashioned or narrowed would be covered by the first provisions of the paragraph. The word “mock-seamed” has been inserted to cover a type of seamless hosiery that is made to imitate full-fashioned hosiery, although it is hardly necessary as it would be included in seamless hosiery.

Besides the fashioned and the seamless hose which are given form on the knitting machines, there is a third general type shaped by cutting from knitted fabric and made into the finished hose by sewing. In cotton hosiery these are usually made from a cheap grade of fabric knit on large circular machines or from the good parts of other hosiery damaged in manufacture. Imports of cheap cut hosiery are small, but because they consist largely of one type, infants' socks, are

competitive with a special branch of the industry. The revised wording states more clearly the type of hosiery heretofore covered by the phrase "not specially provided for."

"Clocked" has been omitted from the revised wording. Clocking is ankle ornamentation, but there are three types of hose sold as clocked hose. The first is embroidered by hand or machine, and the omission of the word clocking here throws these into the paragraph provided for embroidered articles. The second is made by plating on the knitting machine, whereas the third, sometimes known as imitation clocking, is made by openwork knitting along the ankle. The two last-named classes would be included as hosiery in any case, as it is immaterial whether the plating and openwork is only along the ankle or all over the hose. The omission of "clocked," thereby throwing hose with embroidery clocks into the paragraph provided for embroidery, is in line with the present procedure in connection with silk hose.

PARAGRAPH 916.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 916. Underwear and all other wearing apparel of every description, finished or unfinished, composed of cotton or other vegetable fiber, made wholly or in part on knitting machines, or knit by hand, and not specially provided for, valued at not more than \$1.50 per dozen, 40 cents per dozen and 12½ per centum ad valorem; valued at more than \$1.50 and not more than \$3 per dozen, 70 cents per dozen and 12½ per centum ad valorem; valued at more than \$3 and not more than \$5 per dozen, \$1.20 per dozen and 20 per centum ad valorem; valued at more than \$5 and not more than \$7 per dozen, \$1.40 per dozen and 25 per centum ad valorem; valued at more than \$7 and not more than \$15 per dozen, \$2.25 per dozen and 25 per centum ad valorem; valued at more than \$15 and not more than \$20 per dozen, \$4 per dozen and 28 per centum ad valorem; valued at more than \$20 per dozen, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 329. Shirts and drawers, pants, vests, union suits, combination suits, tights, sweaters, corset covers and all underwear of every description made wholly or in part on knitting machines or frames, or knit by hand, finished or unfinished, not including stockings, hose and half-hose, composed of cotton or other vegetable fiber, valued at not more than one dollar and fifty cents per dozen, sixty cents per dozen and fifteen per centum ad valorem; valued at more than one dollar and fifty cents per dozen and

PAR. 261. Shirts and drawers, pants, vests, union suits, combination suits, tights, sweaters, corset covers, and all underwear and wearing apparel of every description, not specially provided for in this section, made wholly or in part on knitting machines or frames, or knit by hand, finished or unfinished, not including such as are trimmed with lace, imitation lace or crochet or as are embroidered and not including stockings, hose and half hose, composed of cotton or other vegetable fiber, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

not more than three dollars per dozen, one dollar and ten cents per dozen, and in addition thereto fifteen per centum ad valorem; valued at more than three dollars per dozen and not more than five dollars per dozen, one dollar and fifty cents per dozen, and in addition thereto twenty-five per centum ad valorem; valued at more than five dollars per dozen and not more than seven dollars per dozen, one dollar and seventy-five cents per dozen, and in addition thereto thirty-five per centum ad valorem; valued at more than seven dollars per dozen and not more than fifteen dollars per dozen, two dollars and twenty-five cents per dozen, and in addition thereto thirty-five per centum ad valorem; valued above fifteen dollars per dozen, fifty per centum ad valorem.

COTTON KNIT WEARING APPAREL.

(See Survey I-6.)

Description and uses.—Knit wearing apparel may be divided into "flat" and "ribbed." Ribbed goods are distinguished from flat (plain surface) goods by having ribs or wales on both sides of the fabric. Cuffs, anklets, hosiery tops, etc., as well as sweaters and other knit goods for outer wear, are made on the rib machine, but undergarments having smooth surfaces are not ordinarily so produced.

Full-fashioned underwear is the product of a straight spring-needle machine, which narrows or shapes the garment to fit the body. Only the finest grades are made in this way. The ordinary and cheapest method is to knit the fabric into long tube-shaped material on a large circular knitting machine, when it may be cut and made into any type of underwear desired. Such garments are known as "cut goods," the finishing being the most important part of the process.

Production of cotton knit underwear in 1914 amounted to \$68,715,752; in 1919, to \$143,687,000, about 70 per cent of the value of all knit underwear. There was no increase in quantity over 1914, but there was a greater number of combination suits and fewer separate pieces. Cotton knit outerwear is not a distinct industry. The cotton is as a rule used with wool or with silk. Bathing suits and, less frequently, sweaters are sometimes all cotton. Official returns do not show separately the production of knit outerwear made of cotton. New York and Pennsylvania in 1914 were the chief producers of knit wearing apparel.

Imports in 1914 of cotton knit goods, other than hosiery and gloves, were valued at \$341,983, or less than 1 per cent of domestic production.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|---------------------------|------------|------------|
| 1918..... | <i>Dozens.</i> 97, 248 | \$908, 001 | \$181, 001 |
| 1919..... | 36, 051 | 296, 734 | 88, 590 |
| 1920..... | 22, 441 | 193, 119 | 57, 936 |
| 1921 (9 months) ¹ | 22, 426 | 146, 309 | ..... |

¹ Includes 4,679 pounds, valued at \$18,554, under the emergency tariff act.

Exports of cotton-knit wearing apparel are much larger than imports. The main purchasers in 1920 were the United Kingdom, Norway, Cuba, and Australia.

Exports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|--|---------------|---------------|----------------|--------------------|
| Cotton knit underwear..... | \$2, 897, 486 | \$8, 602, 298 | \$14, 067, 639 | \$2, 535, 434 |
| Other cotton knit goods ¹ | 945, 833 | 1, 508, 995 | 2, 510, 558 | 340, 024 |

¹ Other than hosiery, gloves, and underwear.

Important changes in classification.—"Underwear and all other wearing apparel of every description" is broadly inclusive and it is not necessary to retain specific mention of certain articles, such as shirts, drawers, pants, vests, etc., as all of these are included under the revised wording. The phrase "not including such as are trimmed with lace, imitation lace, or crochet, or as are embroidered" is omitted as superfluous because these articles are more specifically provided for elsewhere.

PARAGRAPH 917.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 917. Handkerchiefs and mufflers, composed wholly or in chief value of cotton, finished or unfinished, not hemmed, shall pay duty as cloth; hemmed or hemstitched, shall pay, in addition thereto, 10 per centum ad valorem: *Provided*, That none of the foregoing, when containing yarns the average number of which does not exceed number 40, shall pay less than 25 per centum ad valorem; nor when exceeding number 40, less than 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1918.

PAR. 322. Handkerchiefs or mufflers composed of cotton, whether in the piece or otherwise and whether finished or unfinished, if not hemmed, or hemmed only, shall pay the same rate of duty on the cloth contained therein

PAR. 255. Handkerchiefs or mufflers composed of cotton, not specially provided for in this section, whether finished or unfinished, not hemmed, 25 per centum ad valorem; hemmed, or hemstitched, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

as is imposed on cotton cloth of the same description, weight, and count of threads to the square inch; but such handkerchiefs or mufflers shall not pay a less rate of duty than forty-five per centum ad valorem. If such handkerchiefs or mufflers are hemstitched, or imitation hemstitched, * * * they shall pay a duty of ten per centum ad valorem in addition to the duty hereinbefore prescribed, and in no case less than fifty-five per centum ad valorem; * * *.

PLAIN COTTON HANDKERCHIEFS AND MUFFLERS.

(See Survey I-5.)

Description and uses.—The plain cotton handkerchief, hemmed or hemstitched, not embroidered or otherwise adorned, is the staple article of largest domestic manufacture and use. Mufflers are of minor importance.

Manufacturers buy the finished cloth in the piece, usually already bleached or, less frequently, dyed or printed. It is then cut to size and hemmed or hemstitched, principally by machine, ironed, folded, and boxed for sale. The cloth used is composed of yarns ranging from 30s to 110s, mainly under 60s for men's handkerchiefs and under 80s for women's. Domestic cloth is generally used, prices being no higher than for foreign fabrics.

Production.—The domestic output of cotton handkerchiefs in 1914 was estimated at \$10,000,000, about two-thirds the value of all handkerchiefs made in the United States. The normal output is probably greater, as 1914 was a year of reduced operation. As plain and embroidered cotton and linen handkerchiefs are usually made in the same plant, it is difficult to treat cotton handkerchiefs separately. The manufacture is centralized in the North Atlantic section, from Rhode Island to Pennsylvania. Passaic is the most important manufacturing city and New York the principal center of distribution. Large-scale production predominates, although a considerable portion of this manufacture is in small shops and by individuals who do the cutting, hemming, and embroidering on commission.

Imports of plain cotton handkerchiefs are usually much less important than those of "fancy" handkerchiefs made of lace or embroidered or otherwise adorned, which are dutiable under paragraph 358 of the act of 1913 at 60 per cent ad valorem. The increase in importations of plain cotton handkerchiefs in recent years has been, in part at least, due to the scarcity and high price of linen handkerchiefs. Imports are mainly from the United Kingdom and Switzerland. Ireland is now the main source, many Belfast handkerchief manufacturers having had to turn from linen to cotton. The finished hemmed or hemstitched handkerchief has made up the bulk of these imports. Importations of handkerchiefs in the piece, or cut but not hemmed, are of minor importance. Imports of plain cotton handkerchiefs in 1914 were valued at \$112,499.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|--|---------------|-----------|-----------|
| UNHEMMEED HANDKERCHIEFS. | | | |
| | <i>Dozen.</i> | | |
| 1918..... | | \$96,064 | \$21,524 |
| 1919..... | 110,134 | 51,129 | 12,782 |
| 1920..... | 276,717 | 152,083 | 38,021 |
| 1921 (9 months) ¹ | 100,679 | 54,822 | ..... |
| HEMMEED OR HEMSTITCHED HANDKERCHIEFS. | | | |
| 1918..... | | \$353,820 | \$106,145 |
| 1919..... | 790,244 | 607,482 | 182,245 |
| 1920..... | 1,832,705 | 1,481,686 | 444,505 |
| 1921 (9 months) ² | 1,183,890 | 894,174 | ..... |

¹ Includes 500 pounds, valued at \$1,797, under the emergency tariff act.

² Includes 67,240 pounds, valued at \$244,561, under the emergency tariff act.

Exports are not recorded. Canadian statistics show imports from the United States during the fiscal year ended March 31, 1921, of cotton handkerchiefs valued at \$110,745.

Important changes in classification.—This paragraph is intended to cover all handkerchiefs and mufflers of which cotton is the component material of chief value, except such as are ornamented with lace, embroidery, etc., and more specifically provided for in paragraph 1430. As in the act of 1913, one rate of duty is imposed on unhemmed handkerchiefs, and another and higher rate on hemmed or hemstitched handkerchiefs. The provision that unhemmed handkerchiefs shall be dutiable at the same rate as the cloth of which they are composed, and that hemmed or hemstitched handkerchiefs shall be dutiable at the cloth rate plus 10 per cent ad valorem prevents classification at a lower rate of duty than that imposed on the basic cloth of the handkerchief.

Minimum ad valorem rates of duty have been provided, one rate for handkerchiefs made of cloth containing yarns the average number of which does not exceed number 40, and another and higher rate for those composed of cloth with finer yarns.

PARAGRAPH 918.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 918. Clothing and articles of wearing apparel of every description, manufactured wholly or in part, composed wholly or in chief value of cotton, and not specially provided for, 33½ per centum ad valorem.

Shirt collars and cuffs, of cotton, not specially provided for, 25 cents per dozen pieces and 12½ per centum ad valorem.

ACT OF 1909.

PAR. 324. Clothing, ready-made, and articles of wearing apparel of every description, composed of cotton * * * or of which cotton * * * is the component material of chief value, made up or manufactured, wholly or in part, by the tailor, seamstress, or manufacturer, and not otherwise provided for in this section, fifty per centum ad valorem.

PAR. 348. Shirt collars and cuffs, composed of cotton, forty-five cents per dozen pieces and fifteen per centum ad valorem; * * *.

ACT OF 1913.

PAR. 256. Clothing, ready-made, and articles of wearing apparel of every description, composed of cotton * * * or of which cotton * * * is the component material of chief value, or of cotton * * * and india rubber, made up or manufactured, wholly or in part, by the tailor, seamstress, or manufacturer, and not otherwise specially provided for in this section, 30 per centum ad valorem; shirt collars and cuffs of cotton, not specially provided for in this section, 30 per centum ad valorem.

COTTON WEARING APPAREL.

(See Survey I-5.)

Description and uses.—Paragraph 918 covers cotton wearing apparel of every description, not specially provided for. Articles specially provided for elsewhere are garters, suspenders, braces, and other manufactures of narrow wares (par. 912); knit goods (pars. 914, 915, 916); handkerchiefs (par. 917); and apparel ornamented with lace, embroidery, etc. (par. 1430).

Production.—Separate figures for cotton wearing apparel are not available, but an estimate based on figures of the clothing trades in general as recorded in the census of 1914 places the production of cotton wearing apparel at over \$200,000,000 for that year. It is evident that all but a very small proportion of our increasing demand is supplied domestically.

Imports are mainly from France, with the United Kingdom second and Switzerland third.

Imports during the fiscal year 1914 and the calendar years 1918-1921 were as follows:

| Cotton wearing apparel. | 1914 | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-----------|----------|----------|-----------|---------------------|
| Collars and cuffs..... | \$5,619 | \$20,316 | \$24,035 | \$75,228 | \$41,582 |
| Corsets, not ornamented..... | 1,273 | 18,954 | 20,010 | 4,148 | 7,373 |
| Clothing and articles of wearing apparel, n. s. p. l..... | 1,065,365 | 942,487 | 436,664 | 1,226,819 | 832,699 |
| Total..... | 1,072,257 | 980,757 | 480,709 | 1,306,195 | 881,554 |

Exports are much larger than imports. The United States ships cotton wearing apparel to almost every country of the world. In 1920 the main purchasers of collars or cuffs were Cuba, Mexico, and Holland; of corsets, Australasia, United Kingdom, Canada, and South Africa; of other apparel for men and boys, Cuba, Canada, Norway, Panama, Dominican Republic, and Japan; of other apparel for women and children, Canada, Cuba, and Poland.

Exports during the fiscal year 1914 and in the calendar years 1918-1921 were as follows:

| Cotton wearing apparel. | 1914 | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-------------|-------------|------------|------------|---------------------|
| Collars and cuffs..... | | \$329,827 | \$771,219 | \$816,142 | \$363,770 |
| Corsets, all kinds..... | \$2,220,739 | 1,923,078 | 2,820,868 | 3,622,767 | 1,287,772 |
| Wearing apparel, all other: | | | | | |
| For men and boys..... | 5,999,887 | { 6,181,308 | 10,082,218 | 17,724,523 | 3,998,708 |
| For women and children..... |  |  |  |  |  | 3,015,120 | 3,664,724 | 4,542,285 | 2,144,250 |
| Total..... | 8,220,626 | 11,448,743 | 17,399,019 | 26,606,667 | 7,584,500 |

Important changes in classification.—Paragraph 918 covers cotton wearing apparel of every description, not specially provided for. Wearing apparel wholly or in chief value of vegetable fiber other than cotton has been appropriately placed under Schedule 10. The word “ready-made” has been omitted as unnecessary, because this paragraph covers wearing apparel, whether ready-made or custom-made. The words “by the tailor, seamstress, or manufacturer,” used in previous acts after the words “manufactured wholly or in part,” have been omitted as tautological, since all wearing apparel must be so made. Mention of india rubber is omitted, and although india rubber may be present in the goods covered, cotton must be the material of chief value. If india rubber is the material of chief value, such wearing apparel would be classified as an article of rubber.

PARAGRAPH 919.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 919. Lace window curtains, nets, nettings, pillow shams, and bed sets, finished or unfinished, made on the Nottingham lace-curtain machine, and composed of cotton or other vegetable fiber, when counting five points or spaces between the warp threads to the inch, 1½ cents per square yard; when counting more than five such points or spaces to the inch, three-fourths of 1 cent per square yard in addition for each point in excess of five; and in addition thereto, on all the foregoing articles in this paragraph, 17 per centum ad valorem: *Provided*, That none of the foregoing shall pay a less rate of duty than 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 351. Lace window curtains, nets, nettings, pillow shams, and bed sets, finished or unfinished, made on the Nottingham lace-curtain machine or on the Nottingham warp machine, and composed of cotton or other vegetable fiber, when counting five points or spaces between the warp threads to

PAR. 265. Lace window curtains, pillow shams, and bed sets, finished or unfinished, made on the Nottingham lace-curtain machine, and composed of cotton or other vegetable fiber, when counting not more than six points or spaces between the warp threads to the inch, 35 per centum ad valorem:

ACT OF 1909.

the inch, one cent per square yard; when counting more than five such points or spaces to the inch, one-half of one cent per square yard in addition for each such point or space to the inch in excess of five; and in addition thereto, on all the foregoing articles in this paragraph, twenty per centum ad valorem: *Provided*, That none of the above-named articles shall pay a less rate of duty than fifty per centum ad valorem.

ACT OF 1913.

when counting more than six and not more than eight points or spaces to the inch, 40 per centum ad valorem; when counting nine or more points or spaces to the inch, 45 per centum ad valorem.

PAR. 358. * * * nets, nettings, * * * and articles made in whole or in part of any of the foregoing fabrics or articles; all of the foregoing of whatever yarns, threads, or filaments composed, 60 per centum ad valorem.

NOTTINGHAM LACE-CURTAIN MACHINE PRODUCTS.

Description and uses.—Paragraph 919 covers specified products, composed of cotton or other vegetable fiber, made on the Nottingham lace-curtain machine. This is a machine that is used in many countries, the name "Nottingham," from its original place of development, being retained to distinguish it from other types of machines, such as the Levers lace machine, which also produces curtains.

Nottingham lace-curtain machines are made with 6 to 18 points or bobbins to the inch, making curtains and other goods with 6 to 18 meshes to the inch. Over 60 per cent of the machines used in the United States are of 8 point or coarser. Each machine is designed to make a specific number of meshes to the inch and can make no other number. No. 100/2 ply is about the finest yarn used on such machines and the majority consists of 58/2 to 78/2 yarns.

In making a fabric on a Nottingham lace-curtain machine it is necessary to have at least three sets of yarns—the main or ground-warp yarn; the spool yarn, which interlaces with the warp; and the so-called "brass-bobbin" yarn, which acts as a binder between the warp and the spool yarns. For producing special types of curtains, an additional beam warp or spool yarn may be used. The warp and spool yarns are carried on beams beneath the machine; they are drawn up vertically to intertwist with the brass-bobbin yarns as the latter, suspended from the beam at the top of the machine, swing like pendulums and are shifted to right or left of the vertical yarns. The spool yarns are of domestic spinning, as are also most of the warp yarns, but brass-bobbin yarns of the required character and finish are not produced in the United States. Therefore the lace-curtain manufacturers, who are the largest importers of cotton yarns, are dependent on the output of English mills for this essential element of manufacture.

Curtains made of cloth, or of Lever's lace, and curtains ("novelty") of voile or marquisette trimmed with lace, are excluded from this paragraph by virtue of the Nottingham machine qualification.

Production in 1914 of Nottingham lace curtains was valued at \$4,678,847, and of Nottingham lace-curtain nets at \$1,258,307; production in 1919 of Nottingham lace curtains was 3,933,000 pairs, valued at \$8,166,000; and of Nottingham lace-curtain nets, 19,465,000 linear yards, valued at \$7,616,000. Other products of the Nottingham lace-curtain machine were not recorded separately. There are

10 Nottingham lace-curtain manufacturers, operating over 500 machines, of which about 450 are located in Pennsylvania.

Imports of Nottingham lace curtains, pillow shams, and bed sets were valued at \$174,652 in 1914 (fiscal year). Imports of Nottingham lace-curtain nets and nettings fall under paragraph 358 of the act of 1913 and are not recorded separately.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|-----------------|----------|----------|
| | <i>Sq. yds.</i> | | |
| 1918..... | 136,216 | \$41,863 | \$18,691 |
| 1919..... | 144,937 | 50,240 | 21,351 |
| 1920..... | 361,813 | 144,089 | 58,207 |
| 1921 (9 months)..... | 382,534 | 45,253 | ..... |

¹ Includes 1,718 pounds, valued at \$4,661, under the emergency tariff act.

Exports are not recorded.

Important changes in classification.—The wording here used for products of the Nottingham lace-curtain machine is the same as that in paragraph 351 of the act of 1909 except that the words “or on the Nottingham warp machine,” have been omitted because the machine so designated is really a “warp lace” machine, the products of which properly belong under paragraph 1430. The classification of the act of 1913 has been followed in placing the articles here covered under the cotton schedule because they are mainly of cotton.

The Nottingham lace-curtain machine makes goods with 6 to 18 meshes to the inch, using yarns coarser than No. 100/2 ply. The Levers lace machine makes goods with 14 to 30 meshes to the inch, and although it uses a wide range of yarns the greater number are finer than 100/2 ply. In other words, the Nottingham lace-curtain machine makes the coarser and the Levers lace machine makes the finer products of the lace and net industry. The products of the Nottingham lace-curtain machine are therefore here made dutiable at a lower rate than is levied under paragraph 1430 on the products of the Levers lace machine. The Nottingham lace-curtain industry is firmly established in this country and has comparatively little foreign competition as compared with the Levers lace industry.

In the preceding wording, as in that of the act of 1909, there are included nets and nettings made on the Nottingham lace-curtain machine, whereas in the 1913 act all nets and nettings were covered by paragraph 358. As about half of the output of the Nottingham lace-curtain industry consists of nets and nettings, the 1909 classification is the logical one to follow.

PARAGRAPH 920.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 920. All articles made from cotton cloth, whether finished or unfinished, and all manufactures of cotton or of which cotton is the component material of chief value, not specially provided for, 28 per centum ad valorem.

ACT OF 1909.

PAR. 326. Curtains, table covers, and all articles manufactured of cotton chenille, or of which cotton chenille is the component material of chief value, * * * composed wholly or in chief value of cotton or other vegetable fiber; any of the foregoing, in the piece or otherwise, fifty per centum ad valorem.

PAR. 332. All articles made from cotton cloth, whether finished or unfinished, and all manufactures of cotton, or of which cotton is the component material of chief value, not specially provided for in this section, forty-five per centum ad valorem.

ACT OF 1913.

PAR. 258. Curtains, table covers, and all articles manufactured of cotton chenille, or of which cotton chenille is the component material of chief value, * * * any of the foregoing, in the piece or otherwise, 85 per centum ad valorem; all other Jacquard figured manufactures of cotton or of which cotton is the component material of chief value, 80 per centum ad valorem.

PAR. 264. * * * batting, any of the foregoing made of cotton, or of which cotton is the component material of chief value, * * * and not otherwise provided for, 25 per centum ad valorem.

PAR. 266. All articles made from cotton cloth, whether finished or unfinished, and all manufactures of cotton or of which cotton is the component material of chief value, not specially provided for in this section, 80 per centum ad valorem.

BASKET PARAGRAPH OF COTTON SCHEDULE.

Description and uses.—Paragraph 920 covers a large number of miscellaneous articles wholly or in chief value of cotton, none of which is of sufficient individual importance to warrant specific mention. Among such articles are twine, cordage, and rope; fishing nets and seines; bags; roller shades; lamp shades; Jacquard-figured blankets; Jacquard-figured towels, not terry woven; batting, wadding, and mattress felts; etc.

Production.—It is impossible to make up an inclusive total of domestic output for comparison with imports under a basket paragraph. However, the production of cotton twine amounted to 13,050,000 pounds, valued at \$2,716,000, in 1914 and to 11,340,000 pounds, valued at \$5,597,000, in 1919; cotton cordage and rope, 4,962,000 pounds, valued at \$792,000, in 1914 and to 5,763,000 pounds, valued at \$2,207,000, in 1919; cotton batting, wadding, and mattress felts, not recorded in 1914, to 65,467,000 pounds, valued at \$8,272,000, in 1919.

Imports were valued at \$1,622,258 in the fiscal year 1914 and \$2,333,185 in the calendar year 1920. The largest item consisted of the cloth articles, mainly for table use, known in the trade as "Japanese blue prints."

Exports are not recorded.

Important changes in classification.—This basket paragraph is worded the same as in preceding acts, but its scope is reduced by the specific provisions made for a number of articles formerly included. For example, Japanese blue prints, such as table and bureau covers, centerpieces, etc., made by stencil-dyeing plain-woven cotton cloth, are provided for in paragraph 911. Dust cloths and bedspreads are also placed under paragraph 911, while railroad air hose will fall under paragraph 1007. On the other hand, Jacquard-figured manufactures of cotton not specially provided for, such as blankets, towels not terry woven, etc., are included without specific mention.

SCHEDULE 10.—FLAX, HEMP, AND JUTE, AND MANUFACTURES OF.

PARAGRAPH 1001.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1001. Flax straw, \$2 per ton; flax, not hackled, 1 cent per pound; flax, hackled, including "dressed line," 2 cents per pound; flax tow and flax noils, three-fourths of 1 cent per pound; hemp and hemp tow, three-fourths of 1 cent per pound; hackled hemp, including "line of hemp," 1½ cents per pound.

ACT OF 1909.

ACT OF 1913.

SCHEDULE J.—FLAX, HEMP, AND JUTE, AND MANUFACTURES OF.

SCHEDULE J.—FLAX, HEMP, AND JUTE, AND MANUFACTURES OF.

PAR. 333. Flax straw, five dollars per ton.

PAR. 334. Flax, not hackled or dressed, one cent per pound.

PAR. 335. Flax, hackled, known as "dressed line," three cents per pound.

PAR. 336. Tow of flax, twenty dollars per ton.

PAR. 337. Hemp, and tow of hemp, twenty-two dollars and fifty cents per ton; hemp, hackled, known as "line of hemp," forty-five dollars per ton.

PAR. 485. Flax straw, flax, not hackled or dressed; flax hackled, known as "dressed line," tow of flax and flax noils; hemp, and tow of hemp; hemp hackled, known as "line of hemp" [Free].

FLAX.

Description and uses.—Flax is the oldest of all vegetable fibers of which we have record as being applied to the use of mankind, but the comparatively recent development of the manufacture of cotton has tended to prevent expansion in the production of the older material. Cotton is more pliable than flax, can be manufactured more cheaply, and can be so finished as to make it almost indistinguishable from linen. Flax has been able to retain a certain demand because of its inherent beauty, strength, and durability, which enable it to endure repeated handling and washing with less loss of its sheen and hard surface and without napping. Flax is used for thread, fishlines, fishnets, water hose, towels, table and bed linen, handkerchiefs, and dress goods.

Flax straw is the dried stem of the flax plant before the extraction of the fiber. Flax, not hackled, is the fiber that has been taken from the straw by retting (rotting away the retentive gum) and scutching (knocking out the woody core from the surrounding fibers), but which has undergone no further treatment. Hackled flax consists of the longer fibers after the more or less complete

combing out of the shorter fibers by hand or machine heckling operations. Flax that has been completely hackled is known as dressed line, and is used in making thread and fabrics of the higher grades. Flax tow for spinning consists of the shorter and less valuable fibers discarded in the heckling operations and corresponds to the noil of a worsted mill. The coarse and medium counts produced from such tow form a very important part of the world's output of flax yarns and are extensively used in the manufacture of paddings, crashes, and canvas. Flax upholstery tow, used in stuffing furniture and lining refrigerator cars, is of a different character, as it can not be spun and is made by merely crushing unretted straw of seed flax or poor grades of short fiber flax. Flax noils are the short tangled fibers discarded at the card or the comb in the manufacture of tow yarns; some of this is used as raw material in the manufacture of low-grade goods.

Production.—In prewar years, Russia, with an annual production of about 600,000 tons, half of which was exported, supplied about 85 per cent of the world's flax. The remainder was produced mainly in Austria-Hungary, France, Italy, Ireland, and Belgium. Courtrai flax from Belgium is considered the highest grade.

As a result of the World War the production of flax in Russia has declined to about one-tenth of the normal, and the world acreage in fiber flax had fallen from about 4,500,000 to about 1,175,000 acres in 1920. The war shortage stimulated production in Canada and Japan, as well as in European countries where flax was already grown, but the sharp decline in the price of linens in 1921 caused a large decrease in the acreage in fiber flax in all of these countries. For instance, Canadian acreage in fiber flax increased from 4,000 in 1915 to 20,262 in 1920, and declined to 7,300 in 1921. Ireland had, in fiber flax, 49,000 acres in 1914, 127,000 acres in 1920, and only 40,000 acres in 1921.

The American acreage in fiber flax was 2,240 in 1911; 1,100 in 1914; 4,300 in 1918; 6,090 in 1920; and 1,525 in 1921. The States producing flax fiber in 1920 were Michigan with 3,500 acres; Minnesota with 1,000 acres; Wisconsin and Oregon with 700 acres each, and Maryland with 190 acres.

The hand labor involved in weeding and pulling the flax and in natural retting has proved a great obstacle to domestic production of fiber flax in competition with crops better adapted to the use of machinery. Attempts have recently been made here and in Canada to introduce labor-saving devices to eliminate weeding and pulling by hand, and to provide for artificial retting in central plants.

Yarn spun from domestic flax is used in the manufacture of twines, shoe thread, and toweling. Domestic flax is not suitable for spinning high-grade yarns such as are used in the manufacture of table linen, cambrics, and laces.

The United States is a large producer of flaxseed, but growing flax for seed is an industry entirely distinct from and much simpler than the growing of flax for fiber. In 1914 the United States had 1,645,000 acres, and in 1921, 1,706,000 acres devoted to the former. The fiber of flax raised for seed is not suitable for spinning. The straw of seed flax is used in making upholstery tow of a low grade, in insulating board, and in rugs for floor coverings.

Imports in 1914 of flax straw were 220 tons, valued at \$9,659; of flax, not hackled, 6,056 tons, valued at \$1,497,660; of flax, hackled, 2,590 tons, valued at \$1,242,129; of flax tow, 1,322 tons, valued at \$264,303; of flax noils, 96 tons, valued at \$8,388; a total of 10,284 tons, valued at \$3,022,139. The United Kingdom supplied about half of the total. Russia and Belgium supplied a large part of the remainder.

Imports since 1917 for calendar years have been as follows:

| Flax. | 1918 | | 1919 | | 1920 | | 1921 (9 months). | |
|---------------|--------------|-----------|--------------|-----------|--------------|-----------|------------------|-----------|
| | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. |
| | <i>Tons.</i> | | <i>Tons.</i> | | <i>Tons.</i> | | <i>Tons.</i> | |
| Straw..... | 142 | \$14,116 | 568 | \$25,570 | 2,084 | \$25,813 | 179 | \$9,482 |
| Not hackled.. | 5,026 | 4,225,260 | 939 | 757,060 | 2,795 | 1,825,729 | 1,011 | 550,408 |
| Hackled..... | 1,773 | 2,558,428 | 2,129 | 2,929,062 | 1,061 | 1,676,605 | 738 | 813,532 |
| Tow..... | 721 | 524,460 | 471 | 185,191 | 744 | 276,282 | 780 | 199,891 |
| Noils..... | 207 | 39,783 | 313 | 99,707 | 107 | 45,520 | 4 | 1,176 |
| Total... | 7,869 | 7,362,047 | 4,420 | 3,996,590 | 6,791 | 3,848,949 | 2,712 | 1,585,073 |

In 1920 imports of hackled flax were supplied largely by Japan, Canada, and Ireland. Over half of all other flax than hackled came from Canada; the remainder was in large part from Russia, Japan, and Italy.

Important changes in classification.—Flax is transferred from the free list of the act of 1913 (par. 485). The words, "flax, hackled, including 'dressed line,'" are here used instead of the wording "flax, hackled, known as 'dressed line,'" which was used in the acts of 1909 and 1913. This change has been made to avoid possible litigation with respect to the extent of the hackling operations. Flax which has been subjected to either hand or machine hackling is 'hackled flax, but "dressed line" designates only flax which has been completely hackled by both hand and machine operations.

HEMP.

(See Survey FL-16.)

Description and uses.—Hemp is a term that correctly denotes only soft hemp (*Cannabis sativa*), although it is loosely used sometimes in connection with other fibers. Hemp is stronger, glossier, and more durable than cotton, but more costly to manufacture; in these respects it is similar to flax, but it is somewhat coarser than flax and even more difficult to bleach. Its great strength and resistance to rotting in water make it an excellent material for all cordage purposes; its relatively high cost, however, confines its use mainly to those articles where strength is the prime factor, such as shoe thread, certain types of commercial twines, tarred rigging for ships, and elevator ropes. Large cordage, like ships' cables and hawsers, is usually made of the cheaper manila.

Hemp (meaning hemp not hackled) is the fiber that has been extracted from the stem of the hemp plant, by methods similar to those used in extracting flax fiber, but which has undergone no further treatment. Hackled hemp consists of the longer fibers after the more or less complete combing out of the shorter fibers by

hand or machine hackling operations. Hackled hemp is used alone or mixed with flax in the manufacture of twines, cordage, and fabrics. Tow of hemp consists of the shorter and less valuable fibers discarded in the hackling operations; the better grades are carded and spun into yarns for twines, cordage, and coarse coverings; the poorer grades are used in caulking ships.

Production.—In prewar years, Russia, with an annual output of about 500,000 tons, produced about two-thirds of the world's hemp. The remainder was harvested mainly by Austria-Hungary and Italy. The finest quality is produced in Italy. The output from Russia has greatly declined as a result of the World War.

The United States is a relatively small producer of hemp. It produced in 1914, 1,339 tons; in 1918, 9,375 tons, and in 1921 about 3,400 tons, which constituted 16 per cent, 72 per cent, and 30 per cent, respectively, of the domestic consumption in the same years. Prior to the war, Kentucky had the principal yield. In 1921 Wisconsin reported about two-thirds and Kentucky about three-tenths of the 11,000 acres devoted to hemp.

Imports in 1914 of unhackled hemp were 7,880 tons, valued at \$1,443,994; of hackled hemp, 451 tons, valued at \$83,911; of hemp tow, 262 tons, valued at \$40,250; a total of 8,593 tons, valued at \$1,568,155. Italy was the main source, followed by Russia.

Imports since 1917 have been, by calendar years, as follows:

| Hemp. | 1918 | | 1919 | | 1920 | | 1921 (9 months). | |
|----------------|--------------|-------------|--------------|-----------|--------------|-------------|------------------|-----------|
| | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. |
| | <i>Tons.</i> | | <i>Tons.</i> | | <i>Tons.</i> | | <i>Tons.</i> | |
| Not hackled... | 3,394 | \$1,550,836 | 1,403 | \$821,062 | 7,117 | \$2,792,337 | 5,407 | \$946,310 |
| Hackled..... | 255 | 351,069 | 15 | 19,048 | 607 | 413,365 | 713 | 637,432 |
| Tow..... | 86 | 33,276 | 280 | 113,466 | 86 | 20,764 | 12 | 3,602 |
| Total... | 3,735 | 1,935,171 | 1,698 | 953,576 | 7,810 | 3,226,466 | 6,132 | 1,587,344 |

In 1920, over half of the total imports were from Italy; Canada and England were the next leading sources of imports.

Exports are not recorded.

Important changes in classification.—Hemp is transferred from the free list of the act of 1913 (par. 485). The words "hackled hemp, including 'line of hemp,'" have been substituted for the wording "hemp, hackled, known as 'line of hemp,'" which was used in the acts of 1909 and 1913. The reasons for the change are the same as those stated above for the wording relating to hackled flax.

PARAGRAPH 1002.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1002. Sliver and roving, of flax, hemp, ramie, or other vegetable fiber, not specially provided for, 13 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 341. * * * ramie sliver or roving, thirty-five per centum ad valorem.

PAR. 270. * * * ramie sliver or roving, 15 per centum ad valorem.

SLIVER AND ROVING OF VEGETABLE FIBERS N. S. P. F.

(See Survey J-1.)

Description and uses.—Sliver is a continuous strand of fiber in a loose, untwisted state, and roving is the same thing with a slight twist inserted preliminary to spinning into yarn. Ramie sliver and roving, mainly prepared by hand, come from China. Prior to 1914 Germany was the largest consumer and France and the United States the next largest. Flax and hemp sliver and roving are products of intermediate mechanical processes in a series ending with the spinning of the yarn.

Production.—No figures are available regarding domestic production of sliver or roving of flax, hemp, or ramie, as these are partial manufactures and, excepting the ramie, not regular articles of commerce.

Imports of sliver and roving of flax, hemp, or ramie are small. Figures are available only for imports of sliver and roving of ramie, which in 1914 amounted to \$6,707. Later imports have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|--------|-------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$4 | \$1 |
| 1919..... | 4,597 | 3,093 | 464 |
| 1920..... | 21,711 | 18,499 | 2,775 |
| 1921 (9 months)..... | 4,873 | 3,416 | |

Exports are not recorded.

Important changes in classification.—Sliver and roving of ramie were provided for in preceding acts (par. 270 of 1913 and 341 of 1909) but sliver and roving of other vegetable fibers, except cotton, were not mentioned. Paragraph 1002 provides for sliver and roving of all vegetable fibers, with the exception of cotton (par. 901) and jute (par. 1003).

PARAGRAPH 1003.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1003: Jute yarns or roving, single, coarser in size than twenty-pound, 2½ cents per pound; twenty-pound up to but not including ten-pound, 4 cents per pound; ten-pound up to but not including five-pound, 5½ cents per pound; five-pound and finer, 9 cents per pound; jute sliver, 1½ cents per pound; twist, twine, and cordage, composed of two or more jute yarns or rovings twisted together, the size of the single yarn or roving of which is coarser than twenty-pound, 3½ cents per pound; twenty-pound up to but not including ten-pound, 5 cents per pound; ten-pound up to but not including five-pound, 6½ cents per pound; five-pound and finer, 11 cents per pound.

ACT OF 1909.

PAR. 338. Single yarns made of jute, not finer than five lea or number, one cent per pound and ten per centum ad valorem; if finer than five lea or number, thirty-five per centum ad valorem; yarns made of jute not otherwise specially provided for in this section, thirty-five per centum ad valorem.

[No corresponding provision for twist, twine and cordage.]

ACT OF 1913.

PAR. 267. Single yarns made of jute, not finer than five lea or number, 15 per centum ad valorem; if finer than five lea or number and yarns made of jute not otherwise specially provided for in this section, 20 per centum ad valorem.

[No corresponding provision for twist, twine and cordage.]

JUTE YARNS AND CORDAGE.

(See Survey J-1.)

Description and uses.—Jute yarns may be divided into two classes: (1) Those made from long jute and (2) those made from jute butts and rejections. In manufacturing, the long jute is first opened, graded, and batched, after which it is put through a softener, a breaker card, a finisher card, two draw frames, and a roving frame, and then spun into yarn on a flyer or ring spinning frame. These yarns are used in weaving burlap and other jute cloths, in the manufacture of wool carpets (being employed in the foundation and other threads which do not appear on the surface), and in making the lower grades of cordage. Jute butts are subjected to fewer processes and are spun into very coarse yarns which are consumed mainly in bagging for covering raw cotton and in the lower grades of cordage. Jute yarns are numbered according to the weight in pounds of a fixed length of 14,400 yards; the higher the count the coarser the yarn. This method is the opposite of the yarn-numbering systems used in the cotton and worsted trades where the base is a fixed weight.

Twist, twine, and cordage are made by doubling or cabling single yarns. Jute twist is a term usually employed for jute ply yarns intended for weaving. Jute twines are harder twisted ply yarns which are used most extensively in tying up bundles of medium bulk. They are commonly called after the trade that uses them—fodder twine, for tying up fodder; paper makers' twine, for tying up bundles of paper; box twine, for bundling box shooks, etc. Jute cordage, other than twines, is employed as a substitute for manila and sisal in halter ropes, plow ropes, and baling ropes; it is also extensively used as cores in steel-wire cables.

Production.—British India is the largest producer of jute yarn; but most of the yarn manufactured is consumed in the mills where produced for making burlap and twilled bags, and exports in the form of yarn are small. In the Indian fiscal year 1921, when exports of Indian jute yarn were relatively large, they amounted to only 4,554 tons as against an export of 825,004 tons of jute cloth and bags. Dundee, Scotland, which ranks second to Calcutta in manufacture, is the largest exporter of jute yarn and cordage. Total exports of jute yarn and cordage originating mainly in Dundee, but recorded as from the United Kingdom, amounted in the calendar year 1920 to 43,533,800 pounds, valued at about \$10,524,000.

In 1920 American mills used 110,752,000 pounds of long jute and 104,375,000 pounds of jute butts as against 128,312,000 pounds of long jute and 114,389,000 pounds of jute butts in 1914. Considering

that waste in manufacture is balanced by the oil and water added during manufacture, the output of jute yarn in 1920 was approximately 215,000,000 pounds as compared with 243,000,000 pounds in 1914. This quantity was mainly used in mills where it was spun for manufacture into twines, cordage, and cotton bagging. The amount used in burlap manufacture is insignificant. The sales of jute yarn in 1919 amounted to 56,570,000 pounds, valued at \$11,269,000, as against 69,827,000 pounds, valued at \$7,358,000, in 1914. The wool-carpet industry is the main purchaser of jute yarns. The production of jute twine in 1919 was 52,398,000 pounds, valued at \$10,904,000, as compared with 55,282,000 pounds, valued at \$5,268,000, in 1914. The output in 1919 of jute rope was 40,716,000 pounds, valued at \$9,327,000, and in 1914, 26,814,000 pounds, valued at \$2,079,000.

Imports of jute yarns, including single and ply, during the 30 fiscal years 1891-1920, averaged per annum 1,771,710 pounds, valued at \$105,120. In recent years about three-fourths of the total have consisted of single yarns not finer than five lea; that is, yarns weighing 9.6 pounds or more per spynkle of 14,400 yards. These yarns are mainly for use in wool-carpet manufacture. Dundee is the principal source of imports. Entries of jute twines and cordage are small.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|--------------------------------------|----------------|-----------|---------------|----------|------------------------|
| SINGLE JUTE YARNS. | | | | | |
| | <i>Pounds.</i> | | <i>Cents.</i> | | <i>Per cent.</i> |
| 1918..... | 18, 127 | \$11, 419 | 41.3 | \$2, 284 | 20 |
| 1919..... | 51, 960 | 36, 964 | 71.1 | 7, 314 | 20 |
| 1920..... | 2, 528, 713 | 498, 982 | 19.7 | 79, 614 | 16 |
| 1921 (9 months)..... | 6, 096, 838 | 610, 039 | 10.0 | | |
| JUTE YARNS OTHER THAN SINGLE. | | | | | |
| 1918..... | 25, 181 | \$7, 495 | 29.7 | \$1, 499 | 20 |
| 1919..... | 10, 069 | 1, 756 | 17.4 | 351 | 20 |
| 1920..... | 64, 387 | 7, 843 | 12.1 | 1, 569 | 20 |
| 1921 (9 months)..... | 203, 911 | 28, 914 | 14.1 | | 20 |

Exports of jute yarn are not separately recorded. Canadian statistics show that in the Canadian fiscal years ended March 31, 1920 and 1921, imports of jute and hemp yarns from the United States amounted to 3,668,690 and 1,751,420 pounds, respectively.

Important changes in classification.—Roving has been specially provided for with the yarn because in the jute industry much of the so-called yarn is made on a roving frame and is in fact roving. The combining of roving and single yarn avoids any administrative difficulty which might arise in attempting to distinguish between a hard-twisted roving and a slack-twisted yarn. Specific provision is also made for jute twist (ply yarn), twine, and cordage, because of their commercial importance. The classification of such products under the act of 1913 is indefinite. Twisted yarns fall under the provision for jute yarns not specially provided for, but there is some question as to the classification of finished jute twines and cordage. They probably come within paragraph 284 of the act of 1913.

In previous tariff laws jute yarns have been numbered according to the lea system; that is, the number of 300-yard leas that weigh 1 pound. In the new classification jute yarns are numbered according to the pound system; that is, the weight in pounds of a spynle of 14,400 yards. This length is equal to 48 leas so that the one system is inverse to the other; thus 4-pound yarn is equivalent to 12-lea yarn, 6-pound yarn to 8-lea yarn, etc. This change has been approved by manufacturers of jute yarns, who have called attention to the fact that jute yarns, both here and abroad, are numbered according to the pound system, and that the lea system, which is used in the linen industry, is never used in connection with jute.

The new classification of single jute yarns divides them into four groups instead of two as formerly. The former dividing point was at 5 lea, which is equivalent to 9.6-pound yarn. The new dividing points are at 5-pound, 10-pound, and 20-pound yarn. Since conversion costs increase with fineness of the yarn, expanding the number of groups creates a more equitable basis of classification. Group progression is, in this instance, preferable to individual count progression because of the tendency of jute to gain materially in weight by absorbing moisture during shipment. A gain in weight automatically changes the count. A 10-pound jute yarn at Dundee, for example, might be found to be an 11-pound yarn upon arrival in this country.

PARAGRAPH 1004.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1004. Single yarns, in the gray, made of flax, hemp, or ramie, or a mixture of any of them, not finer than eight lea, 6 cents per pound; finer than eight lea and not finer than sixty lea, 8 cents per pound and one-half of 1 cent per pound additional for each lea or part of a lea in excess of eight; finer than sixty lea, 35 cents per pound; and in addition thereto, on any of the foregoing yarns when boiled, bleached, dyed, or otherwise treated, 5 cents per pound: *Provided*, That the duty on any of the foregoing yarns not finer than eight lea shall be not less than 20 per centum ad valorem; on any of the foregoing yarns finer than eight lea, not less than 23 per centum ad valorem. Threads, twines, and cords, composed of two or more yarns of flax, hemp, or ramie, or a mixture of any of them, twisted together, the size of the single yarn of which is not finer than eight lea, 16 cents per pound; finer than eight lea and not finer than sixty lea, 16 cents per pound and three-fourths of 1 cent per pound additional for each lea or part of a lea in excess of eight; finer than sixty lea, 56 cents per pound: *Provided*, That the duty on the foregoing threads, twines and cords shall be not less than 23 per centum ad valorem.

ACT OF 1909.

PAR. 340. Threads, twines, or cords, made from yarn not finer than five lea or number, composed of flax, hemp, or ramie, or of which these substances or either of them is the component material of chief value, ten cents per pound; if made from yarn finer than five lea or number, twelve cents per pound, and three-fourths of one cent per pound additional for each lea or number, or part of a lea or number, in excess of five.

PAR. 341. Single yarns in the gray, made of flax, hemp, or ramie, or a mixture of any of them, not finer than eight lea or number, six cents per pound; finer than eight lea or number and not finer than eighty lea or number, forty per centum ad valorem; single yarns, made of flax, hemp, or ramie, or a mixture of any of them, finer than eighty lea or number, fifteen per centum ad valorem; * * *.

[Single yarns not in the gray and not finer than eighty lea were dutiable at 45 per centum under paragraph 358.]

ACT OF 1913.

PAR. 269. Threads, twines, or cords, made from yarn not finer than five lea or number, composed of flax, hemp, or ramie, or of which these substances or any of them is the component material of chief value, 20 per centum ad valorem; if made from yarn finer than five lea or number, 25 per centum ad valorem.

PAR. 270. Single yarns, made of flax, hemp, or ramie, or a mixture of any of them, not finer than eight lea or number, 12 per centum ad valorem; finer than eight lea or number and not finer than eighty lea or number, 20 per centum ad valorem; finer than eighty lea or number, 10 per centum ad valorem; * * *.

[No distinction made between yarns in the gray and not in the gray.]

YARNS, THREADS, AND TWINES OF FLAX, HEMP, OR RAMIE.

(See Survey J-1.)

Description and uses.—Flax, hemp, and ramie are stem or bast fibers, but differ in that the first two are obtained by retting and the last named by decortication. Flax, hemp, and ramie yarns are used in making thread, cordage, and fabrics. Flax yarns, from a finer fiber than hemp, are used in the United States chiefly for making linen thread, for weaving fabrics, such as toweling, and to some extent for fire hose. Hemp yarns are used in cordage and rope, in wool carpets, and to a small extent in canvas. Ramie yarns, composed of fibers having a greater tenacity and elasticity than flax or hemp, serve most extensively in the manufacture of gas mantles. The fibers are spun on flax-working and similar machinery, imported largely from England. All the ramie and the bulk of the raw flax absorbed here is imported, but about one-half of the hemp consumed in 1914-1921 was of domestic production.

Threads, twines, and cords are made by doubling or cabling single yarns. Thread is a slender, well-rounded line, generally polished, used principally for sewing. Linen thread may be divided into (1) household threads, usually sold at retail, consisting mainly of three-cord and six-cord sewing thread; (2) manufacturing threads, used by garment makers, shoemakers, saddlers, upholsterers, bookbinders, etc., made in a variety of ways, some being cabled and others made of ordinary ply yarns.

Twine is composed of two or more yarns or rovings twisted together. The chief uses of linen twine are as gilling twine for fish nets, and as seaming twines for sails. Although used to some extent for tying packages where strength is required, linen twine has been largely supplanted by cotton and jute. Hemp twine is employed chiefly for

wrapping purposes. Cord is most commonly made of cable-laid yarns, but some is braided, as in fancy sash cords. It is larger than twine and smaller than rope, and serves for sash cords, clotheslines, plow lines, etc.

Production.—In 1914 the United States had 67,412 spindles, or about 2 per cent of the world's total, devoted to flax spinning. No figures are available showing the total domestic production of flax, hemp, and ramie yarns. Production of such yarns for sale only in 1914 and 1919 is shown by the following table:

| Yarns for sale. | 1919 | | 1914 | |
|------------------------------|-----------------------------|-----------|-----------------------------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| Hemp..... | <i>Pounds.</i> 1,454,000 | \$329,000 | <i>Pounds.</i> 6,048,317 | \$962,298 |
| All other ¹ | 2,622,000 | 872,000 | | |

¹ Other than hemp and jute in 1919; other than jute in 1914. In reality this consists largely of flax yarn in 1919; of flax and hemp yarn in 1914.

It is certain, however, that the quantity of linen yarn produced for sale is but a minor portion of the total production. The leading domestic consumers, i. e., the manufacturers of linen thread and fabrics, produce in their own mills most of the yarn which they consume. While the total production can not be precisely determined, a rough approximation (for 1914) can be obtained by adding to the total number of pounds of linen thread and twine produced (shown below), the estimated number of pounds of yarn consumed in fabrics, namely, 10,799,628 square yards at roughly 6½ ounces per square yard, or approximately 4,330,000 pounds, and to this the yarn produced for sale (mainly to the carpet industry, as shown by the consumption therein of linen yarns), namely, 6,048,317 pounds. On this basis, something like 29,000,000 pounds of yarn must have been produced, about ten times the importation in 1914. Judging from the incomplete statistics as yet available for 1919, the production was not far from that in 1914.

The domestic production of linen thread and twines in 1914 and 1919 was as follows:

| | 1919 | | 1914 | |
|-------------------|-----------------------------|------------------|-----------------------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| Linen thread..... | <i>Pounds.</i> 4,280,000 | \$3,691,000 | <i>Pounds.</i> 5,707,668 | \$3,409,136 |
| Hemp thread..... | 7,738,905 | 1,572,841 | | |
| Hemp twine..... | 7,968,000 | 3,864,000 | 9,318,771 | 1,583,354 |
| Flax twine..... | (¹) | (²) | 3,953,622 | 1,051,684 |

¹ Derived by subtracting figures for hemp twine from a combined production of hemp thread and twine (shown in a revised return) of 15,725,905 pounds, valued at \$5,436,841.

² Included with "all other (than cotton, jute, and hemp)," which amounted to 8,534,000 pounds, valued at \$3,273,000. Assuming the same ratio of flax twine to "all other" as in 1914, the 1919 production would amount, roughly, to 1,000,000 pounds, valued at \$975,000.

The United Kingdom, which possesses over one-third of the world's spindles working on flax, is the largest producer of flax yarns, threads, twines, and cords. She also takes first rank in the production of

similar articles of hemp. Her exports of flax and hemp yarns in 1919 totaled 132,384,000 pounds and in 1920, 63,952,000 pounds, the major portion of which went to European countries.

In prewar years Germany, because of her success in degumming ramie, was the only nation producing ramie yarn on a large scale. The spinning of ramie yarns in the United Kingdom and France has made marked advances since the close of the war. The American output is practically limited to the production of one company.

Imports of single yarns of flax, hemp, or ramie during the fiscal years 1911-1920 averaged per annum 2,187,819 pounds, valued at \$899,310. Flax yarns made up the bulk of imports. Imports of flax yarn consist chiefly of counts under 40 lea. The United Kingdom is the chief source of our imports of flax yarns. Italy supplies the bulk of the hemp yarns.

The domestic consumption of foreign threads, twines, and cords of flax, hemp, or ramie normally averages a half million pounds per annum. In 1909 imports amounted to 446,594 pounds, or about 24 per cent of the domestic consumption; corresponding figures in 1914 were 784,932 pounds, or about 4 per cent; and in 1920, 585,449 pounds, or about 3 per cent of the domestic consumption in 1919. From one-half to two-thirds of the imports are supplied by the United Kingdom. In the fiscal years 1914-1920, 83 per cent of the imports of threads, twines, and cords, practically all linen, was made from yarn finer than 5 lea.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|---|----------------|-----------|-------------|----------|------------------------|
| SINGLE YARNS OF FLAX, HEMP, OR RAMIE. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 507,313 | \$366,909 | \$0.723 | \$73,284 | 20.0 |
| 1919..... | 1,315,844 | 1,190,669 | .898 | 228,964 | 19.2 |
| 1920..... | 1,874,051 | 1,423,936 | .759 | 252,804 | 17.7 |
| 1921 (9 months)..... | 1,128,998 | 687,384 | | | |
| THREADS, TWINES, OR CORDS OF FLAX, HEMP, OR RAMIE. | | | | | |
| 1918..... | 203,551 | \$333,149 | \$1.636 | \$82,145 | 24.6 |
| 1919..... | 328,855 | 623,283 | 1.895 | 153,752 | 24.6 |
| 1920..... | 585,449 | 819,813 | 1.400 | 200,683 | 24.7 |
| 1921 (9 months)..... | 339,698 | 348,158 | | | |

Exports are not recorded. Canadian statistics show imports of linen yarn from the United States, a part of which may have been transshipped, amounting to 158,070 pounds in the fiscal year ended March 31, 1921; of linen thread, 1,883 pounds; and of jute and hemp yarn, 1,751,420 pounds.

Important changes in classification.—The provisions for yarn and for thread have been incorporated in the same paragraph because of their closely related character. Threads being further manufactured than yarns, the order of the two paragraphs has been reversed from that in the acts of 1913 and 1909. In the classification of yarn, 60 lea rather than 80 lea is made the dividing line between intermediate

and fine yarns, because the bulk of that produced in this country is not finer than 40 lea.

Threads have been classified on the same basis of count as the yarns. In both provisions, 8 and 60 lea are made the respective dividing points for yarn count. This is in contrast to the acts of 1913 and 1909, which contained a thread grouping apparently unrelated to the yarn grouping. For yarn, 8 and 80 lea were the respective dividing points; for thread, there was one dividing point only, namely, 5 lea, although the act of 1909 did provide for graduated duties on thread made from yarn finer than 5 lea. Logically, the yarn and thread classifications should be on the same basis.

Distinctions in rates of duty have been drawn between gray and treated yarns, owing to the fact that flax yarn in the gray loses approximately 20 per cent in weight when given a full boil. Where the duty is specific, absence of a differential produces an inequitable result with respect to boiled yarns, because importation of a given quantity of gray yarn, to be boiled here, involves payment of duty on approximately 20 per cent more yarn (in weight) than is paid when the same quantity of gray yarn is boiled abroad and subsequently imported with the waste excluded. The loss in weight, however, where the duty is based on the individual gray yarn count is partly offset by the automatic increase of the yarn count, and hence of the rate of duty, when the yarn is boiled. A 20-lea gray yarn, i. e., 20 by 300 yards weighing 1 pound, becomes, when given a full boil, 20 by 300 yards, weighing eight-tenths of a pound, or 25 lea. The act of 1913 makes no distinction between yarns in the gray and yarns which have been boiled, but there is no inequity because the duty is ad valorem.

Suggested changes.—Paragraph 1004, as now worded, establishes a differential duty as between gray and bleached yarn but not as between gray and bleached thread. Imports of linen thread consist largely of thread which has been boiled; but there might be some importation of gray thread, and there is certainly some importation of gray hemp twine. Likewise, the production of gray linen shoe thread and of gray hemp twine forms a not inconsiderable part of the domestic industry. Provision for the suggested differential will involve establishment of the thread duties in paragraph 1004 upon a gray basis and then establishment of additional duties on the finished (i. e., boiled, bleached, etc.) thread by phraseology corresponding to that used for the yarns.

PARAGRAPH 1005.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1005. Cordage, including cables, tarred or untarred, wholly or in chief value of manila, sisal, or other hard fibers, three-fourths of 1 cent per pound; cordage, including cables, tarred or untarred, wholly or in chief value of hemp, sunn, or other bast fibers, but not including cordage made of jute, 2 cents per pound.

ACT OF 1909.

PAR. 339. Cables and cordage, composed of istle, Tampico fiber, manila, sisal grass or sunn, or a mixture of these or any of them, three-fourths of one cent per pound; cables and cordage made of hemp, tarred or untarred, two cents per pound.

ACT OF 1913.

PAR. 268. Cables and cordage, composed of istle, Tampico fiber, manila, sisal grass or sunn, or a mixture of these or any of them, $\frac{1}{2}$ cent per pound; cables and cordage made of hemp, tarred or untarred, 1 cent per pound.

ROPES AND CABLES.

(See Survey J-1.)

Description and uses.—Although the term cordage is used in a collective sense to include all sizes and varieties of cords, ropes, and cables, from twine to the heaviest cables, anything less than three-sixteenths of an inch in diameter is not cordage in the usual acceptation of the term. Rope is cordage 1 inch or more in diameter, formed by twisting several yarns into strands, and then twisting these strands together into a strong line. A cable is a strong rope not less than 10 inches in circumference, and is formed by twisting together three 3-strand ropes, the twist being the reverse of that used in making the constituent ropes. Ropes and cables are made either by the old-fashioned rope-walk method or in up-to-date factories by "house" machines. When made on compound rope machines, which are extensively used, the stranding of the yarn is combined with the closing of the strands into rope, the process being essentially one of machine braiding.

Manila, often called manila hemp, is the world's foremost cordage fiber. Its great pliability and strength make it particularly well-adapted for hawsers, ships' cables, hoisting ropes, and transmission ropes. The production of manila is a monopoly of the Philippine Islands. Sisal, like manila, a hard fiber, and jute, a soft fiber, are largely used in the cheaper grades of cordage; istle (otherwise called Tampico fiber) and sunn are used to a smaller extent. Hemp (*Cannabis sativa*) is also used in cables and cordage. A great deal of it is tarred. The yarns of tarred rope are passed through a tank of tar heated to 220° F.; this renders the rope measurably impervious to water and enables it to resist the ravages of weather. Russian hemp has long been held superior for tarred rigging. Untarred hemp rope is preferred for elevators and dumb-waiters. Sunn, or sunn hemp, is a soft fiber, possessing many of the same qualities as true hemp, but is coarser and weaker. It comes mainly from India. Very little is used in the domestic cordage industry.

Production.—The United States, with the possible exception of the United Kingdom, ranks first as a producer of cordage. In 1919 the domestic production of rope and cable amounted to 225,660,000 pounds, valued at \$59,369,000, as compared with 198,400,692 pounds valued at \$21,530,858 in 1914, and with 239,031,893 pounds in 1909, valued at \$19,850,635. Of the total cordage production in 1919, 77 per cent was made of hard fibers (manila 58 per cent, sisal 12 per cent, and henequen 7 per cent). Marine rope and cable accounted for two-thirds of the manila cordage produced. The output of hemp rope and cable is relatively small, and is not shown separately in census returns.

Imports of both hard and soft fiber cordage are negligible in quantity compared with domestic production and are much smaller than exports. In the fiscal years 1891-1920 imports averaged per annum, 880,667 pounds, valued at \$113,899, equal to less than 1 per cent of domestic production. Beginning with 1916 imports began to increase and by 1920 had reached 3,714,680 pounds, valued at \$639,421, or about 1.5 per cent of the total output in the United States in 1919. Previous to 1913, imports of hemp cordage, tarred or untarred, constituted four-fifths of our small import trade. Since 1913 imports of soft fiber cordage have declined and those of hard fiber have increased, the latter advancing from 148,048 pounds in 1914 to 3,262,589 pounds in 1920. Before the war, the United Kingdom was the leading source of imports. During 1914-1920 Cuba and the Philippine Islands furnished more than one-half of our increased imports, for the most part consisting of henequen cordage from Cuba and manila cordage from the Philippines. Imports for 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|---|----------------|-----------|----------|
| ROPES AND CABLES OF HARD FIBERS. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 3,311,307 | \$500,242 | \$13,265 |
| 1919..... | 3,490,761 | 546,432 | 10,865 |
| 1920..... | 3,262,589 | 546,367 | 11,199 |
| 1921 (9 months)..... | 1,474,009 | 183,208 | ..... |

| ROPES AND CABLES OF HEMP. | | | |
|----------------------------------|---------|-----------|-------|
| 1918..... | 472,558 | \$107,216 | \$897 |
| 1919..... | 300,922 | 91,773 | 677 |
| 1920..... | 452,091 | 92,874 | 1,213 |
| 1921 (9 months)..... | 266,004 | 55,948 | ..... |

Exports in the fiscal years 1891 to 1920 averaged 10,062,857 pounds annually, about twelve times the quantity of imports. The United States ranks next after the United Kingdom as an exporter of cordage. There probably exists a superiority in the quality of the exported over the imported cordage. Prior to the war the former was frequently higher in price than the latter.

Exports since 1917 by calendar years have been as follows:

Exports of cordage (other than binder twine) made from vegetable fibers.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 12,684,673 | 20,236,256 | 17,292,000 | 4,188,250 |
| Value..... | \$3,397,064 | \$4,316,109 | \$4,101,256 | \$856,813 |

Our cordage markets, like those of other exporting countries, have been very widely distributed. The most regular—and prior to the war the largest—have been Canada, Panama, Peru, Mexico, and Cuba. The war greatly stimulated exports to the United Kingdom, France, and Norway, and there was also a considerable increase in exports to South America.

Important changes in classification.—The phrase, "cordage, including cables," has been substituted for "cables and cordage," because cables are merely one, though an important, type of cordage. "Tampico fiber" and "istle," separately enumerated in the acts of 1909 and 1913, are from the same plant. Both are omitted from the new classification, however, because such fiber is relatively unimportant as a raw material for cordage and is covered by the phrase, "or other hard fibers." Manila and sisal are separately enumerated because of their major importance as cordage materials. The proper term is "sisal," not "sisal grass."

The terms "hard fibers" and "bast fibers" cover a group well understood botanically and commercially. Hard fibers are those obtained from the leaves of the plant, as in the case of manila and sisal; bast fibers are those obtained from the stem of the plant, as in the case of flax, hemp, jute, and ramie. The former are generally removed from the leaf by mechanical treatment only, and are used mainly in cordage or other coarse goods; the latter are removed from the stem by retting or degumming and then beating away the woody matter, and are generally adapted to the manufacture of finer goods. The term "hard fiber" does not, however, include sunn, which has been transferred from the hard to the bast fiber provision, both because it is in fact a bast fiber and because, in the United States, it is used in cordage in the same manner as true hemp. Jute cordage, although made from a bast fiber, is elsewhere provided for (par. 1003). Cotton cordage, made from neither a hard nor a bast fiber but from a seed hair, falls under the basket clause of the cotton schedule (par. 920).

Manila, sisal, and other hard fibers are free of duty under paragraph 1575, whereas hemp, the leading bast fiber used in cordages, is dutiable under paragraph 1001. Hemp cordage, moreover, generally sells for more than manila or sisal cordage. For these reasons, cordage made of soft or bast fibers is here made dutiable at a higher rate than cordage made of hard fibers.

PARAGRAPH 1006.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1006. Gill nettings, nets, webs, and seines, and other nets for fishing, composed wholly or in chief value of flax, hemp, or ramie, shall pay the same duty per pound as the highest rate imposed in this Act upon any of the thread, twine, or cord of which the mesh is made, and, in addition thereto, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 342. Flax gill nettings, nets, webs, and seines shall pay the same duty per pound as is imposed in this schedule upon the thread, twine, or cord of which they are made, and in addition thereto twenty per centum ad valorem.

PAR. 271. Gill nettings, nets, webs, and seines made of flax, hemp, or ramie, or a mixture of any of them, or of which any of them is the component material of chief value, 25 per centum ad valorem.

FISH NETTING AND NETS.

(See Survey J-2.)

Description and uses.—Gill netting, made by crossing threads, twines, or cords and knotting the intersections to form meshes, is used in the manufacture of fish or gill nets. Gill nets are designed to catch the fish by gilling, i. e., being of sufficient size to admit only the head of the fish, the mesh slips under and back of the gills, thus holding the fish. Gill webs are pieces of netting that have not been hung or rigged to ropes. Seines are large nets for sweeping in the fish. Practically all the netting and nets used in domestic fisheries are made by machinery. Hand labor is now limited to repairs. Flax, manila, and cotton, principally the last, are the fibers used in making domestic fishing tackle. The amounts of soft hemp and ramie consumed for such purposes are negligible. Gill nets of flax are used mainly in fresh-water fisheries and in the salmon-producing areas of Alaska. The high price of linen twines prohibits their use in seines. While inferior to flax in strength and durability, cotton is much cheaper and is more largely used in the domestic manufacture of fishing nets and nettings.

Production in the United States of fish netting, seines, and crab scrape bags of all materials, as turned out by 15 establishments in 1914, was valued at \$3,088,000, and by 19 establishments in 1919 at \$5,114,000.

Imports are small, the largest under this classification amounting to 66,664 pounds in the fiscal year 1918. In 1920 they totaled 34,906 pounds. Imports are mainly of linen gill netting from the United Kingdom, entered for manufacture into nets and then re-exported with the benefit of the drawback. In 1905-1920 imports under this classification totaled 395,000 pounds, as compared with fish nets exported with the benefit of the drawback amounting to 401,000 pounds in the same period. Imports of cotton fishing nets (dutiable under the basket clause in the cotton schedule) are much smaller, and come mainly from the United Kingdom and Japan. Record exports to this country from Japan amounted to 43,000 pounds in 1917. Imports of nettings, nets, webs, and seines of flax, hemp, or ramie during 1918-1921 were as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|----------|----------|
| | <i>Pounds.</i> | | |
| 1918..... | 64,172 | \$53,192 | \$13,295 |
| 1919..... | 41,639 | 72,984 | 18,246 |
| 1920..... | 34,906 | 55,265 | 8,816 |
| 1921 (9 months)..... | 26,497 | 29,362 | ..... |

Exports are not recorded. Exports of textile fishing tackle from the United States usually constitute over one-half the value of Canada's total imports of such articles. In the Canadian fiscal year ended March 31, 1921, shipments from the United States were \$1,301,519 out of a total of \$2,693,537.

Important changes in classification.—The new classification revives the system of compensatory duties contained in the act of 1909 and abandoned for a straight ad valorem duty in the act of 1913. That

part of the act of 1909 reading "as is imposed * * * upon the thread, twine, or cord of which they (i. e., nettings, nets, etc.) are made" might lead to litigation, because a netting or net or seine may be composed of threads or twines of several sizes, each size being dutiable at a different rate. This difficulty has been avoided by fixing the compensatory duty at "the highest rate imposed in this Act upon any of the thread, twine, or cord of which the mesh is made."

PARAGRAPH 1007.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1007. Hose, suitable for conducting liquids or gases, composed wholly or in chief value of vegetable fiber, 26 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 345. Hydraulic or flume hose, made in whole or in part of cotton, flax, hemp, ramie, or jute, fifteen cents per pound.

PAR. 274. Hydraulic or flume hose, made in whole or in part of cotton, flax, hemp, ramie, or jute, 7 cents per pound.

HOSE FOR CONDUCTING LIQUIDS OR GASES.

(See Survey J-4.)

Description and uses.—The common varieties of hose used to convey water, liquids, and gases may be divided into three general classes: (1) Rubber hose, constructed of a rubber tube surrounded by a fabric covering, the most popular medium for conducting water, the principal size (2½ inches) being extensively used for fire protection purposes; (2) unlined linen hose, which is used chiefly for indoor emergency fire protection purposes; (3) unlined cotton hose, of which comparatively little is made, employed where considerable quantities of water are to be conducted under little pressure, as in mining and railroad work. No. 12 cotton yarn is the chief size employed in the production of rubber hose. Prior to 1914 about two-thirds of the yarn used in the manufacture of unlined linen hose was line yarn and one-third flax tow; in 1919, about 30 per cent was line yarn and 70 per cent flax tow. The bulk of the linen yarns used for these purposes varies from 15 to 20 lea.

Production of rubber hose in 1914 was valued at \$16,854,000, and in 1919 at \$26,998,000. The domestic production of all-linen water hose, an enterprise carried on chiefly by firms specializing in that line, was \$477,000 in 1914.

Imports of hydraulic or flume hose made in whole or in part of flax, hemp, or ramie were negligible prior to 1914. Since then there has been an increase in imports, due in large part to the high price of flax yarns on which the specific equivalent of the ad valorem rate has become greater than the specific duty on the finished hose. Imports are almost entirely of linen hose. The average annual import of hydraulic or flume hose during the 30 fiscal years 1891-1920 was 10,530 pounds, valued at \$12,381. The United Kingdom is the chief

source of imports. Imports since 1917 of hose made in whole or in part of cotton, flax, hemp, or jute have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|-------------|---------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 76,644 | \$156,199 | \$2.03 | \$5,365 | 3.43 |
| 1919..... | 46,580 | 75,426 | 1.62 | 3,261 | 4.32 |
| 1920..... | 89,873 | 147,682 | 1.64 | 6,291 | 4.26 |
| 1921 (9 months)..... | 62,118 | 102,812 | 1.65 | | |

Exports are not recorded separately. Exports of india-rubber hose, which are large, are not included under this paragraph, because the bulk of the rubber hose exported has rubber as its component material of chief value. Exports of unlined linen hose, according to statements submitted to the Tariff Commission by manufacturers, were greater than imports prior to 1918; since that time imports have been greater.

Important changes in classification.—This paragraph covers hose composed wholly or in chief value of vegetable fiber. Hose composed wholly or in chief value of rubber is dutiable, without specific mention, under paragraph 1437. The new classification has been phrased to clarify and to expand the scope of the provisions in the acts of 1909 and 1913, which were identical in wording. Inquiry among the trade indicates that the words hydraulic or flume hose, previously used, do not define a type known in the hose trade. An underwriter's laboratory states it is not familiar with the terms. A wide divergence of opinion exists in the trade regarding the material from which such hose might be made. (See Survey J-4, p. 17.) The suggested provision covers all hydraulic or flume hose, and also includes air hose. Heretofore the latter has been classified as a manufactured article according to the constituent material of chief value.

PARAGRAPH 1008.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1008. Fabrics, composed wholly of jute, plain-woven, twilled, and all other, not specially provided for, not bleached, printed, stenciled, painted, dyed, colored, nor rendered noninflammable, 1 cent per pound; bleached, printed, stenciled, painted, dyed, colored, or rendered noninflammable, 1 cent per pound, and in addition thereto, 13 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 352. Plain woven fabrics of single jute yarns, by whatever name known, weighing not less than six ounces per square yard and not exceeding thirty threads to the square inch, counting the

PAR. 279. Plain woven fabrics of single jute yarns, by whatever name known, bleached, dyed, colored, stained, painted, printed, or rendered noninflammable by any process, 10 per centum ad valorem.

warp and filling, nine-sixteenths of one cent per pound and fifteen per centum ad valorem; if exceeding thirty and not exceeding fifty-five threads to the square inch, counting the warp and filling, seven-eighths of one cent per pound and fifteen per centum ad valorem.

[Twilled, and all other jute fabrics, not specially provided for, were dutiable at 45 per centum under paragraph 358.]

PAR. 408. * * * plain woven fabrics of single jute yarns by whatever name known, not bleached, dyed, colored, stained, printed, or rendered noninflammable by any process; * * * [Free].

[Twilled, and all other jute fabrics, not specially provided for, were dutiable at 35 per centum under paragraph 284.]

UNBLEACHED JUTE CLOTHS.

(See Survey J-7.)

Description and uses.—This paragraph includes, with two exceptions, all cloths composed wholly of jute, irrespective of manner of weave or whether woven from single or ply yarns. The two cloths not included are paddings or interlinings (par. 1010) and bagging for covering raw cotton (par. 1517). Burlap and sacking constitute the bulk of the world's production of jute fabrics. Burlap is a plain-woven cloth made of single jute yarns, ranging in weight from 6 to 16 ounces to the linear yard. The 40-inch 10½-ounce make is usually taken as the market standard. Burlap is largely used in the manufacture of bags and for baling merchandise; also for other purposes requiring a cheap but fairly strong cloth. Wide goods are used as backing for linoleums and roofing felts. Eighty per cent of the burlap consumed in the United States in 1914, and 83 per cent of that consumed in 1919, was used by bag factories. The American consumption of burlap in 1920 was about 1,000,000,000 yards, practically all imported, for the reason that burlap is not made here in commercial quantities. Sacking is a twilled jute cloth made of either single or ply yarns and is heavier, coarser, and stronger than burlap. The standard size is 27 inches wide, weighing 16 ounces to the linear yard. The chief use of sacking is in the manufacture of bags. The world consumption of sacking is as great as that of burlap, but the American consumption of new sacking has been very small because of the levying of higher tariff duties on sacking than on burlap. The largest export in recent years of sacking to the United States from India, the main source of both burlap and sacking, was in 1917 and amounted to only 5,000,000 yards. The bulk of this was probably for reexport to adjacent or near-by countries.

Production.—Jute burlap and sacking are not produced on a commercial scale in the United States, being confined almost entirely to one or two firms which weave a small amount for baling other commodities made by them. Although under the acts of 1897 and 1909 nonprocessed burlap was subject to a compound duty averaging 1.65 cents per pound (about 1 cent per linear yard), the average ad valorem equivalent of which was 26.75 per cent, American manufacturers have considered it unprofitable to attempt manufacture in competition with India. India has the following advantages: (1) A monopoly of the raw material; (2) proximity of material to centers of manufacture; (3) an abundance of cheap though relatively inefficient labor; and (4) large manufacturing units, equipped with the best machinery, managed by experienced Europeans. During the emergency created by the war some American concerns under-

took the manufacture of burlap and in 1918 produced 7,292,000 linear yards—their record output, but still less than 1 per cent of the consumption. As soon as the emergency passed the manufacturers abandoned burlap for more profitable lines.

Imports.—Burlap is used as a covering for farm and factory products during their journey to the consumer, and as the output of American farms and factories increases, so does the demand for burlap. Imports of burlap for domestic consumption have more than doubled since the beginning of the century. Imports in the fiscal year 1914 of nonprocessed jute cloths other than cotton bagging amounted to 523,714,285 pounds, valued at \$44,481,408. Imports since 1917 have been, by calendar years, as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|------------------|
| Quantity (pounds)..... | 436,237,502 | 440,237,595 | 568,809,189 | 349,485,096 |
| Value..... | \$80,013,843 | \$85,406,320 | \$88,896,470 | \$31,369,068 |

Over 99 per cent of the imports are supplied by India and the United Kingdom, with the former furnishing a constantly increasing part of the total. Burlap imported from Calcutta is used for bag material and for baling, whereas that from Dundee consists mainly of the better grades, such as those used for paddings and for wall decorations, or wide goods, such as are used in making linoleums.

Exports.—None recorded.

Important changes in classification.—Sacking is dutiable at 35 per cent under the act of 1913 (par. 284), whereas burlap, if not processed, is exempt from duty (par. 408). Under the act of 1909 sacking was dutiable at 45 per cent (par. 358), whereas the greater part of the burlap was dutiable at a compound rate equivalent to about 27 per cent. The price of sacking per pound is normally about one-third less than that of burlap, and therefore sacking should bear a specific rate at least no higher than that imposed on burlap. As neither burlap nor sacking is produced in the United States, the same rate of duty has been applied to both. In the new classification burlap and sacking have been separately enumerated in order to encourage the keeping of separate import records.

JUTE CLOTHS, YARN-DYED, CONVERTED, OR PROCESSED.

Description and uses.—The amount of jute cloth woven with dyed yarns, or converted or processed, is very small as compared with the amount used unbleached and unprocessed for bag material, for baling material, and for linoleum backing. Jute cloths woven in the grey and converted by bleaching, printing, stenciling, painting, or dyeing, are used mainly for wall covering and other upholstery purposes. Jute cloths processed to make them fireproof are mainly brattice cloths, employed chiefly for ventilating purposes in mines.

Production.—The production of yarn-dyed and of converted jute cloths is not separately recorded. The 1920 production of jute brattice cloth, according to data obtained from the manufacturers by the Tariff Commission, amounted to 3,380,876 square yards, with an estimated value of \$899,000. There has been a marked advance

in the output of jute brattice cloth in recent years; this is due in large part to its increasing use as a substitute for cotton duck, a more durable but higher-priced fabric.

Imports under this classification averaged 2,092,244 pounds annually in the fiscal years 1914-1921. Brattice cloth is the main import. The United Kingdom furnished about two-thirds of the total and British India the bulk of the remainder. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-----------|----------|
| | <i>Pounds.</i> | | |
| 1918..... | 873,229 | \$157,941 | \$15,794 |
| 1919..... | 2,204,041 | 350,518 | 35,052 |
| 1920..... | 2,227,107 | 391,694 | 39,169 |
| 1921 (9 months)..... | 886,179 | 92,367 | ..... |

Exports are not recorded.

Important changes in classification.—The description of the treated fabrics has been slightly changed. The word "stained" has been omitted as unnecessary, as stained cloth must necessarily be dyed either in the piece or in the yarn, and is covered by the words "dyed or colored." There are no imports on record of cloth that has been stained. The word "stenciled" has been inserted because such cloths may be stenciled and because of some uncertainty as to the classification of such fabrics. The descriptive terms have been rearranged approximately in the order of mill operations.

Suggested changes.—Strike out comma before "and" and the words "in addition thereto," after "and" page 115, line 23, H. R. 7456, as unnecessary.

PARAGRAPH 1009.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1009. Woven fabrics, not including articles, finished or unfinished, of flax, hemp, ramie, or other vegetable fiber except cotton, or of which these substances or any of them is the component material of chief value, not specially provided for, 28 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 357. Woven fabrics * * * not specially provided for in this section, composed of flax, hemp, or ramie, or of which these substances or any of them is the component material of chief value, weighing four and one-half ounces or more per square yard, when containing not more than sixty threads to the square inch, counting the warp and filling, one and three-fourths cents per square yard; containing more than sixty and not more than one hundred and twenty threads to the square inch, two and three-fourths

PAR. 283. Plain woven fabrics, not including articles, finished or unfinished, of flax, hemp, or ramie, or of which these substances or any of them is the component material of chief value, including such as is known as shirting cloth, 30 per centum ad valorem.

PAR. 284. * * * manufactures of flax, hemp, ramie, or other vegetable fiber, or of which these substances, or any of them, is the component material of chief value, not specially provided for in this section, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

cents per square yard; containing more than one hundred and twenty and not more than one hundred and eighty threads to the square inch, six cents per square yard; containing more than one hundred and eighty threads to the square inch, nine cents per square yard, and in addition thereto, on all the foregoing, thirty per centum ad valorem: *Provided*, That none of the foregoing * * * fabrics in this paragraph shall pay a less rate of duty than fifty per centum ad valorem. Plain woven fabrics, not including articles, finished or unfinished, of flax, hemp, or ramie, or of which these substances or any of them is the component material of chief value, including such as is known as shirting cloth; weighing less than four and one-half ounces per square yard and containing more than one hundred threads to the square inch, counting the warp and filling, thirty-five per centum ad valorem; weighing less than four and one-half ounces per square yard and containing not more than one hundred threads to the square inch, thirty per centum ad valorem.

WOVEN FABRICS OF FLAX, HEMP, OR RAMIE.

Description and uses.—The major part of the cloths covered by this paragraph are made in whole or in chief value of flax. Among the leading types of flax fabrics here covered are dress linens, used for dresses and summer suits; sheer linens and cambrics, used for underwear, blouses, and handkerchiefs; embroidery linens; household linens such as sheetings, pillow linens, glass cloth, huck and crash toweling; and canvas and sailcloth. If paragraph 1012 is changed as recommended to cover only manufactures of linen table damask, linen damask in the piece (now covered in par. 1012), will also fall here. Hemp fabrics consist chiefly of canvas and sailcloth. Ramie fabrics are used to a small extent for wearing apparel and upholstery.

Production of linen fabrics in 1914 amounted to 10,800,000 square yards, valued at \$1,766,000, and in 1919 to 14,342,000 square yards, valued at \$3,799,000. These fabrics, of which over a third in 1919 were union goods made of flax and cotton, were coarse linens, mainly crash for toweling, averaging less than 60 threads to the square inch. The production of fabrics of hemp or ramie is not recorded, but is negligible.

Imports in the fiscal year 1914 (under three months' operation of the act of 1909), of woven fabrics of flax, hemp, and ramie, including a small amount of unspecified articles amounted to 92,129,629 square yards, valued at \$14,049,822, with duties amounting to \$4,639,160. The greater part of these imports consisted of plain-woven linens; a smaller but considerable portion of linens other than plain woven. Of these latter, the bulk was probably table damask. The importation of fabrics of hemp or ramie is negligible. The subsequent sharp decline in imports and consequent falling off in the American consumption of linen fabrics have been due largely to the scarcity and

high prices resulting primarily from the collapse of Russia, the main flax producer. Imports come, for the most part, from the United Kingdom, Ireland supplying the major portion of the light-weight and better quality linens and Scotland the heavier and coarser goods. Smaller amounts were furnished by Belgium, Germany, France, and Austria-Hungary, but these have greatly declined. In the calendar year 1920 the United Kingdom supplied 92 per cent of the total import of woven fabrics of flax, hemp, and ramie. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|-----------------|-------------|-------------|
| | <i>Sq. yds.</i> | | |
| 1918..... | 21,033,296 | \$9,104,584 | \$2,816,932 |
| 1919..... | 20,882,537 | 10,591,529 | 3,249,191 |
| 1920..... | 35,694,760 | 21,365,194 | 6,540,675 |
| 1921 (9 months)..... | 25,157,134 | 12,362,215 | |

Exports are not recorded.

Important changes in classification.—This paragraph embraces all piece goods of flax, hemp, or ramie, other than paddings (par. 1010), pile fabrics (par. 1011), and table damask (par. 1012). Imports consist for the most part of linens of a finer grade than those made in this country. The value of such goods depends not only on the weave but also on the quality and finish, and the arrangement here employed of a straight ad valorem duty, irrespective of the number of threads per square inch and irrespective of whether plain or fancy woven, seems to be the most equitable plan.

Suggested changes.—Strike out "except cotton" in line 3, page 116 of H. R. 7456, because if retained it would require also the exception of jute. There is no necessity for excepting either cotton or jute, since both are more specifically provided for.

PARAGRAPH 1010.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1010. Woven fabrics, composed wholly or in chief value of flax, hemp, or jute, exceeding thirty and not exceeding one hundred threads to the square inch, counting the warp and filling, and weighing not less than four and one-half and not more than twelve ounces per square yard, such as are commonly used as paddings or interlinings in clothing, 33½ per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[Not specially provided for: If of all jute, dutiable under par. 352, at seven-eighths of 1 cent per pound, and 15 per centum ad valorem; if of all flax or all hemp, or in chief value of flax or hemp, dutiable under par. 357 at 2½ cents per square yard, and, in addition, 30 per centum ad valorem, with a minimum duty of 50 per centum ad valorem; if in chief value, but not wholly, of jute, dutiable at 45 per centum ad valorem under par. 358.]

[Not specially provided for: If of all jute, free under par. 408; if of all flax, or all hemp, or in chief value of flax, or hemp, dutiable under par. 283, at 30 per centum ad valorem; if in chief value, but not wholly, of jute, dutiable under par. 284 at 35 per centum ad valorem.]

TAILORS' PADDINGS.

(See Survey J-7.)

Description and uses.—Paddings are used as interlinings in coats and overcoats. About a yard of material is required for a coat. Fabrics of all linen are considered most suitable as paddings and form the bulk of consumption. There has been a marked increase since 1914 in the consumption of paddings made from all jute, jute and cotton, and flax and jute. Paddings are generally woven in widths of 22 and 24 inches and vary in weight from $3\frac{1}{2}$ to 7 ounces per linear yard ($5\frac{1}{2}$ to $11\frac{1}{2}$ ounces per square yard). In threads per square inch those of all jute range from about 40 to 50 threads; cotton and jute from 60 to 80; flax and jute from 60 to 80; and of all linen from 60 to 100. Paddings in excess of 100 threads are confined to those made of all linen and form a very small part of the total. Cotton is not listed among the materials in this paragraph because when it is mixed with jute in paddings the jute is the constituent of chief value.

Production.—The domestic production of paddings other than of all cotton was begun in 1915. The output in 1918 was 8,540,000 linear yards; in 1919, 4,200,000 yards; and in 1920, 4,150,000 yards. The production was the output of three companies, one of which started in 1915 and the other two in 1918. In 1921 the only one of the three then in operation was weaving paddings of jute and cotton. Nine-tenths of the domestic output consists of paddings of jute and cotton, made for the most part from yarn of domestic manufacture.

Imports of paddings are not separately recorded. It is estimated that the annual domestic consumption is about 50,000,000 linear yards. Paddings are imported in a great variety of qualities. Most of them are all-linen paddings; others are of all jute, jute and cotton, and flax and jute. The United Kingdom furnishes the greater part of the imports, Ireland specializing in those of all linen, and Scotland in those of all jute and jute and cotton. Belgium is also an important source of imports.

Exports are not recorded.

Important changes in classification.—This is a new paragraph. Since a great variety of paddings are made in whole or in part of flax, jute, or cotton (but not in chief value of cotton), and since those of the same materials differ widely as regards quality, thread count, and weight, it has been deemed best to draw up a general paragraph covering all types of paddings. The words "woven fabrics" are used to connect this paragraph with the two preceding, which treat of unspecified woven fabrics of jute, and of flax, hemp, or ramie. The number of threads per square inch and the weight per square yard as found in this paragraph are in accord with an analysis made of fifteen representative paddings. (See Survey J-7, pp. 64, 65.) The paddings analyzed ranged in thread count from 41 threads per square inch for those of all jute to 103 for those of all flax, and in weight from 10.2 ounces per square yard for all jute to 5.5 for all flax.

Paddings or interlinings are a well-known product commercially and are easily differentiated from the general run of other fabrics made in whole or in chief value of flax, hemp, or jute. Burlap, linoleum backing, and the leading types of jute cloths have about 25 threads to the square inch and are in every way distinct from jute paddings. Jute

cloths of more than 30 threads to the square inch are practically limited to those used for upholstering and padding purposes, with these two types distinct from each other. While there are a number of plain-woven linen fabrics that have the same range in thread count and weight as linen paddings, the general appearance of such goods makes them readily distinguishable from paddings. The phrase "such as are commonly used" is employed in order to limit this paragraph to fabrics used for interlinings without following up their actual use and to have the trade as an authority as to what paddings are. Paddings of all cotton are not mentioned, because paddings of all cotton are seldom imported, and when cotton is combined with jute or other vegetable fiber it forms a small part of the total weight and value.

PARAGRAPH 1011.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1011. Pile fabrics, composed wholly or in chief value of vegetable fiber other than cotton, cut or uncut, whether or not the pile covers the whole surface, and manufactures in any form, made or cut from any of the foregoing, 33½ per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 353. All pile fabrics, whether or not the pile covers the entire surface, composed of flax, or of which flax is the component material of chief value, and all articles and manufactures made from such fabrics, not specially provided for in this section, sixty per centum ad valorem.

PAR. 280. All pile fabrics, whether or not the pile covers the entire surface, composed of flax, hemp, or ramie, or of which flax, hemp, or ramie is the component material of chief value, and all articles and manufactures made from such fabrics, not specially provided for in this section, 40 per centum ad valorem.

PILE FABRICS OF VEGETABLE FIBERS OTHER THAN COTTON.

Description and uses.—Pile fabrics consist of a foundation cloth covered in whole or in part by short projecting ends or loops made with an extra set of threads. Pile made of flax, hemp, ramie, jute, etc., lacks the resilience of pile made of cotton, mohair, or silk, and when pressed down does not readily revert to its upright position; for this reason the manufacture of pile fabrics of vegetable fibers other than cotton is small and confined mainly to specialties, particularly mixed goods for upholstery purposes.

Production is not recorded.

Imports in the fiscal year 1914 of pile fabrics wholly or in chief value of flax, hemp, or ramie were valued at \$230,222 and manufactures of such pile fabrics at \$1,815. Imports are mainly for use as draperies and furniture coverings. They include some all-over pile fabrics for use as portières and hangings, but are mainly furniture covering specialties showing cut or uncut pile figuring on a bare (nonpile) ground. They are usually made of mixed yarns, particularly flax and cotton.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|--|-----------------|----------|---------|
| PILE FABRICS OF FLAX, HEMP, OR RAMIE. | | | |
| | <i>Sq. yds.</i> | | |
| 1918..... | | \$10,517 | \$4,207 |
| 1919..... | 1,418 | 1,724 | 660 |
| 1920..... | 37,888 | 53,030 | 21,572 |
| 1921 (9 months)..... | 14,336 | 27,978 | |
| MANUFACTURES OF PILE FABRICS OF FLAX, HEMP, OR RAMIE. | | | |
| 1918..... | | \$269 | \$108 |
| 1919..... | | 1,514 | 606 |
| 1920..... | | 15,382 | 6,153 |
| 1921 (9 months)..... | | 20,375 | |

Exports are not recorded.

Important changes in classification.—To render the provision in this schedule as nearly uniform as possible with the corresponding provision in the cotton schedule, the phrase "cut or uncut" has been introduced and the phrase "made or cut from" has been substituted for "made from." The suggested provision expands the wording to cover all vegetable fiber except cotton, as such fabrics logically belong in Schedule 10.

PARAGRAPH 1012.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1012. Table damask composed wholly or in chief value of vegetable fiber other than cotton, and manufactures composed wholly or in chief value of such damask, 28 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[Not specially provided for. Dutiable under par. 357 at a minimum rate of 50 per centum ad valorem, or under par. 358 at 45 per centum ad valorem, depending on whether weight did or did not exceed 4½ ounces per square yard.]

[Not specially provided for. Dutiable at 35 per centum ad valorem under par. 284.]

LINEN TABLE DAMASK, AND MANUFACTURES OF.

Description and uses.—Damask is a woven figured fabric distinguished by the appearance of the design on the smooth surface without any contrast in colors. Warp sateen is usually employed for the figures and filling sateen for the ground. The surface threads in the figures lie at right angles to those in the ground, with the result that the light falling on the smooth surface is refracted when it strikes the figures and the pattern is caused to stand out in bold relief. Linen damask, although mainly Jacquard woven, is usually of coarse or medium yarns. It varies from 4 to 6 ounces to the square yard, with 96 to 350 threads to the square inch. It is usually sold bleached or cream colored; a small amount is woven in colors. The standard cloth

width is 72 inches, although some cloths are as wide as 144 inches. It is made up into table covers, napkins, doilies, etc., the articles in each set being usually made of the same pattern. Napkins range from 20 by 20 inches to 27 by 27 inches; table covers from 36 by 36 inches to 63 by 63 inches.

Production of all-linen table damask in the United States is negligible; there is a small manufacture of union goods made of linen and cotton.

Imports are not recorded separately from other linen fabrics. Export statistics of the United Kingdom show shipments to the United States of table linen not in the piece in the years 1914-1918 averaging annually \$2,313,000, and in the year 1919 valued at \$1,857,000. The United Kingdom is the main source of imports; Belgium supplies the greater part of the remainder. In normal times these imports are mainly all-linen, the proportion of union goods being small. During the war imports of damask fell off greatly and the high prices tended to cause a larger proportionate use of union goods. The high prices also stimulated the substitution of cotton imitations.

Exports are not recorded; there are probably none.

Important changes in classification.—This is a new paragraph which has been inserted mainly to secure statistical enumeration of imports of linen table damask, and manufactures of, for contrast with recorded imports of similar goods made of cotton.

Suggested changes.—It has been suggested that paragraph 910 of the cotton schedule be confined to articles made of cotton table damask and in conformity thereto it is suggested that this paragraph be confined to articles made of linen table damask. The following wording might be used for paragraph 1012:

Manufactures of table damask, in any form, composed wholly or in chief value of vegetable fiber other than cotton [rate].

Since all woven fabrics of flax, hemp, or ramie, with the exception of paddings (par. 1010), are combined in a general paragraph (1009), there is no particular reason why damask in the piece should be specially provided for. Confining paragraph 1012 to articles made of damask, such as table covers, napkins, etc., ready for use, would be in accordance with the procedure followed in paragraph 1013, which relates to towels, sheets, and pillowcases, and not to the fabrics from which made; and in paragraph 1015, which covers only handkerchiefs, and not the cambrics and sheer linens from which such articles are manufactured.

PARAGRAPH 1013.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1013. Towels, sheets, and pillowcases, composed wholly or in chief value of flax, 28 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[Not specially provided for. Dutiable at a minimum rate of 50 per centum ad valorem under par. 357, or at 45 per centum ad valorem under par. 358, depending on whether the weight did or did not exceed 4½ ounces per square yard.]

[Not specially provided for. Dutiable at 35 per centum ad valorem under par. 284.]

LINEN TOWELS, SHEETS, AND PILLOWCASES.

Description and uses.—Towels of all flax, or of flax and cotton, are mainly of the huck weave, comparatively few being terry woven. The normal range in weight is from 5 to 7 ounces to the square yard. Imports range from the lower grades with about 80 to 100 threads to the square inch, competing with domestic products, to high grades, up to 200 threads to the square inch, which are not made in this country. The cheaper grades form the bulk of consumption and imports. Sheets and pillowcases of all flax, or of flax and cotton, are made from piece goods, usually weighing from 4 to 4½ ounces to the square yard, and having from 100 to 160 threads to the square inch. In size, the sheets run from 72 by 96 inches, to 90 by 108 inches; the usual size of the pillowcases is 22½ by 36 inches.

Production is not recorded. About a dozen domestic firms manufacture huck towels of flax and cotton, flax constituting the component part of chief value; the production of towels of all flax is much smaller. The union towels range from 80 to 135 threads to the square inch. Production of linen sheets and pillowcases is confined to those made from imported cloth.

Imports are not recorded. Imports of linen sheets and pillowcases are small, since it is usually more profitable to import the cloth and make the finished articles here; prior to 1914, however, there was a fairly large import from Germany. Imports of linen towels are larger; those of all flax normally constitute about three-fourths of the total. Prior to the war Germany was an important source, but since then imports of linen towels have been supplied mainly by Belfast, and a smaller amount by Scotland.

Important changes in classification.—This is a new provision, inserted mainly to secure statistical enumeration of imports of towels, sheets, and pillowcases, wholly or in chief value of flax, for contrast with recorded imports of similar articles wholly or in chief value of cotton.

PARAGRAPH 1014.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1014. Fabrics with fast edges not exceeding twelve inches in width, and articles made therefrom, tubings, garters, suspenders, braces, cords, tassels, cords and tassels; all the foregoing composed wholly of vegetable fiber other than cotton, or wholly of vegetable fiber other than cotton and india rubber, and not specially provided for, 28 per centum ad valorem; tapes composed wholly or in part of flax, woven with or without metal threads, on reels, spools, or otherwise, and designed expressly for use in the manufacture of measuring tapes, 23 per centum ad valorem.

ACT OF 1909.

ACT OF 1918.

PAR. 346. Tapes composed wholly or in part of flax, woven with or without metal threads, on reels, spools, or otherwise, and designed expressly for use in the manu-

PAR. 275. Tapes composed wholly or in part of flax, woven with or without metal threads, on reels, spools, or otherwise, and designed expressly for use in

ACT OF 1909.

facture of measuring tapes, forty per centum ad valorem.

PAR. 349. * * * bands, bandings, belts, beltings, bindings, cords, * * * ribbons, tapes, webs, and webbings; * * * all of the foregoing, composed wholly or in chief value of * * * flax, or other vegetable fiber, or of * * * flax, or other vegetable fiber and india rubber, or of * * * flax, or other vegetable fiber, india rubber, and metal, and not elsewhere specially provided for in this section, sixty per centum ad valorem: *Provided*, That no article composed wholly or in chief value of one or more of the materials or goods specified in this paragraph, shall pay a less rate of duty than the highest rate imposed by this section upon any of the materials or goods of which the same is composed: * * *.

ACT OF 1913.

the manufacture of measuring tapes, 20 per centum ad valorem.

PAR. 278. Bands, bandings, belts, beltings, bindings, cords, ribbons, tapes, webs and webbings, all the foregoing composed wholly of flax, hemp, or ramie, or of flax, hemp, or ramie and india rubber, and not otherwise specially provided for in this section, 30 per centum ad valorem; * * *.

SMALL WARES OF VEGETABLE FIBERS OTHER THAN COTTON.

Description and uses.—This paragraph covers narrow woven fabrics which have not been ornamented after leaving the loom, manufactures of such narrow woven fabrics, and certain articles made by braiding or twisting together yarns or threads. The "small wares" thus covered are confined to those composed wholly of vegetable fiber other than cotton, or of such vegetable fibers (other than cotton) and india rubber. For description see the cotton small-wares paragraph (912). Chief among the small wares here included are jute webbings used for upholstering and lined tapes for dress-making. Flax tape designed expressly for use in the manufacture of measuring tapes is specifically mentioned.

Production is not recorded except in regard to one item, jute webbing, which amounted in 1919 to 30,856,000 linear yards, valued at \$1,325,000. The domestic production of flax tape for manufacture into measuring tape is confined almost entirely to one company whose production in 1919 was about the same as in 1914.

Imports in the fiscal year 1914 of small wares of flax, hemp, and ramie were valued at \$34,053; of flax tapes for use in the manufacture of measuring tapes at \$10,421. Imports in later years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|----------|----------|----------|------------------|
| Small wares of vegetable fiber other than cotton: | | | | |
| Value..... | \$23,889 | \$12,492 | \$28,048 | \$11,228 |
| Duty..... | 7,088 | 3,469 | 8,076 | ..... |
| Flax tape for use in manufacture of measuring tapes: | | | | |
| Value..... | 826 | 754 | 5,454 | 3,721 |
| Duty..... | 165 | 151 | 1,091 | ..... |

Exports are not recorded.

Important changes in classification.—The basic wording of this small-wares paragraph is the same as used in the other textile schedules; the reasons therefor are stated under paragraph 912. The

paragraph as worded covers small wares composed wholly of vegetable fiber other than of cotton, or of such vegetable fiber (other than cotton) and india rubber. Small wares in chief value of vegetable fiber other than cotton would therefore come within the basket clause of paragraph 1019.

Suggested changes.—The following wording is suggested for this paragraph:

Fabrics with fast edges not exceeding twelve inches in width, and articles made therefrom; tubings, garters, suspenders, braces, cords, tassels, and cords and tassels; all the foregoing composed wholly or in chief value of vegetable fiber other than cotton, or of vegetable fiber other than cotton and india rubber [rate] per centum ad valorem.

The suggested wording for paragraph 1014 would cause it to be entirely complementary to paragraph 912 in taking care of small wares of vegetable fibers and would render unnecessary any mention of flax tapes for use in the manufacture of measuring tapes (as they would be automatically included), unless a special rate is thought to be necessary for this latter. Imports of such tape are very small and there is no apparent reason for a specific provision for them. Imports of other small wares are also small and the advisability of making the rates in paragraphs 912 and 1014 the same, to facilitate the work of administration by avoiding the necessity of determining the chief component material by an analysis of small wares made of cotton and other vegetable fibers, might be considered.

Page 116, line 25, of H. R. 7456: Change comma to semicolon after "therefrom," to agree with paragraph 912.

PARAGRAPH 1015.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1015. Handkerchiefs composed wholly or in chief value of vegetable fiber other than cotton, finished or unfinished, not hemmed, 33½ per centum ad valorem; hemmed or hemstitched, 36 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 356. Handkerchiefs composed of flax, hemp, or ramie, or of which these substances, or either of them, is the component material of chief value, whether in the piece or otherwise, and whether finished or unfinished, not hemmed or hemmed only, fifty per centum ad valorem; if hemstitched, or imitation hemstitched, * * * but not embroidered, initialed, or in part of lace, fifty-five per centum ad valorem.

PAR. 282. Handkerchiefs composed of flax, hemp, or ramie, or of which these substances, or any of them, is the component material of chief value, whether in the piece or otherwise, and whether finished or unfinished, not hemmed or hemmed only, 35 per centum ad valorem; if hemstitched, or imitation hemstitched, * * * but not embroidered, initialed, or in part of lace, 40 per centum ad valorem.

LINEN HANDKERCHIEFS.

Description and uses.—The plain hemmed or hemstitched linen handkerchief is used by those who prefer its appearance and wearing qualities to the cheaper cotton article. Prior to 1914, when prices

were normal, the ordinary linen handkerchief displaced the finer grades of cotton handkerchiefs. Practically all of the imports under this paragraph are of linen, as all the other leading fibers other than cotton, with the minor exception of ramie, are not sufficiently fine or flexible to make satisfactory handkerchiefs. Linen handkerchiefs are made up into a variety of sizes and qualities, for the most part from light cambrics weighing from 1.5 to 3 ounces per square yard, which are dutiable at 28 per cent ad valorem under paragraph 1009 of H. R. 7456.

Production of plain linen handkerchiefs from cloth imported in the piece is far in excess of the imports of these articles. Since 1914 there has been a marked decline in the domestic output owing to the scarcity and high price of linens. Plain cotton handkerchiefs probably constitute more than three-fourths of the number of handkerchiefs of all descriptions produced annually in the United States. The greater number of domestic producers manufacture both cotton and linen handkerchiefs.

Imports of linen handkerchiefs, hemmed or hemstitched, averaged \$853,902 per annum for the fiscal years 1911-1920. Of the plain imported linen handkerchiefs about 90 per cent are hemstitched. The value of imported linen handkerchiefs ornamented with lace or embroidery, classified under paragraph 1430 of H. R. 7456 and dutiable at 37½ per cent, is ordinarily about twice as great, averaging \$1,626,047 in the decade 1911-1920. The chief source of imports is the United Kingdom, principally the north of Ireland. Imports for 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-------------|-----------|
| | <i>Dozens.</i> | | |
| 1918..... | 374,220 | \$1,150,351 | \$454,564 |
| 1919..... | 856,811 | 730,306 | 286,388 |
| 1920..... | 673,280 | 1,859,501 | 732,157 |
| 1921 (9 months)..... | | 1,312,363 | |

Exports are not recorded.

Important changes in classification.—The words “or with drawn threads,” which were eliminated from the provision for cotton handkerchiefs in 1913, have also been omitted from this paragraph. Cotton handkerchiefs hemstitched and ornamented with drawn work have been held to be more specifically provided for under paragraph 255 of the act of 1913 as “handkerchiefs * * * hemmed or hemstitched” than under paragraph 358 of the same act as “articles from which threads have been omitted, drawn, punched, or cut, and with threads introduced after weaving, forming figures or designs, not including straight hemstitching.” (G. A. 7769, T. D. 35675, of 1915.) In the new classification of paragraph 358 (par. 1430 of H. R. 7456) there is a provision for “handkerchiefs * * * from which threads have been omitted, drawn, punched, or cut, and with threads introduced after weaving to finish or ornament the openwork, not including straight hemstitching.” Hemmed handkerchiefs have been classed with the hemstitched, as was done in 1913 in the case of cotton handkerchiefs, because machine hemming and hemstitching are commonly done in a single operation. The words “or imitation hemstitched” are superfluous since such hemstitching is really machine

hemstitching. The words "but not embroidered, initialed, or in part of lace" are also unnecessary, since handkerchiefs embroidered, initialed, or in part of lace are specifically covered by paragraph 1430 of H. R. 7456.

PARAGRAPH 1016.

H. R. 7456.

SENATE AMENDMENT.

PAR. 1016. Clothing, and articles of wearing apparel of every description, composed wholly or in chief value of vegetable fiber other than cotton, and whether manufactured wholly or in part, not specially provided for, 33½ per centum ad valorem; shirt collars and cuffs, composed wholly or in part of flax, 28 cents per dozen, and, in addition thereto, 17 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 324. Clothing, ready-made, and articles of wearing apparel of every description, composed of * * * vegetable fiber, or of which * * * vegetable fiber is the component material of chief value, made up or manufactured, wholly or in part, by the tailor, seamstress, or manufacturer, and not otherwise provided for in this section, fifty per centum ad valorem.

PAR. 278. * * * wearing apparel composed wholly of flax, hemp, or ramie, or of flax, hemp, or ramie and india rubber, 40 per centum ad valorem.

PAR. 348. Shirt collars and cuffs, * * * composed in whole or in part of linen, forty cents per dozen pieces and twenty per centum ad valorem.

PAR. 277. Shirt collars and cuffs, composed in whole or in part of linen, 30 per centum ad valorem.

LINEN, WEARING APPAREL.

Description and uses.—The domestic consumption of wearing apparel, made in whole or in part of linen, has declined greatly since 1914. Practically all linen wearing apparel, other than collars, is either embroidered or in part of lace, and is classified under paragraph 1430 of H. R. 7456. Linen blouses and men's collars form the bulk of goods falling under paragraph 1016. In the domestic trade a collar with one of its several plies made of linen is known as a linen collar. The consumption of linen collars and cuffs is insignificant as compared with the consumption of such articles of all cotton. The latter form the basis of the domestic trade.

Production.—Prior to 1914 large quantities of imported linen fabrics were used by the domestic clothing trade in the manufacture of ladies' dresses and men's clothing. During the years 1914–1920, the production of linen apparel, owing to the excessively high prices of flax fabrics, was negligible. In 1921 the consumption was in excess of 1914–1920, though far below the amounts used before the war. In 1914 only one domestic company manufactured linen collars and cuffs in any quantity. In 1919 its production was negligible.

Imports consist chiefly of linen blouses and men's collars. Shipments of wearing apparel of all linen were valued in 1914 at \$20,343 and in 1920 at \$80,819. Linen collars and cuffs imported in the same years numbered in 1914, 53,370 dozen, valued at \$56,629, and in 1920, 30,703 dozen, valued at \$71,980. Imports during 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|--|---------------------|----------|----------|
| WEARING APPAREL OTHER THAN COTTON, N. S. P. F. | | | |
| 1918..... | | \$22,816 | \$9,045 |
| 1919..... | | 27,656 | 9,131 |
| 1920..... | | 80,819 | 27,599 |
| 1921 (9 months)..... | | 52,496 | |
| SHIRT COLLARS AND CUFFS IN WHOLE OR IN PART OF LINEN. | | | |
| | <i>Dozen pairs.</i> | | |
| 1918..... | 18,652 | \$37,996 | \$11,399 |
| 1919..... | 15,310 | 35,684 | 10,765 |
| 1920..... | 30,703 | 71,980 | 21,594 |
| 1921 (9 months)..... | 23,169 | 61,746 | |

Important changes in classification.—Linen collars and cuffs, heretofore covered in a separate paragraph (par. 277, act of 1913), have been added to this paragraph, the quantity entering into the domestic trade not being large enough for an entire paragraph. The wearing apparel provision has been enlarged by substituting the words "wholly or in chief value" for the word "wholly." The reference to wearing apparel composed in part of india rubber has been eliminated, because imports are small, and would almost always be composed in chief value of the textile fibers utilized rather than of the rubber.

Conflicting provision.—Paragraph 1016 conflicts with paragraph 1210 with respect to shirt collars, because both paragraphs provide for shirt collars "in part" of the particular material.

Suggested changes.—In case the provision in paragraph 1210 for shirt collars wholly or in part of silk shall be eliminated, as there suggested, the conflict above mentioned will be avoided.

Page 117, line 18, of H. R. 7456: Strike out the comma after "dozen" and after "and" and omit the words "in addition thereto," as unnecessary.

PARAGRAPH 1017.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1017. Bags or sacks made from plain woven fabrics of single jute yarns or from twilled or other fabrics composed wholly of jute, 1 cent per pound, and, in addition thereto, 17 per centum ad valorem.

ACT OF 1909.

PAR. 354. Bags or sacks made from plain woven fabrics, of single jute yarns, not dyed, colored, stained, painted, printed, or bleached, and not exceeding thirty threads to the square inch, counting the warp and filling, seven-eighths of one cent per pound and fifteen per centum ad valorem.

[Jute bags or sacks containing more than 30 threads to the square inch, or made from twilled fabrics, or dyed, colored, etc., were dutiable at 45 per centum ad valorem under par. 358.]

ACT OF 1913.

PAR. 281. Bags or sacks made from plain woven fabrics, of single jute yarns, not dyed, colored, stained, painted, printed, or bleached, 10 per centum ad valorem.

[Jute bags or sacks, dyed, colored, etc., or made from twilled fabrics, are dutiable at 35 per centum ad valorem under par. 284.]

JUTE BAGS AND SACKS.

(See Survey J 9.)

Description and uses.—Jute bags are the most popular medium the world over for sacking bulky commodities. There are two leading types: (1) Burlap bags, made from a plain woven jute cloth, and (2) sacking bags, made from a twilled jute cloth, heavier and coarser than burlap. The domestic production is limited to bags made from imported burlap, entries of which material in 1920 amounted to about 1,000,000,000 yards. Four-fifths of the burlap consumed is used in American bag factories. (For a description of burlap and sacking cloth, see par. 1008, p. 918.) The leading domestic use of burlap bags is for sacking grain, bran, feed, fertilizer, sugar, flour, and vegetables. Sacking bags, which are stronger than burlap bags of the same capacity, and which weigh about twice as much, enter this country as containers of a great variety of products, principally raw sugar, coffee, and nitrates. After the sacking bags have been emptied and repaired, the best are used to contain vegetables and cottonseed meal, and the poorest for covering raw cotton, the amounts used in recent years for this latter purpose constituting about 10 per cent of all such wrapping. The consumption of new sacking bags is limited to Porto Rico, which employs several million a year for shipping raw sugar, principally to the United States.

Production in 1914 amounted to 388,526,154, and in 1919 to 457,306,416, burlap bags. The production of cotton bags in the same years was 543,311,602 and 506,451,571, respectively. The burlap bag and the cotton bag are each so adapted to particular uses that they do not compete except at times when the price of one is very high in terms of the other. No sacking bags are produced in the United States, largely owing to the tariff, which in the past has imposed a higher duty on jute sacking than on jute burlap.

Imports of burlap bags (made from plain woven fabrics of single jute yarns) amounted to 48,691,852 pounds in 1920, as compared with an average of 52,138,628 pounds for the years 1910–1914. Imports of new bags are practically limited to those measuring 22 by 36 inches, weighing 12 ounces; these are known as centals, and are used almost exclusively on the Pacific coast for sacking grain. The consumption of centals averages about 50,000,000 bags annually, of which two-thirds are supplied by imports. Imports of new bags are practically limited to centals, because, in contrast to other jute bags

of domestic origin; they are standardized, unprinted, and used in very large quantities. New centals are all supplied by British India and form the largest part of her exports of burlap bags, which are small as compared with her shipments of sacking bags. The number of jute bags shipped from India in the year ended March 31, 1921, totaled 397,013,000 sacking bags and 136,895,000 burlap bags. Second-hand bags, which form a steadily decreasing part of our imports, are supplied by the United Kingdom. Cotton bags, dutiable under the basket clause of the cotton schedule, are rarely imported and then only in negligible quantities.

Imports of burlap bags since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-------------|-----------|
| | <i>Pounds.</i> | | |
| 1918..... | 31,360,482 | \$5,056,826 | \$505,683 |
| 1919..... | 43,042,985 | 4,536,042 | 453,584 |
| 1920..... | 48,091,852 | 7,483,240 | 749,203 |
| 1921 (9 months)..... | 54,986,166 | 8,628,498 | |

Exports of all bags of vegetable fiber are normally small and consist chiefly of cotton bags. The value of exported bags of vegetable fiber was \$683,483 in 1914 and \$5,951,669 in 1920. Argentina, Cuba, Canada, and the United Kingdom were the leading markets. In 1914, according to special data secured by the Tariff Commission (see Survey J-9), exports of jute bags amounted to 500 new and 1,334,000 second-hand bags, and in 1919 to 2,945,300 new and 4,607,000 second-hand bags. The increased exports of new jute bags in 1919 were due to war conditions, as under normal circumstances the United States can not compete with India in the trade in new jute bags.

Important changes in classification.—In former tariff acts provisions for bags and sacks have been confined to those made of burlap. Although the world production of sacking bags is as extensive as that of burlap bags, the former were not specifically mentioned and have fallen in the basket paragraph of Schedule J. In the acts of 1909 and 1913 sacking bags, though made from cloth of poorer quality than burlap, were assessed at a higher duty. The duty on sacking bags in the act of 1909 was 45 per cent, and in the act of 1913 it is 35 per cent, whereas the duty on burlap bags amounted during the operation of the former act to about 30 per cent; in the latter it is 10 per cent. The differential between the cloth and bags in these acts was as follows: Between burlap and burlap bags, about 7 per cent in the act of 1909 and precisely 10 per cent in the act of 1913; on sacking and sacking bags, little, since both the cloth and the bags fell under the basket clause in each act, each being dutiable at 45 per cent in the act of 1909, and at 35 per cent in the act of 1913. In H. R. 7456, the same duty is placed upon both burlap and sacking.

The descriptive terms "not dyed, colored," etc., have been omitted because imports of such bags dyed, colored, etc., have been negligible.

Burlap and sacking bags have been separately enumerated in the new provision, so that the recording of imports of burlap bags may be continued, and statistics may also be obtained on sacking bags, which hitherto have not been separately classified in custom statistics.

Suggested changes.—Page 117, line 22, of H. R. 7456: Strike out the comma after "pound" and after "and" and omit the words "in addition thereto," as unnecessary.

PARAGRAPH 1018.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1018. Linoleum, including corticine and cork carpet, 28 per centum ad valorem; floor oilcloth, 20 per centum ad valorem; mats or rugs made of linoleum or floor oilcloth shall be subject to the same rates of duty as herein provided for linoleum or floor oilcloth.

ACT OF 1909.

ACT OF 1913.

PAR. 347. Linoleum, corticine, and all other fabrics or coverings for floors, made in part of oil or any similar product, plain, stamped, painted or printed, only, not specially provided for herein, if nine feet or under in width, eight cents per square yard and fifteen per centum ad valorem; over nine feet in width, twelve cents per square yard and fifteen per centum ad valorem; and any of the foregoing of whatever width, the composition of which forms designs or patterns, whether inlaid or otherwise, by whatever name known, and cork carpets, twenty cents per square yard and twenty per cent ad valorem; mats for floors made of oilcloth, linoleum, or corticine, shall be subject to the same rate of duty herein provided for oilcloth, linoleum, or corticine; oilcloth for floors, if nine feet or less in width, six cents per square yard and fifteen per centum ad valorem; over nine feet in width, ten cents per square yard and fifteen per centum ad valorem; * * *

PAR. 276. Linoleum, plain, stamped, painted, or printed, including corticine and cork carpet, figured or plain, also linoleum known as granite and oak plank, 30 per centum ad valorem; inlaid linoleum, 35 per centum ad valorem; oilcloth for floors, plain, stamped, painted, or printed, 20 per centum ad valorem; mats or rugs made of oilcloth, linoleum, corticine, or cork carpet shall be subject to the same rate of duty as herein provided for oilcloth, linoleum, corticine, or cork carpet.

LINOLEUM AND FLOOR OILCLOTH.

(See Survey J-3.)

Description and uses.—Floor oilcloth is composed of a foundation of jute burlap coated with a mixture of linseed oil, ocher, and benzine. Several coats are applied to attain the desired thickness, each coat in turn being dried and rubbed smooth with pumice stone. Floor oilcloth may be plain or have designs stamped, painted, or printed on the smooth finished coating. Printed designs are now usually applied by automatic machinery.

Linoleum gets its name from *linum* (flax) and *oleum* (oil). A cement is made of solidified linseed oil, resin, and kauri gum; this is then mixed with cork dust, and the paste thus made rolled upon a foundation of jute burlap. If the fabric is to be plain (that is, of a uniform color), the coloring matter is added before rolling. In inlaid or mosaic linoleum the colors go through and do not wear away as in printed or stenciled linoleum. Among the leading types of linoleum are: Inlaid linoleum made in several ways, but generally by cutting rolls of linoleum cement of various colors into separate pieces, fitting them into a design on a jute burlap foundation, and incorporating them into a fabric by means of hot rollers; granite linoleum made

from pastes of different colors, the colors remaining separate in the completed fabric, the assemblage and relation of the various colored spots and masses being casual; plank linoleums, oak plank linoleums, or plank inlaid linoleums, made by running two separate paste mixtures, which are not allowed to mix, side by side upon a burlap foundation, the effect resembling an inlaid flooring; corticene, prepared like linoleum, but having the linseed oil oxidized differently and containing rubber also in the composition; cork carpet, resembling plank linoleum and made in the same way, except that the cork is not ground so finely, and a larger proportion thereof is used in the mixture, resulting in a softer, and more sponge-like substance.

Production in 1914 and 1919 of linoleum and floor oilcloth made on burlap back was as follows:

| Article. | Quantity. | | Value. | |
|-------------------------|------------------------------|---------------------------------|-------------|------------|
| | 1914 | 1919 | 1914 | 1919 |
| Floor oilcloth..... | <i>Sq. yds.</i> 7,536,000 | <i>Square yds.</i> 1,211,000 | \$1,484,000 | \$424,000 |
| Inlaid linoleum..... | 8,479,000 | 9,834,000 | 4,726,000 | 10,336,000 |
| All other linoleum..... | 33,307,000 | 22,098,000 | 10,043,000 | 17,121,000 |
| Total..... | 49,322,000 | 33,143,000 | 16,253,000 | 27,881,000 |

The marked decline in 1919 in the production of floor oilcloth and linoleum other than inlaid was due in part to the scarcity and high price of burlap for use as a backing and especially to the substitution of floor coverings made on felt back for the cheaper grades of linoleum. The last type of floor covering consists of a base of felt paper saturated with asphaltum, painted on both sides with one or more coats of paint, and printed on the top surface with decorative designs. The domestic production of floor coverings made on felt back has made great strides since 1914 when its production was negligible and limited to one establishment. The output in 1919 was 30,370,000 square yards, valued at \$13,909,000.

Imports.—Imports of linoleum and floor oilcloth have shown a marked decline since 1914, in which year their quantity was 4,231,066 square yards, valued at \$1,877,324. The bulk of the imports consists of the highest grades. In 1920 inlaid linoleum constituted 61 per cent of the total; all other linoleum, 30 per cent, and oil cloth for floors about 9 per cent. Prior to 1914 the United Kingdom furnished about three-fourths of the total, and Germany the bulk of the remainder; since 1914 the United Kingdom has supplied practically all, furnishing 99 per cent of the total in 1919 and 1920.

Imports for 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|-----------------------------|------------------------|-----------|---------|
| LINOLEUM, ALL TYPES. | | | |
| 1918..... | <i>Sq. yds.</i> 337 | \$652 | \$215 |
| 1919..... | 116,140 | 123,577 | 40,712 |
| 1920..... | 1,051,497 | 1,178,231 | 399,791 |
| 1921 (9 months)..... | 228,446 | 281,587 | ..... |

| Calendar year. | Quantity. | Value. | Duty. |
|-----------------------------|-----------------|--------|-------|
| OILCLOTH FOR FLOORS. | | | |
| | <i>Sq. yds.</i> | | |
| 1918..... | 93 | \$44 | 89 |
| 1919..... | 9,363 | 5,638 | 1,128 |
| 1920..... | 97,232 | 46,870 | 9,374 |
| 1921 (9 months)..... | 619 | 657 | ..... |

Exports of oilcloth and linoleum for floors have shown a marked advance in recent years, in 1914 amounting to 163,214 square yards valued at \$60,403, and in 1920 to 2,227,803 square yards valued at \$1,583,392. The leading markets in 1914 were, in order of importance, Cuba, Australia, Switzerland, and Argentina, and in 1920 Australia, New Zealand, and United Kingdom. Exports consist for the most part of the lower grades, and since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------------|-------------|-------------|-------------|------------------|
| Quantity (square yards)..... | 2,235,980 | 2,537,780 | 2,227,803 | ..... |
| Value..... | \$1,360,196 | \$1,740,186 | \$1,583,392 | \$1,191,189 |

Important changes in classification.—The classification and wording of this provision have been simplified. The distinction hitherto drawn between ordinary linoleum and inlaid linoleum in rates of duty has been abolished, because while the cost of manufacturing inlaid linoleum is ordinarily greater than that of plain or printed linoleum, there is so wide a variation, depending largely on the thickness of the goods, that a great deal of plain linoleum sells for more than the low or medium grades of inlaid. The elimination of the former distinction between the various types of linoleum is approved by the manufacturers, who in their brief state: "All of the forms of our product can now be classified together as a single product and duties assessed accordingly." (Ways and Means tariff hearings, 1921, p. 2500.)

The distinctions in duties made in the acts of 1897 and 1909 between lineolium of narrow and wide widths have not been reestablished. Width is a cost factor of much less importance than thickness, or than type, that is, whether ordinary or inlaid. Domestic manufacturers are also opposed to the revival of the classification based on width, stating that "this system made a complicated tariff paragraph and added complications to its administration." (Ways and Means tariff hearings, 1921, p. 2500.)

The adjectives describing linoleum and floor cloth, such as "plain," "stamped," "painted," etc., have been omitted. Likewise the phrase, "also linoleum known as granite and oak plank" has been omitted as superfluous, since these are well-known types of linoleum. While corticene and cork carpet are two types of linoleum, yet because of certain differences in composition from ordinary linoleum they have been specifically mentioned to remove any doubt as to their inclusion in this paragraph.

PARAGRAPH 1019.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1019. All woven articles, finished or unfinished, and all manufactures of vegetable fiber other than cotton, or of which such fibers or any of them is the component material of chief value, not specially provided for, 28 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 357. Woven * * * articles not specially provided for in this section, composed of flax, hemp, or ramie, or of which these substances or any of them is the component material of chief value, weighing four and one-half ounces or more per square yard, when containing not more than sixty threads to the square inch, counting the warp and filling, one and three-fourths cents per square yard; containing more than sixty and not more than one hundred and twenty threads to the square inch, two and three-fourths cents per square yard; containing more than one hundred and twenty and not more than one hundred and eighty threads to the square inch, six cents per square yard; containing more than one hundred and eighty threads to the square inch, nine cents per square yard, and in addition thereto, on all the foregoing, thirty per centum ad valorem: *Provided*, That none of the foregoing articles * * * in this paragraph shall pay a less rate of duty than fifty per centum ad valorem. * * *

PAR. 284. All woven articles, finished or unfinished, and all manufactures of flax, hemp, ramie, or other vegetable fiber, or of which these substances, or any of them, is the component material of chief value, not specially provided for in this section, 35 per centum ad valorem.

PAR. 358. All woven articles, finished or unfinished, and all manufactures of flax, hemp, ramie, or other vegetable fiber, or of which these substances, or any of them, is the component material of chief value, not specially provided for in this section, forty-five per centum ad valorem.

WOVEN FABRICS AND ARTICLES N. S. P. F.

Description and uses.—This paragraph is the catch-all section of schedule 10. A great variety of miscellaneous articles, none of which is imported in large quantities, will fall under this provision.

Imports.—Total imports under this classification, as provided by H. R. 7456, will be considerably reduced. They will include netting bags and school bags made from jute; bumpers, fenders, and rope made from coir, a fiber obtained from coconut husks; hammocks of hemp or sisal; knotted hemp fiber wound on spools; tennis nets made of hemp; and sea-grass cord and tagal threads. Statistics showing imports or production of any of these articles are not available. Imports under the basket clause of Schedule 10, with the exception of fabrics not plain woven of flax, hemp, or ramie (which are listed under par. 1009) were as follows during the calendar years 1918-1921:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------|-------------|-------------|--------------|--------------------|
| Value..... | \$5,977,054 | \$4,789,493 | \$10,648,033 | \$5,828,134 |
| Duty..... | 1,988,675 | 1,641,576 | 3,610,035 | ..... |

Important changes in classification.—The scope of this provision has been greatly reduced by the adoption of specific provisions for all the important products formerly included under the catchall paragraph. Among these are (1) manufacturers of linen table damask (par. 1012); (2) linen towels, sheets, and pillowcases (par. 1013); (3) jute cloths made of ply yarns, and jute cloths other than plain woven (par. 1008); (4) twilled jute bags or sacks, and all jute bags or sacks dyed, colored, stained, etc. (par. 1017); (5) tailor's paddings composed in chief value, but not wholly, of jute (par. 1010); and (6) jute twine and cordage (par. 1003).

Suggested changes.—Since this paragraph is the catchall of Schedule 10, it is suggested that in conformity with the catchall paragraphs of other schedules, it be made the last paragraph in the schedule.

PARAGRAPH 1020.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1020. Common China, Japan, and India straw matting, and floor coverings made therefrom, 3 cents per square yard; all other floor coverings not specially provided for, 26 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 343. Floor mattings, plain, fancy, or figured, manufactured from straw, round or split, or other vegetable substances, not otherwise provided for in this section, and having a warp of cotton, hemp, or other vegetable substance, including what are commonly known as China, Japan, and India straw matting, three and one-half cents per square yard.

PAR. 344. Carpets, carpeting, mats and rugs made of flax, hemp, jute, or other vegetable fiber (except cotton), valued at not exceeding fifteen cents per square yard, four cents per square yard and thirty per centum ad valorem; valued above fifteen cents per square yard, eight cents per square yard and thirty per centum ad valorem.

PAR. 384. * * * chenille carpets, figured or plain, and all carpets or carpeting of like character or description, sixty cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 393. Carpets and carpeting of * * * flax, or cotton, or composed in part of any of them, not specially provided for in this section, and mats, matting, and rugs of cotton, fifty per centum ad valorem.

PAR. 272. Floor mattings, plain, fancy, or figured, including mats and rugs, manufactured from straw, round or split, or other vegetable substances, not otherwise provided for in this section, and having a warp of cotton, hemp, or other vegetable substances, including what are commonly known as China, Japan, and India straw matting, 2½ cents per square yard.

PAR. 273. Carpets, carpeting, mats and rugs made of flax, hemp, jute, or other vegetable fiber (except cotton), 30 per centum ad valorem.

PAR. 293. * * * chenille carpets, figured or plain, and all carpets or carpeting of like character or description, 35 per centum ad valorem.

PAR. 302. Carpets and carpeting of * * * cotton, or composed in part of either of them [wool or cotton], not specially provided for in this section, and on mats, matting, and rugs of cotton, 20 per centum ad valorem.

FLOOR COVERINGS OTHER THAN WOOL.

(See Survey J-3.)

This paragraph relates to floor coverings made of vegetable fibers or vegetable substances. Among these are included floor coverings made respectively from straw, grass, jute, or other vegetable fiber, and from rags (usually cotton). By far the most important are those made of straw or grass.

FLOOR COVERINGS OF STRAW OR GRASS.

Description and uses.—Straw and grass floor coverings fall into three general classes: (1) Common China and Japan straw mats and mattings; (2) rice-straw mattings and rugs, and (3) wire-grass mattings and rugs, the last named being known generally as "crex" floor coverings. Common mattings, made on crude hand looms from certain species of matting rushes woven with a straw, hemp, or cotton warp, are distinctively an oriental product and are not made in the United States. They are the cheapest of the three classes. Rice-straw rugs are made of rice-straw wound about with a binding thread so as to produce a straw twine which, used as a filling, is then woven with cotton or other warp. They, too, are distinctively an oriental product and are not made in the United States, though their close resemblance to the domestic wire-grass rugs has led to direct competition with the grass rugs. Wire-grass rugs are made of a variety of swamp grass known as wire-grass. The grass is first formed into a twine in the same manner as the rice-straw described above, and then woven with cotton or other warp. These rugs are distinctively a domestic product and are generally of better quality than the rice-straw rugs which compete with them.

Production.—Production of wire-grass rugs in the United States began in 1899. In 1913 (fiscal year) 6,083,093 square yards were produced valued at \$1,931,067; in 1920, 4,481,731 square yards, valued at \$4,206,347.

Imports.—During the last 20 years imports of straw floor coverings have declined by more than one-half. During the years 1900–1909 they ranged per annum between 40,000,000 and 50,000,000 square yards; during the period 1910–1913, they averaged 27,200,000 square yards; and during the period 1914–1918, 17,300,000 square yards per annum. Imports during 1918–1921 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|-----------------|-------------|-----------|------------------------|
| | <i>Sq. yds.</i> | | | <i>Per cent</i> |
| 1918..... | 12,444,016 | \$2,018,525 | \$310,879 | 15.40 |
| 1919..... | 15,022,279 | 3,610,554 | 375,355 | 10.40 |
| 1920..... | 21,827,292 | 6,421,885 | 545,671 | 8.50 |
| 1921 (9 months)..... | 8,077,771 | 1,846,981 | | |

Despite the decline in total imports of straw floor coverings, the importation of rice-straw rugs (which are the only imports directly competing with the domestic grass rugs) has increased. Imports were only beginning to come in prior to the war. Figures compiled

by the Tariff Commission from returns made by leading importers indicate that in 1919, 5,976,000 square yards, or approximately 46 per cent of our total importation of straw floor coverings consisted of rice-straw rugs. They constituted slightly more than one-half of our total consumption of grass and similar (i. e. rice-straw) rugs. (See Survey J-3, pp. 10, 11.)

As a rule, more than half of our annual imports have come from Japan. During the period 1914-1919, 94 per cent came from Japan. More recently there has been an increase in the share coming from China. All of the rice-straw rugs, however, come from Japan.

Exports are not recorded. There is, however, some exportation.

Important changes in classification.—Common mattings are covered by an *eo nomine* provision (being a well-known product commercially and covered by specific provision in former tariffs), but rice-straw floor coverings are not specifically mentioned and are made to fall under the general provision, because it has been found impossible to work out a description of them which could not be circumvented by some minor alteration in either construction or content. At the same time there is no other important type of floor covering imported in quantity which will fall within this basket provision. Among the less important types which will come within this general heading are (1) the floor coverings now falling under paragraph 273, act of 1913 (mainly jute); (2) braided straw floor coverings, classified under the act of 1913 as "manufactures of straw" (par. 368); (3) woven paper floor coverings other than those made on ingrain looms, and (4) felt-base floor coverings, unless a separate provision is made for such felt-base coverings in the paragraph relating to linoleum.

JUTE FLOOR COVERINGS.

(See Survey J-3.)

Description and uses.—Carpets, carpeting, mats and rugs of vegetable fiber other than cotton (act of 1913, par. 273) consist largely of jute carpets and rugs and are covered by the basket clause in paragraph 1020 (H. R. 7456). Jute is so cheap that its primary use in floor coverings is as a backing for wool carpets and rugs. Its use as a filling (the only case in which it is likely to be a component of chief value) is very limited; consequently the floor coverings containing jute that fall under this paragraph are of minor importance.

Production.—Production of jute carpets and rugs in 1914 was 4,862,302 square yards, valued at \$1,172,257, and in 1919, 2,289,000 square yards, valued at \$1,603,000.

Imports in 1914 amounted to 656,376 square yards, valued at \$185,616. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------------------|----------|----------|------------------|
| 1918..... | Sq. yds. 109,070 | \$65,065 | \$19,520 | Per cent. 30 |
| 1919..... | 86,709 | 73,507 | 22,052 | 30 |
| 1920..... | 363,792 | 271,441 | 81,427 | 30 |
| 1921 (9 months)..... | 61,387 | 51,628 | ..... | ..... |

Exports are not recorded.

Important changes in classification.—Because of the relatively minor importance of floor coverings in chief value of jute or other vegetable fiber, specific provision for them has been abandoned and they will fall under the basket clause in paragraph 1020 of H. R. 7456.

FLOOR COVERINGS OF COTTON.

(See Survey J-3.)

Description and uses.—Floor coverings of cotton consist mainly of rag rugs and are provided for under paragraph 302 of the act of 1913. They will fall under the general provision in paragraph 1020, H. R. 7456.

Production.—The value of rag rugs produced in 1914 was \$2,786,439 and in 1919; \$505,000.

Imports of cotton carpets and carpeting, n. s. p. f., amounted in 1914 to 134,528 square yards, valued at \$16,187. Later imports have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------------------|-----------|----------|------------------|
| | <i>Square yds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$105,929 | \$21,186 | 20 |
| 1919..... | 225,396 | 181,232 | 36,246 | 20 |
| 1920..... | 321,585 | 397,811 | 79,562 | 20 |
| 1921 (9 months)..... | 120,822 | 166,152 | | 20 |

Exports are not recorded.

Important changes in classification.—For reasons similar to those given in the case of jute carpeting, specific provision for cotton floor coverings has been abandoned and they will fall under the general clause in paragraph 1020, H. R. 7456.

PARAGRAPH 1021.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1021. Matting made of cocoa fiber or rattan, 9 cents per square yard; mats made of cocoa fiber or rattan, 7 cents per square foot.

ACT OF 1909/

ACT OF 1913.

PAR. 466. Matting made of cocoa fiber or rattan, six cents per square yard; mats made of cocoa fiber or rattan, four cents per square foot.

PAR. 371. Matting made of cocoa fiber or rattan, 5 cents per square yard; mats made of cocoa fiber or rattan, 3 cents per square foot.

COCOA MATS AND MATTINGS.

Description and uses.—Cocoa mats and matting, made from the fibrous husk of the coconut, are produced chiefly in Ceylon, British India, the Straits Settlements, and islands of the Eastern Archipelago. The fiber is removed from the husk by soaking and beating and is then crudely hand spun by the natives. Machinery is occasionally used, but the hand-spun yarn is both cheaper and better.

Cocoa matting is generally in plain or twill weave, without pile. It is very durable and is used for runners in aisles, corridors, offices, etc. In this country it is generally made on power-driven looms. Cocoa mats are usually woven with a pile, but some types are braided and sewed together. They are used as doormats, automobile mats, etc. The mats are still largely made on hand looms, although the use of power looms for the pile mats has been introduced. In India, which is the leading source of imports, manufacture is by hand.

The great harshness of the cocoa fiber has been an obstacle to the use of labor-saving machinery, and the industry is handicapped by labor conditions. At one time the production was carried on mainly by prison labor; this still obtains to some extent, but it has been greatly diminished by State legislation.

Matting made of rattan differs from cocoa matting in manufacture and raw material. Rattan is an East Indian and African creeping palm, the stem of which can be split into slender strands and woven into basket work, chairs, couches, pillows, mats, and similar articles. In weaving rattan matting, a simple bamboo framework is used, the operation being entirely handwork.

Production of cocoa mats and matting is included by the Census in production figures for grass rugs and other articles, and is therefore not obtainable separately. An inquiry made by the Tariff Commission discloses that there are four or five mills using power looms (also some hand looms), and that there are several additional firms making cocoa mats on hand looms, these being located chiefly in Michigan and Wisconsin and specializing largely on mats for automobiles. Practically no rattan mats or matting are made in the United States.

Imports of mats and matting steadily increased prior to 1915, but fell off sharply during 1916-1918. In 1914, imports of mats amounted to 1,545,449 square feet, valued at \$139,419; and imports of matting to 114,987 square yards, valued at \$34,863. Later imports are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

MATS OF COCOA FIBER OR RATTAN.

| | Square feet. | Value. | Duty. | Per cent. |
|----------------------|--------------|---------|--------|-----------|
| 1918..... | 4,639 | \$645 | \$139 | 21.58 |
| 1919..... | 320,939 | 43,215 | 9,627 | 22.29 |
| 1920..... | 2,105,839 | 294,707 | 63,100 | 21.44 |
| 1921 (9 months)..... | 2,005,540 | 249,023 | | |

MATTING OF COCOA FIBER OR RATTAN.

| | Square yds. | Value. | Duty. | Per cent. |
|----------------------|-------------|---------|---------|-----------|
| 1918..... | 30,788 | \$4,974 | \$1,468 | 29.92 |
| 1919..... | 73,401 | 31,546 | 3,670 | 11.63 |
| 1920..... | 87,774 | 48,115 | 4,389 | 9.12 |
| 1921 (9 months)..... | 125,596 | 52,325 | | |

Exports are not recorded.

SCHEDULE 11.—WOOL AND MANUFACTURES OF.

PARAGRAPH 1101.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1101. Wools, not improved by the admixture of merino or English blood, such as Donakoi, native Smyrna, native South American, Cordova, Valparaiso, and other wools of like character or description, and hair of the camel, 28 per centum ad valorem: *Provided*, That the duty shall not exceed 7 cents per pound. The duty on such wools, imported on the skin, shall be 24 per centum ad valorem, but not to exceed 6 cents per pound.

ACT OF 1909.

ACT OF 1913.

SCHEDULE K—WOOL, AND MANUFACTURES OF.

SCHEDULE K—WOOL AND MANUFACTURES OF.¹

PAR. 360. All wools, hair of the camel, * * * and other like animals shall be divided, for the purpose of fixing the duties to be charged thereon, into the three following classes: * * *

PAR. 362. Class two * * * hair of the camel * * *

PAR. 363. Class three, that is to say, Donskoi, native South American, Cordova, Valparaiso, native Smyrna, Russian camel's hair, and all such wools of like character as have been heretofore usually imported into the United States from Turkey, Greece, Syria, and elsewhere, excepting improved wools hereinafter provided for.

PAR. 368. The duty upon * * * hair of the camel, * * * of class one and class two, which shall be imported in any other than ordinary condition, or which has been sorted or increased in value by the rejection of any part of the original fleece, shall be twice the duty to which it would be otherwise subject: *Provided*, * * * The duty upon * * * hair of the camel * * * of any class which shall be changed in its character or condition for the purpose of evading the duty, or which shall be

PAR. 650. Wool of the sheep, hair of the camel, and other like animals, and all wools and hair on the skin of such animals * * *. This paragraph shall be effective on and after the first day of December, nineteen hundred and thirteen, until which time the rates of duty now provided by schedule K of the existing law shall remain in full force and effect [Free].

¹ Paragraph 310 provided that—

“The provisions of this schedule (K) shall be effective on and after the first day of January, nineteen hundred and fourteen, until which date the rates of duty now provided by Schedule K of the existing law shall remain in full force and effect.”

Paragraph 19, emergency tariff act of 1921 provides that—

“Wool and hair of the kind provided for in paragraph 18, when advanced in any manner or by any process of manufacture beyond the washed or scoured condition, and manufactures of which wool or hair of the kind provided for in paragraph 18 is the component material of chief value, 45 cents per pound in addition to the rates of duty imposed thereon by existing law.”

ACT OF 1909.

ACT OF 1913.

reduced in value by the admixture of dirt or any other foreign substance, shall be twice the duty to which it would be otherwise subject. * * *

PAR. 370. On wools of the third class and on camel's hair of the third class the value whereof shall be twelve cents or less per pound, the duty shall be four cents per pound. On wools of the third class and on camel's hair of the third class, the value whereof shall exceed twelve cents per pound, the duty shall be seven cents per pound.

PAR. 371. The duty on wools on the skin shall be one cent less per pound than is imposed in this schedule on other wools of the same class and condition, * * *.

CARPET WOOLS.

(See Report "The Wool-Growing Industry.")

Description and uses.—This paragraph covers a class of wools produced by native breeds which have not been improved by crossing with sheep of either merino or "English" blood. These wools, which are not competitive with domestic varieties, are coarse and stiff and usually kempy (having white brittle hairs which resist dyeing); they are often gray, brown, or black. Their lack of fineness, suppleness, and felting qualities makes them unadaptable for ordinary clothing purposes but peculiarly suitable for carpet manufacture. Some are employed in coarse blankets, robes, and upholstery cloths, or, when mixed with better wools, in the manufacture of rough tweeds or cheviots, but their main use is in carpets and rugs.

Native unimproved sheep are found in many countries, but most largely in Asia, European Russia, and South America. Donskoi, a South Russian wool, is one of the most important and includes Savolga, Kasan, Tscherski, and Kuban wools. These are the better sorts for carpet making and have a long "combing" staple. Native Smyrna and Syrian wools also are generally of the higher grade. "Native South American wools" are mainly from the "Criolla" breeds, which originated from early Spanish importations and consist of sheep with apparently little or no merino heredity. Wools shipped from Valparaiso, Chile, are known as Valparaiso wools. Cordova wools are grown in the Provinces of Cordova and San Luis, Argentina. Other unimproved wools include Central Asian wools such as Bokhara, Merv, Transcaspian, and Calmuc; East Indian wools; and Chinese wools. The term also includes various European carpet wools, particularly wool of the Scotch "blackface" sheep, an animal which yields a carpet wool par excellence.

This paragraph also covers camel's hair, of which Russia and China are the two main sources. Camel's hair is imported chiefly to make the press cloth required in the extraction of vegetable oils, particularly cottonseed oil.

Production.—Carpet wools and camel's hair are not produced in the United States, with the possible exception of negligible amounts

of wool such as used by the Navajo Indians in making blankets and rugs.

Imports of "class 3," including the carpet wools here covered, and camel's hair from Russia, averaged, per annum, 91,097,535 pounds for the 1891-1900 decade, 99,614,106 pounds for the 1901-1910 decade, and 85,836,333 pounds for the 1911-1920 decade (fiscal years). The decrease in imports is an indication of the decreased production of wool carpets and rugs in the United States.

Imports since 1917 of the wools and hairs falling under paragraph 1101 of H. R. 7456 are recorded as follows:

| Calendar year. | Unimproved wools, class 3. | | Camel's hair, classes 2 and 3. | |
|----------------------|-------------------------------|--------------|-----------------------------------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Pounds.</i> | | <i>Pounds.</i> | |
| 1918..... | 68,666,633 | \$29,041,103 | 1,321,897 | \$682,112 |
| 1919..... | 95,732,470 | 36,246,823 | 1,120,938 | 762,365 |
| 1920..... | 85,549,300 | 11,851,262 | 2,725,180 | 1,850,923 |
| 1921 (9 months)..... | 73,872,072 | 8,712,529 | 715,541 | 237,075 |

Leading sources in 1920 were China, the United Kingdom, Chile, Turkey, Russia, and Argentina.

Exports.—No exports are recorded.

Important changes in classification.—The wools covered in this paragraph were admitted free of duty under paragraph 650, act of 1913, and, as carpet wools, were not made dutiable by the emergency tariff act of 1921.

This paragraph covers practically the same wools as were covered by paragraph 363 of the act of 1909 and there called "class three" wools. The phrasing "wools, not improved by the admixture of merino or English blood" has been substituted for "class three * * * wools * * * excepting improved wools hereinafter provided for." Mention of Donskoi, native Smyrna, native South American, Cordova, and Valparaiso wools has been retained as an indication of the kind of wools so covered, but mention of sources has been omitted for the reason that carpet wools are imported from all over the world. "Hair of the camel" has been substituted for "Russian camel's hair" as there is no tariff significance in a division of camel's hair according to origin.

The duty on unimproved wools is made ad valorem, with a maximum specific rate which is the same as the highest specific rate provided in paragraph 370 of the act of 1909. The specific rate per pound applies to the weight of the wool in the condition imported, whether in the grease, washed, or scoured. These wools are mainly imported in the grease; they sometimes enter in the washed state, but rarely in a scoured condition. Much of this wool is manufactured without any scouring.

The duties, both ad valorem and maximum specific, on unimproved wools imported on the skin are lower than those levied on such wools other than on the skin because of the difference in value.

PARAGRAPH 1102.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1102. Wools, not specially provided for, and hair of the Angora goat, alpaca, and other like animals, imported in the grease or washed, 25 cents per pound of clean content; imported in the scoured state, 26 cents per pound; imported on the skin, 24 cents per pound of clean content: *Provided*, That none of the foregoing shall pay a higher rate of duty than 35 per centum ad valorem.

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PAR. 360. All wools, hair of the * * * goat, alpaca, and other like animals shall be divided, for the purpose of fixing the duties to be charged thereon, into the three following classes:

PAR. 361. Class one, that is to say, merino, mestiza, metz, or metis wools, or other wools of Merino blood, immediate or remote, Down clothing wools, and wools of like character with any of the preceding, including Bagdad wool, China lamb's wool, Castel Branco, Adrianople skin wool or butcher's wool, and such as have been heretofore usually imported into the United States from Buenos Aires, New Zealand, Australia, Cape of Good Hope, Russia, Great Britain, Canada, Egypt, Morocco, and elsewhere, and all wools not hereinafter included in classes two and three.

PAR. 362. Class two, that is to say, Leicester, Cotswold, Lincolnshire, Down combing wools, Canada long wools, or other like combing wools of English blood, and usually known by the terms herein used, and also hair of the * * * Angora goat, alpaca, and other like animals.

PAR. 365. Whenever wools of class three shall have been improved by the admixture of Merino or English blood, from their present character as represented by the standard samples now or hereafter to be deposited in the principal custom-houses of the United States, such improved wools shall be classified for duty either as class one or as class two, as the case may be.

PAR. 366. The duty on wools of the first class which shall be imported washed shall be twice the amount of the duty to

PAR. 305. Hair of the Angora goat, alpaca, and other like animals, and all hair on the skin of such animals, 15 per centum ad valorem.

PAR. 650. Wool of the sheep, hair of the camel, and other like animals, and all wools and hair on the skin of such animals, * * *. This paragraph shall be effective on and after the first day of December, nineteen hundred and thirteen, until which time the rates of duty now provided by schedule K of the existing law shall remain in full force and effect [Free].²

² Par. 18, emergency tariff act of May 27, 1921:

"Wool, commonly known as clothing wool, including hair of the camel, angora goat, and alpaca, but not such wools as are commonly known as carpet wools: Unwashed, 15 cents per pound; * * *. Unwashed wools shall be considered such as shall have been shorn from the animal without any cleaning; washed wools shall be considered such as have been washed with water only on the animal's back or on the skin; wools washed in any other manner than on the animal's back or on the skin shall be considered as scoured wool. On wool and hair provided for in this paragraph, which is sorted or increased in value by the rejection of any part of the original fleeces, the duty shall be twice the duty to which it would otherwise be subject, but not more than 45 cents per pound."

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which they would be subjected if imported unwashed; and the duty on wools of the first and second classes which shall be imported scoured shall be three times the duty to which they would be subjected if imported unwashed. * * *

PAR. 367. Unwashed wools shall be considered such as shall have been shorn from the sheep without any cleansing; that is, in their natural condition. Washed wools shall be considered such as have been washed with water only on the sheep's back, or on the skin. Wools of the first and second classes washed in any other manner than on the sheep's back or on the skin shall be considered as scoured wool.

PAR. 368. The duty upon wool of the sheep or hair of the * * * Angora goat, alpaca, and other like animals, of class one and class two, which shall be imported in any other than ordinary condition, or which has been sorted or increased in value by the rejection of any part of the original fleece, shall be twice the duty to which it would be otherwise subject: *Provided*, That skirted wools as imported in 1890 and prior thereto are hereby excepted. The duty upon wool of the sheep or hair of the * * * Angora goat, alpaca, and other like animals of any class which shall be changed in its character or condition for the purpose of evading the duty, or which shall be reduced in value by the admixture of dirt or any other foreign substance, shall be twice the duty to which it would be otherwise subject. When the duty assessed upon any wool equals three times or more that which would be assessed if said wool was imported unwashed, the duty shall not be doubled on account of the wool being sorted. * * *

PAR. 369. The duty upon all wools and hair of the first class shall be eleven cents per pound, and upon all wools or hair of the second class twelve cents per pound.

PAR. 371. The duty on wools on the skin shall be one cent less per pound than is imposed in this schedule on other wools of the same class and condition, * * *

MERINO, ENGLISH, AND CROSSBRED WOOLS, AND MOHAIR, ALPACA, ETC.

(See Report "The Wool-Growing Industry.")

Description and uses.—This paragraph covers all wools, other than those from native unimproved sheep (see par. 1101), and also includes hair of the Angora goat, alpaca, and other like animals. Wools here covered may be divided into three broad classes, the merino, the English, and the crossbred.

Merino wool: Merino sheep are raised for wool rather than mutton; they are small but have a very dense fleece. Merino wools are short, mainly 1 to 2 inches in length, but are noted for their fineness, softness, strength, and elasticity; they have a very large number of serrations per inch and therefore are easily felted. As they can be spun to the finest counts and are relatively high in price, they are used for fine worsteds and for the finest qualities of closely compacted cloths such as broadcloths, billiard cloths, officers' uniforms, doeskins, etc. Merino sheep originated in Spain but there are now many widely distributed varieties. The largest numbers are found in Australia, British South Africa, and the United States in the order named. Merino wool is naturally very oily, and in consequence a large amount of dirt adheres to it. For this reason the shrinkage in weight when scoured is higher than for other wools, ranging from 40 to 80 per cent, with an average of possibly 60 per cent.

English wools: The "English breeds" of sheep are grown for mutton rather than wool; they are for the most part larger framed and relative to body weight they shear less wool than merinos. Wools are divided into two main classes, the "long-wools" and the "Down" or "short wools." The long-wools, such as those produced by the Lincoln or Cotswold breeds, are 6 to 15 inches in length, rather coarse, but strong and noted for their luster and brilliancy. The Down wools, such as those produced by the Southdown or Hampshire breeds, are 3 to 5 inches in length, but softer, finer, and more elastic than the long wools. "English" wools constitute but a small percentage of the world total, being little raised outside of England proper. They are used chiefly in the manufacture of coat linings, also in braids and in some varieties of lustrous dress goods. The shrinkage in weight from scouring is small; when, as is the rule, they are brook washed prior to shearing, the shrinkage after purchase is often less than 20 per cent.

Crossbred wools: The "crossbreds" are sheep partly of merino and partly of "English" blood; they have the size and weight of good mutton sheep and their wool retains some of the fineness and elasticity of the merino. Such sheep are valuable for both mutton and wool and, since the development of the frozen mutton trade, have steadily increased in commercial importance. South America is the largest producer, New Zealand second, Australia third, and the United States fourth. Crossbred wools are known abroad as three-fourths, one-half, three-eighths and one-fourth blood wools, according to the percentage of merino blood in the crossing. In the United States they are graded as one-half, three-eighths, one-fourth, low one-fourth, and common, but these grades designate fineness of fiber on the downward scale; they bear no definite relation to the merino heredity of the sheep. The shrinkage in weight in scouring can hardly be averaged; it ranges from 35 to 75 per cent, varying with the percentage of merino blood and the conditions under which the sheep are raised.

Merino and crossbred wools are listed in import statistics under the 1909 tariff designation as "class 1" wools. Wools not containing merino blood, such as those of English blood, but not including carpet wools, are listed as "class 2" wools.

Wools imported on the skin are from slaughtered sheep, and after removal with the assistance of chemicals are known as "pulled wools." This wool is not so valuable as that sheared from the sheep because the process of pulling damages the serrations of the fibers and detracts from the spinning quality. Pulled wools are used for soft twist knitting yarns, for blankets, felts, etc.

The animal hairs here classed with wool are mainly mohair, alpaca, vicuna, and llama.

Mohair comes from the Angora goat. South Africa ranks first in its production, Turkey (the original habitat) second, and the United States third. The fiber is soft, silky, white, and lustrous; it is used largely in making plushes for Pullman car seats; for coat linings; and for summer suitings, dress goods, imitation furs, etc. Goods woven of mohair or other animal hair are generally made with cotton warp.

In response to inquiries by the Tariff Commission, four important manufacturers of mohair fabrics gave the shrinkage of foreign and domestic mohair as follows:

| | Domestic mohair. | Turkish mohair. | Cape mohair. |
|--------------------|------------------|------------------|------------------|
| | <i>Per cent.</i> | <i>Per cent.</i> | <i>Per cent.</i> |
| Company No. 1..... | 10 | 15 | 17 |
| Company No. 2..... | 16 | 18 | 18 |
| Company No. 3..... | 12 | 20 | 20 |
| Company No. 4..... | 18-25 | 20-32 | 18-25 |

These companies gave 40s as the maximum spinning count in this country for domestic mohair, and from 40s to 60s as the maximum for imported mohair.

Alpaca is the hair of the animal of that name found in Peru and Bolivia. The hair is 10 to 16 inches in length, finer and softer but less lustrous than mohair, although much like it in the better grades. The reddish hair is superior to the white. Alpaca is used, with cotton warp, in making coat linings, summer suitings, and dress goods. The shrinkage is from 15 to 20 per cent. Vicuna hair is fine and soft, reddish brown, and much like the alpaca but shorter. Llama hair is closely allied to alpaca, although somewhat coarser. The vicuna and the llama, like the alpaca, are found in Peru and Bolivia.

Production of wool in the United States has remained practically unchanged for the past four decades, about 300,000,000 pounds in the grease, rarely varying as much as 10 per cent from this figure. Production in the 1891-1910 decade averaged 298,818,032 pounds per annum; in the 1901-1910 decade 301,846,046 pounds; and in the 1911-1920 decade 300,732,995 pounds, per annum. The maximum, of 349,000,000 pounds, was in 1893; the minimum, of 259,000,000 pounds, in 1897. Production in 1920 was 302,207,000 pounds.

Wools produced in the United States may be divided into two classes, farm or fleece wools and territory wools. In both classes they range in grade from merino or "fine" down to "braid" or luster wools. Only one-fourth of the domestic production consists of

merino; virtually all the rest is of crossbred types, but a large part of these approximate fairly closely to the Down types.

Fleece wools, grown in the farming States east of the Rocky Mountain region, may be subdivided into "semibrights" and "brights." The only difference between them is the darker color of the former, which apparently results from the character of soil on which the sheep graze in the western part of the farming region. Fleece wools are for the most part brights. A former subdivision called Georgia or "Lake" wools, grown in and adjacent to piney-woods areas in the South, is now of too small importance to merit separate attention. Most farm-grown wools fall within the $\frac{1}{2}$ -blood to common grades; little merino is produced outside of the upper Ohio Valley and a few areas elsewhere. Fine wool of unusual length called Delaine, grown mainly in Ohio, is reputed to be the strongest merino fiber in the world.

Territory wools derive their name from the region west of the Missouri River which formerly comprised the "Territories." At the present time such wool is grown west of about the one hundredth meridian. Formerly the great bulk was of the merino type; and large quantities of fine wool are still grown in the drier, rougher areas, but a rapid and general adoption of crossbreeding to secure a greater mutton output has resulted in the production of a large proportion of crossbred wools which grade half-blood and coarser. About two-thirds of the domestic clip is now shorn in the Far West and in Texas.

The main wool-producing States in 1920 were Wyoming, Idaho, Texas, Utah, Montana, New Mexico, Oregon, California, Ohio, and Michigan. The average shrinkage in scouring in 1920 for all domestic wools was estimated by the Department of Agriculture at 58.7 per cent, ranging from 38 per cent for the State of Virginia to 67 per cent for the State of Washington.

The world production of wool averages about 3,000,000,000 pounds. The main producers of wool are Australasia, the River Plate countries, the United States, the United Kingdom, Russia, China, and South Africa. The only ones having a large surplus for export are Australasia, the River Plate, and British South Africa. The chief importers of wool are the United Kingdom, France, Germany, United States, and Belgium; these are also the main manufacturers employing power-driven machinery.

Imports of wool (including carpet wools, par. 1101) less reexports, averaged per annum 161,061,322 pounds in the 1891-1900 decade; 189,609,955 pounds in the 1901-1910 decade; and 318,238,867 pounds in the 1911-1920 decade (fiscal years). The minimum, of 49,000,000 pounds, was in 1894; the maximum, of 533,000,000 pounds, in 1916. In the three decades mentioned the ratio of net imports to the total consumption increased from 35.2 to 38.6, and then to 51.5 per cent. As the production during this period has been stationary, it is obvious that the increased demand for wool has been met by larger importations. In spite of increased imports the United States still produces a much larger percentage of its wool requirements than any of the other leading wool manufacturers such as the United Kingdom, France, Germany, and Belgium.

Imports are largely of merino wools and wools containing merino blood, listed as "class 1" wools, the main sources in 1920 being Argentina, Australia, Uruguay, the United Kingdom, and British South Africa. Imports of "class 2" wools are small, normally consisting largely of luster wools of low shrinkage from England; in 1920 the largest amount was credited to China, the second largest amount to England, and the third to Argentina.

Imports since 1917 of the wools and hairs falling under paragraph 1102 of H. R. 7456 are recorded as follows:

| Calendar year. | Merino and crossbred wools, class 1. | | English and other wools, class 2. | | Mohair, alpaca, etc., class 2. | |
|--------------------|--------------------------------------|-----------------|-----------------------------------|---------------|--------------------------------|---------------|
| | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. |
| | <i>Pounds.</i> | | <i>Pounds.</i> | | <i>Pounds.</i> | |
| 1918..... | 374, 101, 453 | \$216, 668, 818 | 3, 638, 617 | \$2, 322, 824 | 5, 162, 386 | \$2, 616, 976 |
| 1919..... | 334, 523, 510 | 171, 407, 751 | 7, 404, 145 | 4, 353, 506 | 6, 123, 123 | 3, 471, 246 |
| 1920..... | 212, 453, 148 | 109, 057, 448 | 4, 177, 602 | 2, 140, 296 | 4, 435, 711 | 2, 342, 726 |
| 1921 (9 months)... | 195, 247, 783 | 43, 354, 716 | 9, 532, 869 | 1, 848, 164 | 4, 401, 606 | 1, 594, 604 |

Exports of domestic wools are, for the most part, taken by Canada. In 1920 the main purchasers, after Canada, were the United Kingdom and Japan.

Exports since 1917, for calendar years, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|------------|---------------|---------------|-----------------|
| Quantity (pounds)..... | 406, 944 | 2, 839, 980 | 8, 845, 270 | 1, 607, 169 |
| Value..... | \$462, 969 | \$2, 230, 629 | \$4, 936, 740 | \$459, 722 |

Important changes in classification.—The wools covered by this paragraph were free of duty under paragraph 650, act of 1913, but are dutiable under the emergency tariff act of 1921.

This paragraph embraces all wools, except those of unimproved blood, generally used as carpet wools, which are dutiable at a special low rate in paragraph 1101. Imports under paragraph 1102 will therefore include wools which in previous tariffs were known as class 1 wools and class 2 wools; hair of the goat, alpaca, and other like animals will also be included as heretofore.

Since this paragraph covers all wools and hairs not more specifically provided for elsewhere, the long phraseology of preceding tariffs, mentioning different classes and sources, is omitted as unnecessary.

Basing the specific duty on the clean content instead of on wool in the grease obviates the necessity of distinguishing between wools of class 1 and class 2, formerly dutiable at different rates because of their different percentages of shrinkage.

The specific duty is based on the scoured content, whether the wool is imported in the grease or washed on the sheep's back; a slightly higher duty is imposed if the wool is imported in the scoured state. The specific duty on wools imported on the skin is also based on the scoured content, but at a slightly lower rate because of the somewhat lower average value of such wools.

The following table is a mathematical demonstration of the equivalent duties per grease pound produced by a duty of 25 cents a pound scoured, and the equivalent duties per scoured pound produced by 11 cents a pound in the grease, using varying percentages of shrinkage:

| Shrinkage. | Yield. | Duty per pound in grease. | Equivalent duty per pound scoured. | Duty per pound scoured. | Equivalent duty per pound in grease. |
|------------------|------------------|---------------------------|------------------------------------|-------------------------|--------------------------------------|
| <i>Per cent.</i> | <i>Per cent.</i> | <i>Cents.</i> | <i>Cents.</i> | <i>Cents.</i> | <i>Cents.</i> |
| 75 | 25 | 11 | 44 | 25 | 6.25 |
| 70 | 30 | 11 | 36.67 | 25 | 7.50 |
| 66½ | 33½ | 11 | 33 | 25 | 8.33 |
| 65 | 35 | 11 | 31.43 | 25 | 8.75 |
| 60 | 40 | 11 | 27.5 | 25 | 10.00 |
| 55 | 45 | 11 | 24.44 | 25 | 11.25 |
| 50 | 50 | 11 | 22 | 25 | 12.50 |
| 45 | 55 | 11 | 20 | 25 | 13.75 |
| 40 | 60 | 11 | 18.33 | 25 | 15.00 |
| 35 | 65 | 11 | 16.92 | 25 | 16.25 |
| 33½ | 66½ | 11 | 16.50 | 25 | 16.67 |
| 30 | 70 | 11 | 15.71 | 25 | 17.50 |
| 25 | 75 | 11 | 14.67 | 25 | 18.75 |
| 20 | 80 | 11 | 13.75 | 25 | 20.00 |
| 15 | 85 | 11 | 12.94 | 25 | 21.25 |

This table shows that a specific duty based on the weight of the wool in the grease bears lightest on light-shrinkage wools and heaviest on heavy-shrinkage wools in the equivalent duty per scoured pound. This works to the disadvantage of such sections of the domestic manufacturing industry as desire wools of a type which have a relatively heavy shrinkage in scouring. A specific duty based on the scoured content, that is, on the actual wool itself, places all wools on an equal tariff footing so far as shrinkage is concerned. Owing to the existing depression in the wool markets of the world, however, a specific duty on the clean content bears more heavily on the light-shrinking wools so far as concerns the ad valorem equivalent. These wools constitute the bulk of the present surplus of wools in the world but the demand for them is relatively small. Prices for such light-shrinking wools were so low when H. R. 7456 was framed that the ad valorem equivalent of the clean content duty was very high. For this reason the maximum ad valorem percentage provision was added to paragraph 1102. A table, prepared at the time H. R. 7456 was being considered by the Committee on Ways and Means, contrasts the ad valorem equivalents of the duties on wool, other than carpet wools, under the act of 1909 and the proposed duty of 25 cents per pound in the grease. The following table is based on foreign prices as of about June 8, 1921:

Ad valorem equivalents of wool duties, contrasting the 1909 duty of 11 cents per pound in the grease with the proposed duty of 25 cents a pound on clean content.

[Based on foreign prices.]

| | Shrinkage. | Yield. | Foreign prices June 8, 1921, obtained by cable. | | Scoured pound equivalent of grease, duty of 11 cents per pound. | Ad valorem equivalent of specific duty (per clean pound). | |
|-----------------------------|------------|-----------|---|------------|---|---|-----------------------------|
| | | | Grease. | Scoured. | | 11 cents per grease pound. | 25 cents per scoured pound. |
| | Per cent. | Per cent. | Per pound. | Per pound. | Per pound. | Per cent. | Per cent. |
| Merino: | | | | | | | |
| Patagonia..... | 75 | 25 | \$0.105 | \$0.420 | \$0.440 | 104.8 | 59.5 |
| West Australian..... | 60 | 40 | .170 | .424 | .275 | 64.7 | 58.8 |
| Australian, 64s..... | 50 | 50 | .285 | .570 | .220 | 38.6 | 43.9 |
| Australian, 70s..... | 45 | 55 | .350 | .636 | .200 | 31.4 | 59.3 |
| Crossbred: | | | | | | | |
| South American, 50s..... | 35 | 65 | .150 | .231 | .169 | 73.3 | 108.3 |
| South American, 46s..... | 31 | 69 | .115 | .167 | .159 | 95.7 | 150.0 |
| New Zealand, 50s..... | 30 | 70 | .225 | .314 | .157 | 50.0 | 79.5 |
| New Zealand, 46s..... | 28 | 72 | .180 | .250 | .153 | 61.1 | 100.0 |
| South American, 36/40s..... | 26 | 74 | .095 | .128 | .149 | 116.4 | 195.3 |
| New Zealand, 36/40s..... | 25 | 75 | .100 | .133 | .147 | 110.0 | 187.5 |

Since June, 1921, the world wool market has improved considerably. The ad valorem equivalent of the clean content duty has decreased in proportion. The following tabulation presents the ad valorem equivalent calculated on the foreign cost as of about December 12, 1921. From this table it will be seen that the ad valorem equivalent of the two forms of duty shows less marked divergencies owing to recent market improvement. Wide variations may yet be noted, especially in the grades of 36/40s. These are practically the same as domestic braid wools, approximate fairly closely to English luster wools in character, and were not used in the United States in very large amounts until during the past two years in carpet manufactures. The tabulation follows:

Ad valorem equivalents of wool duties, contrasting the 1909 duty of 11 cents per pound in the grease with the proposed duty of 25 cents a pound on clean content.

[Based on foreign prices.]

| | Shrinkage. | Yield. | Foreign prices Dec. 12, 1921, obtained by cable. | | Scoured pound equivalent of grease, duty of 11 cents per pound. | Ad valorem equivalent of specific duty (per clean pound). | |
|-----------------------------|------------|-----------|--|------------|---|---|-----------------------------|
| | | | Grease. | Scoured. | | 11 cents per grease pound. | 25 cents per scoured pound. |
| | Per cent. | Per cent. | Per pound. | Per pound. | Per pound. | Per cent. | Per cent. |
| Merino: | | | | | | | |
| Patagonia..... | 67 | 33 | \$0.15 | \$0.455 | \$0.333 | 73.2 | 54.9 |
| West Australian..... | 60 | 40 | .24 | .60 | .275 | 45.8 | 41.6 |
| Australian 64s..... | 50 | 50 | .37 | .74 | .22 | 29.7 | 33.78 |
| Australian, 70s..... | 45 | 55 | .45 | .818 | .20 | 24.4 | 30.5 |
| Crossbred: | | | | | | | |
| South American, 50s..... | 40 | 60 | .18 | .30 | .183 | 61.0 | 83.3 |
| South American, 46s..... | 36 | 64 | .155 | .242 | .172 | 71.1 | 104.1 |
| New Zealand, 50s..... | 30 | 70 | .225 | .321 | .157 | 48.9 | 77.8 |
| New Zealand, 46s..... | 28 | 72 | .16 | .222 | .153 | 68.5 | 112.7 |
| South American, 36/40s..... | 27 | 73 | .085 | .115 | .152 | 130.3 | 215.7 |
| New Zealand, 36/40s..... | 25 | 75 | .12 | .16 | .147 | 91.9 | 156.2 |

The world wool market is still in a very unsatisfactory condition, and the surplus of, and slack demand for, low shrinking types of wools depress their price relative to finer grades. It therefore may be of interest to contrast the equivalent ad valorem effect of these two specific duties on the average clean value in Boston of foreign wools during prewar years, i. e., on the basis of American valuation in a normal series of years. Such a comparison should more nearly suggest the normal effect of a specific duty on the clean content of wools imported. The table follows:

Ad valorem equivalent of wool duties, contrasting the 1909 duty of 11 cents per pound in the grease with the proposed duty of 25 cents a pound on clean content.

[Based on prewar prices in Boston.]

| | Shrinkage. | Yield. | Average prewar prices in Boston October-December, 1909-1915. | | Scoured pound equivalent of grease, duty of 11 cents per pound. | Ad valorem equivalent of specific duty (per clean pound). | |
|-----------------------------|------------------|------------------|--|-------------------|---|---|-----------------------------|
| | | | Grease. | Scoured. | | 11 cents per grease pound. | 25 cents per scoured pound. |
| | <i>Per cent.</i> | <i>Per cent.</i> | <i>Per pound.</i> | <i>Per pound.</i> | <i>Per pound.</i> | <i>Per cent.</i> | <i>Per cent.</i> |
| Merino: | | | | | | | |
| Cape of Good Hope, average. | 66 | 34 | \$0.316 | \$0.929 | \$0.323 | 34.8 | 26.9 |
| Cape of Good Hope, choice. | 64 | 36 | .347 | .963 | .306 | 31.8 | 26.0 |
| Australian, 60s..... | 48 | 52 | .391 | .751 | .201 | 26.8 | 33.3 |
| Australian, 70s..... | 47 | 53 | .439 | .828 | .206 | 25.1 | 30.2 |
| Australian, 64s..... | 46 | 54 | .423 | .784 | .204 | 26.0 | 31.9 |
| Crossbred: | | | | | | | |
| Montevideo, 60s..... | 46 | 54 | .359 | .665 | .204 | 30.7 | 37.6 |
| Montevideo, 56s..... | 40 | 60 | .342 | .570 | .183 | 32.1 | 43.8 |
| Argentine, 50s..... | 38 | 62 | .345 | .556 | .177 | 31.6 | 44.9 |
| New Zealand, 56s..... | 37 | 63 | .413 | .655 | .175 | 26.7 | 38.2 |
| Argentine, 46s..... | 35 | 65 | .332 | .511 | .169 | 33.1 | 48.9 |
| New Zealand, 46/48s..... | 32 | 68 | .379 | .557 | .162 | 29.1 | 44.9 |
| Argentine, Lincolns..... | 27 | 73 | .311 | .426 | .151 | 35.5 | 58.7 |

Suggested changes.—Litigation is now pending as to whether the Cashmere goat is more "similar" to the Angora goat than to the camel. It might therefore be well to insert in paragraph 1102 (also in par. 1121) the words "Cashmere goat" after the words "Angora goat."

PARAGRAPH 1103.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1103. If any bale or package containing wools, hairs, wool wastes, or wool waste material, subject to different rates of duty, be entered at any rate or rates lower than applicable, the highest rate applicable to any part shall apply to the entire contents of such bale or package.

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PAR. 368. * * * If any bale or package of wool or hair specified in this Act invoiced or entered as of any specified class, or claimed by the importer to be dutiable as of any specified class, shall contain any

[No corresponding provision.]

ACT OF 1909.

ACT OF 1913.

wool or hair subject to a higher rate of duty than the class so specified, the whole bale or package shall be subject to the highest rate of duty chargeable on wool of the class subject to such higher rate of duty, and if any bale or package be claimed by the importer to be shoddy, mungo, flocks, wool, hair, or other material of any class specified in this Act, and such bale contain any admixture of any one or more of said materials, or of any other material, the whole bale or package shall be subject to duty at the highest rate imposed upon any article in said bale or package.

Important changes in classification.—This provision is the same in intent as the last sentence of paragraph 368 of the act of 1909, although the wording has been condensed and clarified. It is a penalty provision intended to prevent materials subject to different rates of duty from being brought in at rates lower than provided for each. For instance, carpet wool and merino wool may be contained in the same bale, and if the correct amount of each were stated the respective duties would be levied, and no penalty would apply. If, however, the carpet wool and the merino wool were mixed and the whole entered as carpet wool, such fraudulent entry would be penalized, if discovered, by applying the merino rate to the entire contents of the bale, including the carpet wool contained therein.

The word "entered" means that the importer has submitted the shipment for customs clearance at a stated rate of duty.

 PARAGRAPH 1104.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1104. The Secretary of the Treasury is hereby authorized and directed to prescribe methods and regulations for carrying out the provisions of this schedule relating to the duties on wool and hair.

ACT OF 1909.

ACT OF 1913.

PAR. 364. The standard samples of all wools which are now or may be hereafter deposited in the principal custom-houses of the United States, under the authority of the Secretary of the Treasury, shall be the standards for the classification of wools under this Act, and the Secretary of the Treasury is authorized to renew these standards and to make such additions to them from time to time as may be required, and he shall cause to be deposited like standards in other custom-houses of the United States when they may be needed.

[No corresponding provision.]

PAR. 371. * * * the quantity and value to be ascertained under such rules as the Secretary of the Treasury may prescribe.

Important changes in classification.—This is not a new provision, but a consolidation and extension of provisions in the act of 1909. In paragraph 364 of that act the Secretary of the Treasury was authorized to maintain and renew standard samples of wool, and in paragraph 371 to prescribe rules for ascertaining the quantity and value of wools on the skin. In paragraph 1104 the Secretary of the Treasury is not confined to a particular procedure but is authorized to prescribe such methods and regulations as may be necessary for the execution of the intent of the bill so far as relates to the duties on wool and hair.

PARAGRAPH 1105.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1105. Top waste, slubbing waste, roving waste, and ring waste, 25 cents per pound; garnetted waste, 20 cents per pound; noils, carbonized, 20 cents per pound; noils, not carbonized, 16 cents per pound; thread or yarn waste, and all other wool wastes not specially provided for, 14 cents per pound; shoddy and wool extract, 14 cents per pound; mungo, woolen rags, and flocks, 6 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 372. Top waste, slubbing waste, roving waste, ring waste, and garnetted waste, thirty cents per pound.

PAR. 373. Shoddy, twenty-five cents per pound; noils, wool extract, yarn waste, thread waste, and all other wastes composed wholly or in part of wool, and not specially provided for in this section, twenty cents per pound.

PAR. 374. Woolen rags, mungo, and flocks, ten cents per pound.

PAR. 651. Wool wastes: All noils, top waste, card waste, slubbing waste, roving waste, ring waste, yarn waste, bur waste, thread waste, garnetted waste, shoddies, mungo, flocks, wool extract, carbonized wool, carbonized noils, and all other wastes not specially provided for in this section. This paragraph shall be effective on and after the first day of December, nineteen hundred and thirteen, until which time the rates of duty now provided by schedule K of the existing law shall remain in full force and effect [Free].

WOOL WASTES AND WASTE MATERIALS.

(See Survey FL-40.)

Description and uses.—Wool wastes consist of the materials discarded in wool manufacture and as a general term may also include what are sometimes known as "wool waste materials," such as wool-rags and the shoddy and mungo obtained therefrom. Top waste, slubbing waste, roving waste, and ring waste are derived respectively from the comb, slubber, roving frame, and spinning machine during the process of manufacture. The term "ring waste" is used for the broken roving which becomes wound in rings around the under-clearers on the spinning frame. Garnetted waste is hard waste (see "thread and yarn waste," below) which has been torn up on the garnetting machine to reduce it to its original fibers. Noils are the shorter fibers which are discarded by the comb in the process of making tops. Carbonized noils are noils which have been carbon-

ized to remove extraneous vegetable matter. Thread or yarn waste, the two terms signifying the same thing, are hard waste; that is, waste in which twist has been inserted. Such hard wastes must be garnetted, i. e., torn up into their original fibers by the action of the saw teeth of a garnetting machine, before they can be reworked. Wool flocks are the soft, fluffy fibers removed from the fabric in the finishing processes of fulling, shearing, or teasing. They are a very cheap waste. The better qualities may be reworked with new wool; the others are used in adding fullness and face to cloth by being pressed thereon, and also in wall-paper manufacture. "Wool wastes not specially provided for" include card wastes, made on either the woolen or the worsted card; bur wastes, which consist of small particles of wool clinging to burs (this waste is created by special "burring" rollers which are generally attached to the carding engine, and has to be carbonized before being used again); sweepings and oily wastes; and others.

Woolen rags include all rags wholly or in part of wool except those unfit for remanufacture and used as paper stock. Rags are torn up on a rag picker or "devil" (as it is called in Yorkshire) to shred them into their original fibers before they are ready for remanufacture. Rags are of many different classes, varying from new clippings from the finest cloths to old and worn-out suits of the poor. The materials vary widely in value but the average is very low.

Shoddy is the wool fiber obtained by tearing apart the yarns in soft woolen fabrics, such as old stockings and sweaters. Mungo is a much lower-grade product, with shorter fiber, obtained by tearing apart the yarns in hard woolen cloths. Wool extract is shoddy or mungo from which cotton or other vegetable fibers have been removed by carbonization. Recovered wool fibers, such as shoddy and mungo, are used as a substitute for new wool and are of considerable economic importance. They can not be used in making worsteds on account of the shortness of the fiber, but go into the manufacture of woolens of various classes.

Production of wool wastes and wool waste materials in 1914 and 1919 was as follows:

| | 1914 | | 1919 | |
|---|----------------|---------------|----------------|----------------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Pounds.</i> | | <i>Pounds.</i> | |
| Noils ¹ | 24, 449, 227 | \$6, 930, 475 | 52, 314, 000 | \$24, 799, 000 |
| Other mill wastes ¹ | 29, 571, 562 | 3, 482, 305 | | |
| Recovered wool fiber (total)..... | 84, 836, 759 | | 96, 391, 273 | 35, 539, 472 |
| Produced by shoddy makers..... | 43, 156, 037 | 5, 977, 284 | 58, 859, 000 | 20, 644, 000 |
| Produced by woolen mills ² | 41, 680, 722 | | 37, 532, 273 | 14, 895, 473 |
| Woolen rags (total consumption)..... | 119, 450, 978 | 8, 058, 023 | 111, 771, 825 | 26, 825, 994 |
| Consumed by shoddy makers..... | 57, 367, 962 | 3, 103, 864 | 62, 972, 079 | 14, 401, 284 |
| Consumed by woolen mills..... | 62, 083, 016 | 4, 954, 159 | 48, 799, 746 | 12, 424, 710 |

¹ For sale only. Production for internal consumption not known.

² Almost entirely for their own consumption.

Imports of various types of wool wastes and wool waste materials (free under the act of 1913), appear below:

| | 1914 ¹ | | 1918 ² | | 1919 ³ | |
|---|-------------------|------------|-------------------|----------|-------------------|-------------|
| | Quantity. | Value. | Quantity. | Value. | Quantity. | Value. |
| | <i>Pounds.</i> | | <i>Pounds.</i> | | <i>Pounds.</i> | |
| Top, roving, and card waste..... | 515, 145 | \$122, 776 | ..... | ..... | 28, 227 | \$55, 878 |
| Slubbing, ring, and garnetted waste..... | 78, 589 | 29, 426 | 6, 039 | \$7, 024 | 9, 291 | 10, 938 |
| Noils, carbonized and other..... | 1, 196, 817 | 376, 429 | 232, 905 | 136, 220 | 2, 317, 528 | 3, 293, 095 |
| Yarn, thread, bur, and all other waste, including wool extract..... | 956, 921 | 161, 395 | 154, 153 | 23, 678 | 475, 137 | 246, 300 |
| Shoddy..... | 234, 890 | 36, 575 | ..... | ..... | 8, 133 | 2, 609 |
| Mungo..... | 5, 012 | 220 | ..... | ..... | 166, 732 | 81, 867 |
| Rags and flocks..... | 3, 911, 708 | 378, 006 | 826, 109 | 197, 900 | 1, 316, 541 | 265, 888 |

| | 1920 ³ | | 1921 ³ (first 9 months). | |
|---|-------------------|-------------|-------------------------------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Pounds.</i> | | <i>Pounds.</i> | |
| Top, roving, and card waste..... | 21, 676 | \$32, 401 | 145, 173 | \$91, 524 |
| Slubbing, ring, and garnetted waste..... | 19, 990 | 22, 649 | 42, 773 | 22, 127 |
| Noils, carbonized and other..... | 2, 584, 182 | 2, 796, 602 | 4, 573, 147 | 2, 103, 180 |
| Yarn, thread, bur, and all other waste, including wool extract..... | 1, 871, 026 | 973, 800 | 1, 386, 936 | 453, 549 |
| Shoddy..... | 24, 603 | 12, 235 | ..... | ..... |
| Mungo..... | 21, 881 | 5, 757 | ..... | ..... |
| Rags and flocks..... | 2, 429, 341 | 403, 113 | 975, 644 | 110, 108 |

¹ Fiscal year.

² Calendar year.

The United Kingdom supplies the greater part of our imports of wool wastes and wool waste materials (which are grouped together in the statistics showing imports by countries), more than two-thirds coming from this source. In 1914, Germany and Canada ranked second and third as sources of imports; in 1920, France and Canada held these positions.

Imports constitute only a very small portion of the domestic consumption. In 1914 (calendar year), the quantity of wool waste imported (noils, top waste, etc.) amounted to 5.08 per cent of the domestic production for sale only; in 1919, to 5.41 per cent. Of woolen rags, the ratio of imports (pounds) to domestic consumption was, in 1914, 3.67 per cent; in 1919, 1.18 per cent. For recovered wool fiber, it was, in 1914, 0.31 per cent; in 1919, 0.18 per cent.

Exports are not recorded for any of the wool wastes except rags. These are shown as follows:

| | 1914 ¹ | 1918 ² | 1919 ³ | 1920 ³ | 1921 ³ (9 months). |
|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------------------|
| Quantity (pounds)..... | 26, 852, 402 | \$ 3, 344, 150 | 31, 476, 118 | 15, 132, 231 | 1, 268, 437 |
| Value..... | \$973, 653 | \$ 346, 217 | \$5, 538, 440 | \$2, 812, 752 | \$161, 522 |

¹ Fiscal year.

² Calendar year.

³ Exports of woolen rags were under restrictions from Sept. 24, 1917, to Dec. 10, 1918.

The chief foreign market is the United Kingdom, which took 70.4 per cent of our exports in 1914 and 90.6 per cent in 1920. Prior to

the war, Germany and Belgium were next in importance, but they have been superseded by Canada and Japan.

Since 1912—when exports of woolen rags were first recorded—exports have greatly exceeded imports both in quantity and value. On the other hand, the imports, as indicated by the average value per pound, are distinctly better in quality than the exports—though a decline in the quality of the imported rags followed the removal of the duty in 1913.

That there is some exportation of wool wastes other than rags (noils, top waste, etc.) is indicated by Canadian statistics, which report, for the fiscal year ended March 31, 1921, imports of wool wastes and noils from the United States amounting to 1,252,277 pounds, valued at \$592,398. In 1914, Great Britain also imported 448,068 pounds from the United States, and in 1919, 19,808 pounds. Likewise, exports of recovered wool fiber are given in foreign statistics, Great Britain having imported 345,156 pounds from the United States in 1914; and 338,500 pounds in 1919; Canada, 2,892,897 pounds in the year ended March 31, 1915, and 833,023 pounds in the year ended March 31, 1921.

Important changes in classification.—Wool wastes are exempt from duty under paragraph 651 of the act of 1913, but wastes in fiber form derived from clothing wool are dutiable under the emergency tariff act of 1921 (par. 18). (T. D. 38798, of 1921.)

This paragraph is intended to cover all varieties of wool waste and wool waste materials, and to adjust the duties in fair ratio to the relative value of such articles. Top waste, slubbing waste, roving waste, and ring waste sell at approximately the same price as the raw wool of which they are made; therefore, the same specific rate of duty has been applied as that on raw wool, although without the maximum ad valorem provision. Garnetted waste sells at a lower price than the four preceding types and so is assessed a lower duty. Carbonized noils come next in value and are dutiable at a higher rate than the uncarbonized noils from which they are made. Thread or yarn waste and other unspecified wastes, such as card waste and bur waste, are ranked next in value and duty. Prices of thread or yarn waste vary widely, however. After the above wastes of manufacture have been provided for, there are inserted duties on shoddy and wool extract (carbonized shoddy) at the same rate as unspecified wastes of manufacture. In general, prices of shoddy resemble those of thread and yarn waste, both fluctuating widely. Mungo, which is a cheaper material than shoddy, is given the same rate as woolen rags, at a much lower rate than that levied on shoddy. Flocks, which are the lowest and cheapest form of wool waste, are placed in the last-named classification instead of being given a special lower rate, because they are of almost negligible importance.

There are many varieties of the different types of waste and of waste materials, but the above classification has been made up on the basis of the general levels of price and is considered a logical order.

Suggested changes.—Inasmuch as there is a maximum ad valorem rate of thirty-five per cent on raw wool in paragraph 1102, it would appear to be logical that a similar maximum ad valorem rate should be embodied in this paragraph relating to wool wastes and wool waste materials.

Page 119, line 22, of H. R. 7456: Insert a comma after "shoddy."

Page 119, line 23, of H. R. 7456: Insert the following after "pound" at the end of the line:

Wastes of the hair of the Angora goat, alpaca, and other like animals shall be dutiable at the rates provided for similar types of wool wastes.

PARAGRAPH 1106.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1106. Wool which has been advanced in any manner or by any process of manufacture beyond the washed or scoured condition, and not specially provided for, including tops and roving, valued at not more than 40 cents per pound, 16 $\frac{1}{2}$ cents per pound and, in addition thereto, 10 per centum ad valorem; valued at more than 40 cents per pound, 27 $\frac{1}{2}$ cents per pound and, in addition thereto, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 366. * * * The duty on wools of the third class, if imported in condition for use in carding or spinning into yarns, or which shall not contain more than eight per centum of dirt or other foreign substance, shall be three times the duty to which they would otherwise be subjected.

PAR. 375. On combed wool or tops, made wholly or in part of wool or camel's hair, valued at not more than twenty cents per pound, the duty per pound shall be two and one-fourth times the duty imposed by this schedule on one pound of unwashed wool of the first class; valued at more than twenty cents per pound, the duty per pound shall be three and one-third times the duty imposed by this schedule on one pound of unwashed wool of the first class; and in addition thereto, upon all the foregoing, thirty per centum ad valorem.

PAR. 376. Wool and hair which have been advanced in any manner or by any process of manufacture beyond the washed or scoured condition, not specially provided for in this section, shall be subject to the same duties as are imposed upon manufactures of wool not specially provided for in this section.

PAR. 286. Combed wool or tops and roving or roping made wholly or in part of wool or camel's hair, and on other wool and hair which have been advanced in any manner or by any process of manufacture beyond the washed or scoured condition, not specially provided for in this section; 8 per centum ad valorem.

PAR. 306. Tops made from the hair of the Angora goat, alpaca, and other like animals, 20 per centum ad valorem.

PARTIALLY MANUFACTURED WOOL.

(See Survey K-1.)

This paragraph includes tops and roving of wool or hair of the sheep, camel, Angora goat, alpaca, or other like animals. It also includes such wool or hair advanced in any other manner beyond the washed or scoured condition, but not yet spun into yarn. Only the tops enter extensively into commerce.

TOPS OF WOOL, MOHAIR, ALPACA, ETC.

Description and uses.—In the worsted industry, scoured wool is either carded or prepared and put through a combing machine, which removes the shorter fibers and lays the longer ones substantially parallel. The product—a large, continuous strand of combed wool—is called “tops.” It is used almost exclusively for conversion into worsted yarns. Tops made from mohair or alpaca are produced in the same general manner, although considerable experience in handling such hair and special adjustments of equipment are required.

Production.—The regular quinquennial census does not give the total domestic production of tops, the figures shown referring only to those produced for sale and those purchased. The war census of 1918, however, shows an average production, for the years 1915, 1916, and 1917, of 203,424,031 pounds. At the average value per pound of the tops purchased in 1914 (as reported by the Census Bureau for that year), the foregoing quantity would be valued at over \$110,000,000—over 25 per cent of the value of all wool manufactures in 1914. At the average value per pound of tops produced for sale in 1919, as reported in preliminary census returns, the total value would be almost \$295,000,000. Tops are produced chiefly by yarn mills, largely for their own consumption; but production outside the mills where consumed has been growing, having increased from 20,828,245 pounds in 1909 to 29,106,307 pounds in 1914. These are the figures for tops purchased. Preliminary census returns do not show the amount purchased in 1919. Tops produced for sale in 1914 amounted to 8,985,170 pounds, valued at \$4,928,929; in 1919, to 10,199,000 pounds, valued at \$14,751,000. The apparent discrepancy between tops bought and tops sold is explained partly by imports, but more largely by the fact that the output of commission combers was not separately recorded by the Census Bureau and, though evidently included in the purchase figure, is not included in that of production for sale.

The Census Bureau does not state whether the foregoing figures for tops purchased and sold include those made of mohair, alpaca, etc., although the latter are not elsewhere shown. Tops of mohair, alpaca, etc., enter into commerce, however, only to a limited extent.

A striking feature of the domestic production of tops has been the development, during the last 30 years, of commission combing on a considerable scale. There are to-day some ten or a dozen mills devoted wholly or mainly to commission combing, and half a dozen other concerns which combine commission combing with other work. The bulk of the tops turned out for use other than in the producing mill is commission combed; in addition, a certain amount is sold by concerns utilizing their own wool.

Imports prior to 1914 were negligible, and in the first half of the fiscal year 1914 they amounted to only 4,630 pounds, valued at \$2,093. In the latter half of that fiscal year they were (excluding tops of mohair, alpaca, etc.) 3,228,237 pounds, valued at \$1,453,287—slightly more than 3 per cent of the quantity consumed in domestic worsted spinning. In 1915, imports of such tops were 3,412,250 pounds, valued at \$1,770,917. Imports of tops of hair of the Angora goat, alpaca, and other like animals in the latter half of the fiscal year 1914 (when they were first separately shown) were

33,165 pounds, valued at \$11,356; in 1915, 66,723 pounds, valued at \$25,663. Imports of tops since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--------------------------------------|----------------|------------|--------|------------------|
| TOPS OF WOOL OR CAMEL'S HAIR. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 77,535 | \$116,045 | 30,284 | 26 |
| 1919..... | 709,300 | 813,667 | 65,093 | 8 |
| 1920..... | 853,719 | 1,008,008 | 87,840 | 9 |
| 1921 (9 months)..... | 14,732,470 | 19,761,272 | | 6 |

TOPS OF MOHAIR, ALPACA, ETC.

| | | | | |
|----------------------|---------|---------|--------|----|
| 1918..... | \$ 6 | \$ 38 | | |
| 1919..... | 22,655 | 33,752 | 36,750 | 20 |
| 1920..... | 139,077 | 148,720 | 29,746 | 20 |
| 1921 (9 months)..... | 382,769 | 308,412 | | |

¹ Includes 17,891 pounds, valued at \$12,240, under emergency tariff act of 1921.

² From Philippine Islands.

³ Includes 4,414 pounds, valued at \$5,304, under emergency tariff act of 1921.

The very striking increase in importation of tops in the first half of the calendar year 1921 was due to liquidation of large British stocks and to the fact that, anticipating an emergency tariff on raw wool and wool manufactures, importers felt a greater assurance of obtaining the tops from Europe before the duties were raised than of securing the raw wool from Australia and other distant sources. Since the emergency tariff act went into effect, May 27, 1921, imports have almost ceased.

The United Kingdom has been the leading source of the imports. In 1920, however, imports from Australia, though lower in quantity than those from the United Kingdom, were almost double the latter in value. Imports from France and Belgium are much smaller.

Important changes in classification.—See General Notes on Paragraph, page 964.

ROVING OR ROPING.

Description and uses.—In the worsted industry, after tops are made, the process of drawing follows: Under the English system the top is elongated, decreased in diameter, and given a twist, yielding a comparatively slender strand of wool called roving. Under the French system the top is elongated and decreased in diameter without imparting a twist, and the product, while often called roving, is more properly known as sliver. In the woolen industry the scoured wool is carded and delivered by the condenser in numerous small strands, usually known as rovings. Rovings from either the worsted or the woolen process are rarely dealt in commercially.

Imports were not recorded separately before the calendar year 1919. In that year they were 224 pounds, valued at \$349; in 1920, 18 pounds, valued at \$24; and in the first nine months of 1921, 240 pounds, valued at \$419.

Important changes in classification.—See General Notes on Paragraph, page 964.

WOOL ADVANCED BEYOND THE SCOURED STATE, N. S. P. F.

Description and uses.—Besides tops and rovings, this paragraph covers all partial manufactures of wool between the scoured state and the yarn state. Except for carbonized wool, these are not common in trade. Carbonized wool is that which has been subjected to a bath of sulphuric or other acid to eliminate burs and foreign vegetable matter. Slubbing is intermediate between tops and roving, being the product of the initial operation incident to the drawing process.

Imports in the fiscal year 1914 were 22,592 pounds, valued at \$25,305; in the calendar year 1918, 81 pounds, valued at \$81; in 1919, 700 pounds, valued at \$907; in 1920, 70,118 pounds, valued at \$101,520; and in the first nine months of 1921, 208,424 pounds, valued at \$202,886.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The scope of this paragraph is the same as covered by paragraphs 286 and 306 of the act of 1913, and by paragraphs 375, 376, and part of 366 of the act of 1909. It includes wool and hair in a partially manufactured condition—more advanced than washed or scoured wool, but not so far advanced as yarn—therefore the rate of duty is intermediate between that placed on scoured wool and that placed on yarn. Further extension of this logical arrangement, by gradually increasing the duty from card sliver to tops, to slubbing, and finally to roving ready to be spun into yarn, has not been deemed advisable because tops are the only intermediate product that enters into commerce to any extent.

Suggested changes.—Paragraph 1106 is restricted to wool advanced or partially manufactured. Paragraph 286 of the act of 1913 includes partial manufactures of hair. Hair would not be included in paragraph 1106 because 1121, defining wool, is restricted to manufactured articles. If hair is intended to be included in paragraph 1106, it would be well to provide in this paragraph for hair of the kinds covered by this schedule.

A manufacturer stated to the Finance Committee (hearings of Dec. 14, 1921, pt. 42, p. 3377) that this paragraph, so far as it relates to articles other than tops and roving, is a basket provision, and as such is in conflict with the general or catchall provision (par. 1120). To avoid the possibility of such litigation it might be well to specify clearly that the paragraph does not cover manufactures as far advanced as yarn, that is, further advanced than roving.

The following revision of the descriptive wording of this paragraph is therefore suggested:

Wool, and hair of the kinds provided for in this schedule, which have been advanced in any manner or by any process of manufacture beyond the washed or scoured condition, including tops, but not further advanced than roving, [rate].

PARAGRAPH 1107.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1107. Yarn, made wholly or in part of wool, valued at not more than 55 cents per pound, 20 cents per pound and, in addition thereto, 15 per centum ad valorem; valued at more than 55 cents but not more than \$1.50 per pound, 30 cents per pound and, in addition thereto, 18 per centum ad valorem; valued at more than \$1.50 per pound, 30 cents per pound and, in addition thereto, 20 per centum ad valorem.

ACT OF 1909.

PAR. 377. On yarns made wholly or in part of wool, valued at not more than thirty cents per pound, the duty per pound shall be two and one-half times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto thirty-five per centum ad valorem; valued at more than thirty cents per pound, the duty per pound shall be three and one-half times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto forty per centum ad valorem.

ACT OF 1913.

PAR. 287. Yarns made wholly or in chief value of wool, 18 per centum ad valorem.

PAR. 307. Yarns made of the hair of the Angora goat, alpaca, and other like animals, 25 per centum ad valorem

WOOL YARNS.

(See Survey K-1.)

Description and uses.—This paragraph includes all yarn made wholly or in part of wool or hair of the sheep, camel, Angora goat, alpaca, or other like animals. The principal types of wool yarns are woolen or carded yarns and worsted or combed yarns. Stated briefly, the difference is that in woolen yarns the fibers are crossed and intermixed, while in worsted yarns the fibers are drawn parallel. Woolen yarn makes cloth of a thicker, fuller, rougher effect, and the individual fibers are often raised by teasing to give a napped surface. It is used for a variety of purposes, as in cloths (both the fine and the cheap), blankets, flannels, carpets, and knit goods. Worsted yarn, on the other hand, produces a smoother, firmer fabric without nap and with weave structure and colors more sharply defined. It is used more particularly in fabrics for the manufacture of clothing, such as suitings and dress goods.

Camel's hair is spun on both the worsted and woolen principle, but the latter method is more common. Its main use is in press cloth for oil-milling, but it is also employed to some extent in fabrics for wearing apparel, particularly cloaks. Mohair and alpaca yarns, used in staple fabrics, are, for the most part, worsted; only when made from short fiber are they woolen. The leading uses of such yarns are in plushes, coat linings, suitings, and dress goods.

Production.—Only partial census returns for 1919 are as yet available. The following tables show the production of wool yarns in 1914, 1915, 1916, and 1917. The figures for 1914 are taken from the

Federal Census; those for the other three years, from the Census of War Commodities, 1918.

Production in 1914 follows:

| Yarn. | Total. | For sale. | For use in same establishment. |
|--|----------------|----------------|--------------------------------|
| | <i>Pounds.</i> | <i>Pounds.</i> | <i>Pounds.</i> |
| Woolen..... | 205,746,745 | 2,947,681 | 178,799,064 |
| Worsted..... | 174,069,950 | 86,998,806 | 87,101,145 |
| Merino (union of wool with other fiber)..... | 74,338,905 | 10,705,510 | 63,633,395 |
| Total..... | 454,155,600 | 124,651,906 | 329,533,604 |

Of worsted yarns, one-half was manufactured for sale—the carpet and knit-goods industries taking less than one-half of this, the bulk going into worsted cloth for men's and women's wear. Only one-eighth of the woolen yarns was for sale, nearly all of this being taken by the carpet and knit-goods industries.

Production in 1915, 1916, and 1917 was as follows:

| Yarn. | 1915 | 1916 | 1917 |
|---------------------|----------------|----------------|----------------|
| | <i>Pounds.</i> | <i>Pounds.</i> | <i>Pounds.</i> |
| Woolen..... | 342,382,073 | 358,220,518 | 393,546,822 |
| Worsted: | | | |
| English system..... | 180,471,252 | 148,807,362 | 145,691,971 |
| French system..... | 40,543,680 | 47,415,307 | 47,701,523 |
| Total..... | 513,397,005 | 554,443,187 | 587,239,319 |

The preliminary census returns for 1919 show production for sale only, as follows: Woolen yarn, 28,387,000 pounds; worsted yarn, 75,851,000 pounds; merino and union yarn, 13,578,000 pounds. Of the last-named yarn, more than two-thirds was made on the woolen system.

Prior to 1910 the proportion of worsted yarns to the total of wool yarns produced tended to increase. Subsequently, however, it declined—from 43.3 per cent in 1909 to 38.3 per cent in 1914, and to 32 per cent in 1917, the Army demand being predominantly for woolens.

Production in 1914 of "mohair and similar" yarns was shown as 8,844,234 pounds, but whether this was production for sale only and whether it includes camel's hair yarn are not apparent from the census. Almost 16,000,000 pounds of mohair, alpaca, vicuna, and camel's hair were consumed, and allowing for loss in scouring, combing, and spinning, it is clear that the total production could not have been much in excess of 9,000,000 pounds. Preliminary statistics for 1919 show the production of yarn of such hairs to have been 1,350,000 pounds, but with an estimated domestic production of mohair somewhere between 5,000,000 and 6,000,000 pounds in that year, and imports of mohair, alpaca, etc., and of camel's hair amounting to 6,123,123 and 1,102,938 pounds, respectively, it seems probable that the 1919 production figures for yarn refer to sales only.

Imports of wool yarn from 1910 to 1913 averaged 199,545 pounds annually. In the calendar year 1914 they increased to 4,760,610 pounds, about 1.1 per cent of the total domestic production and 2.7 per cent of the worsted-yarn production. Imported wool yarns

are largely worsened. Imports of mohair and similar yarns were not separately classified prior to 1914, in which year from January to July they amounted to 465,012 pounds, valued at \$266,883. In 1915 they were 583,383 pounds, valued at \$356,552.

Imports since 1917 of the foregoing yarns have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|---------------------------------|------------------------|------------------------|-----------|------------------|
| WOOL YARN. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 813,598 | \$1,483,676 | \$267,062 | 18 |
| 1919..... | 201,839 | 484,721 | 87,250 | 18 |
| 1920..... | 2,694,809 | 5,846,896 | 1,052,439 | 18 |
| 1921 (9 months)..... | ¹ 3,880,688 | ¹ 4,876,366 | | |
| MOHAIR AND SIMILAR YARN. | | | | |
| 1918..... | 32,184 | \$103,305 | \$25,826 | 25 |
| 1919..... | 174,888 | 346,974 | 86,743 | 25 |
| 1920..... | 711,844 | 1,337,948 | 334,487 | 25 |
| 1921 (9 months)..... | ² 521,646 | ² 872,945 | | |

¹ Includes 591,952 pounds, valued at \$603,320, imported under the emergency tariff act of 1921.

² Includes 32,504 pounds, valued at \$62,287, imported under the emergency tariff act of 1921.

Prior to 1910 the greater part of the wool yarn imported came from Germany. During the period 1910-1915 imports of wool yarn by countries were not separately shown in "Commerce and Navigation," but other statistics indicate that Germany was still the leading source until 1914. In 1916 and 1917 the great bulk came from the United Kingdom; but in 1918 and 1919 Canada furnished over 93 per cent. In 1920, however, 97 per cent of the imports came from the United Kingdom, and imports from Canada practically ceased. Mohair and similar yarns are not separately shown in imports by countries, but British export statistics indicate that the leading source is the United Kingdom.

Exports, probably negligible, are not separately recorded.

Important changes in classification.—This paragraph follows the act of 1909 (par. 377) in imposing the same duties on yarns made of wool, camel's hair, mohair, or alpaca, etc., rather than the act of 1913, where yarns of wool or camel's hair are provided for in paragraph 287 and yarns of mohair, alpaca, etc., in paragraph 307 at different rates of duty.

The compensatory duties in this paragraph are based on the assumption that yarns valued at more than \$1.50 a pound will be made entirely of wool or hair dutiable at 25 cents a pound; the "full compensatory" of 30 cents a pound is similar to that worked out by the Tariff Board and shown on page 626 of their 1912 report on Schedule K. The smaller compensatory duties on yarns of different values up to \$1.50 a pound are based on the assumption that such yarns will necessarily contain more or less wools, hairs, or reworked materials which will be subject to a lower duty than 25 cents a pound. The lower the yarn value the larger is assumed to be the proportion of such materials subject to a lower duty, and therefore the less compensatory duty required. The act of 1909 had a value class consisting of yarns valued at not more than 30 cents a pound, but imports at this value were so rare that it was practically inoperative. Values to-day are on a much higher level and the 55 cents a pound (American valuation)

here provided as the value limitation of the lowest class, is likely to include few, if any, imports unless there is a marked decline in prices.

PARAGRAPH 1108.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1108. Woven fabrics, weighing not more than four ounces per square yard, wholly or in part of wool, valued at not more than \$1.25 per pound, 30 cents per pound and, in addition thereto, 22 per centum ad valorem; valued at more than \$1.25 per pound, 36 cents per pound and, in addition thereto, 27½ per centum ad valorem: *Provided*, That if the warp of any of the foregoing is wholly of cotton or other vegetable fiber, the duty shall be 25 cents per pound and, in addition thereto, if the fabric is valued at not more than \$1.25 per pound, 22 per centum ad valorem; if valued at more than \$1.25 per pound, 27½ per centum ad valorem.

ACT OF 1909.

PAR. 379. * * * Flannels composed wholly or in part of wool, valued at above fifty cents per pound, shall be classified and pay the same duty as women's and children's dress goods, coat linings, Italian cloths, and goods of similar character and description provided by this section * * *.

PAR. 380. On women's and children's dress goods, coat linings, Italian cloths, and goods of similar description and character of which the warp consists wholly of cotton or other vegetable material with the remainder of the fabric composed wholly or in part of wool, valued at not exceeding fifteen cents per square yard, the duty shall be seven cents per square yard; valued at more than fifteen cents per square yard, the duty shall be eight cents per square yard; and in addition thereto on all the foregoing valued at not above seventy cents per pound, fifty per centum ad valorem; valued above seventy cents per pound, fifty-five per centum ad valorem: *Provided*, That on all the foregoing, weighing over four ounces per square yard, the rates of duty shall be five per centum less than those imposed by this schedule on cloths.

PAR. 381. On women's and children's dress goods, coat linings, Italian cloths, bunting, and goods of similar description or character composed wholly or in part of wool, and not specially provided for in this section, the duty shall be eleven cents per square yard; and in addition thereto on all the foregoing valued at not above seventy cents per pound, fifty per centum ad valorem; valued above seventy cents per pound, fifty-five per centum ad valorem: * * *.

ACT OF 1913.

PAR. 289. * * * flannels, composed wholly or in chief value of wool, 25 per centum ad valorem; flannels composed wholly or in chief value of wool, valued at above 50 cents per pound, 30 per centum ad valorem.

PAR. 290. Women's and children's dress goods, coat linings, Italian cloths, bunting, and goods of similar description and character, composed wholly or in chief value of wool, and not specially provided for in this section, 35 per centum ad valorem.

PAR. 308. Cloth * * * wholly or in chief value of the hair of the Angora goat, alpaca, and other like animals, not specially provided for in this section, 40 per centum ad valorem.

DRESS GOODS AND LIGHT-WEIGHT CLOTHS OF WOOL.

Description and uses.—This paragraph covers light-weight woven fabrics, such as women's and children's dress goods, linings, bunting, etc.; light-weight fabrics used for men's wear, such as summer suiting; and light-weight flannels.

"Dress goods" is a term used to cover woven fabrics for women's wear, particularly those of a soft, draping character. Probably a major portion of them is made with cotton warp and wool or mohair filling. Linings are mainly cotton-warp goods, with filling of mohair, alpaca, or wool. Italian cloths, specially mentioned in previous tariffs, are high grade sateen-woven linings made from merino wool, generally with a cotton warp. Bunting is a light, loosely woven fabric, used for flags, decorations, etc. Light-weight cloths for men's wear here included might be of all-wool, but would be mainly of mohair, with cotton warp. The light-weight flannels falling here would be likely to consist mainly of the fine, white flannels used for infants' underwear; in addition, a certain amount of the finer shirting flannels might also fall here. But the bulk of the flannels would very likely weigh more than 4 ounces per square yard; hence they are more fully discussed under paragraph 1109, p. 972.

Production.—The Census classifies dress goods with cloths (i. e., suitings, overcoatings, etc.). For the inclusive figures, see paragraph 1109.

Imports.—Imports of dress goods, coat linings, Italian cloths, and bunting, wholly or in part of wool, amounted to \$6,907,168 in the fiscal year 1914 and to \$10,100,686 in the calendar year 1914. The average for 1910-1913 was \$5,491,115. Imports of these fabrics since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|--|---------------|-------------|
| 1918..... | Lbs. 517, 937 (Sq. yds. 1, 977, 788) | \$1, 000, 504 | \$350, 176 |
| 1919..... | Lbs. 334, 732 (Sq. yds. 1, 232, 753) | 903, 968 | 316, 389 |
| 1920..... | Lbs. 1, 438, 096 (Sq. yds. 4, 639, 213) | 3, 911, 872 | 1, 369, 155 |
| 1921 (9 months)..... | Lbs. 1, 973, 203 (Sq. yds. 3, 358, 266) | 2, 288, 013 | ..... |

* Includes 155,971 pounds, valued at \$349,623, imported under the emergency tariff act of 1921.

Prior to the war from one-half to two-thirds of the imports of dress goods came from the United Kingdom, about one-fourth from France, and most of the remainder from Germany. In 1918 and 1919, the United Kingdom was almost the exclusive source, but in 1920 over 25 per cent was from France.

The general nature of the recent imports of dress goods, linings, etc., is shown by the following import figures:

| Calendar year. | Dress goods. | | | | Coat linings and Italian cloths. | | Bunting. | |
|----------------|------------------|------------|-----------------|-------------|----------------------------------|------------|-----------------|------------|
| | Cotton warp. | | Other. | | Quantity. | Value. | Quantity. | Value. |
| | Quantity. | Value. | Quantity. | Value. | | | | |
| 1918..... | Pounds. 125, 967 | \$235, 814 | Pounds. 95, 296 | \$238, 336 | Pounds. 201, 865 | \$322, 852 | Pounds. 94, 709 | \$203, 502 |
| 1919..... | 99, 137 | 238, 512 | 117, 508 | 410, 999 | 113, 362 | 242, 483 | 4, 725 | 11, 968 |
| 1920..... | 122, 142 | 277, 715 | 296, 804 | 2, 891, 299 | 317, 926 | 738, 459 | 1, 324 | 4, 399 |

Prior to 1914, imports of dress goods, etc., weighing 4 ounces or less per square yard, were shown in square yards; weighing over 4 ounces per square yard, in pounds. The latter dress goods were dutiable as "cloths." The following table shows the average annual imports of each during the period 1910-1913:

| Dress goods, linings, etc. | Weighing 4 ounces or less per square yard. | | Weighing over 4 ounces per square yard. | |
|----------------------------|--|-------------|---|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| Cotton warp..... | <i>Sq. yds.</i> 12,474,132 | \$1,990,321 | <i>Pounds.</i> 253,631 | \$223,054 |
| Other..... | 8,058,669 | 1,815,513 | 1,605,718 | 1,461,338 |
| Total..... | 20,532,801 | 3,805,834 | 1,859,349 | 1,684,392 |

Imports of woven fabrics of mohair, alpaca, etc., have been separately classified since 1914. Practically all of these would weigh less than 4 ounces per square yard and hence fall under this paragraph. Imports during the first half of the calendar year 1914 amounted to 920,866 pounds, valued at \$953,518; in 1915 (fiscal year), 1,198,319 pounds, valued at \$1,266,099. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|---------------------------|-----------|-----------|
| 1918..... | <i>Pounds.</i> 326,213 | \$591,954 | \$236,782 |
| 1919..... | 152,855 | 385,751 | 154,300 |
| 1920..... | 412,203 | 1,070,812 | 428,325 |
| 1921 (9 months)..... | 1,356,953 | 894,461 | ..... |

¹ Includes 86,705 pounds, valued at \$157,420, imported under the emergency tariff act.

Imports of woven fabrics of mohair, alpaca, etc., come almost entirely from the United Kingdom.

Exports are not separately recorded. (For exports of dress goods and cloths, inclusive, see par. 1109.)

Important changes in classification.—In preceding tariff acts, woven fabrics of wool were divided into (a) cloths, and (b) women's and children's dress goods, coat linings, Italian cloths, and goods of similar description and character. The word "cloths" is used in the wool industry in a restrictive sense to denote the heavier-woven fabrics used mainly for men's wear, as distinguished from the lighter-woven fabrics used as dress goods for women and children, and as lining, bunting, etc. There is, however, no clear line of demarcation between the two; for instance, some types of dress goods are heavier than cloths used in men's summer suits. In the acts of 1897 (par. 369) and 1909 (par. 381) it was therefore stipulated that women's and children's dress goods, linings, etc., which weighed over 4 ounces per square yard should be considered as "cloths." Irrespective of the use of the fabrics or the trade terminology employed, therefore, woven fabrics were primarily classified according to weight. This has logically led to the procedure here adopted, the discarding of trade terms such as dress goods and cloths, and the classifying of woven fabrics of wool into two paragraphs, one of which (1108) covers those weigh-

ing not over 4 ounces per square yard, and the other (1109) covering those weighing over 4 ounces per square yard. The classification of woven fabrics of wool is therefore practically the same as that previously used but with the omission of unnecessary verbiage.

The omission of specific mention of flannels stops litigation as to what is or is not "flannel" and permits such goods to enter on a parity with other woven fabrics, under paragraph 1108 or under paragraph 1109, according to their weight.

On page 626 of the 1912 report of the Tariff Board on Schedule K it was stated that if the duty on the scoured content of wool is 25 cents a pound, the correct compensatory duty on wool fabrics should be \$0.3564 a pound. Taking this last as a round figure, 36 cents, this is here used as the compensatory duty for woven fabrics made of all wool. In applying this "full compensatory" it has been assumed that fabrics such as dress goods, linings, etc., entitled to this rate by reason of being all wool, would be valued at more than \$1.25 a pound. Fabrics valued at not more than \$1.25 a pound are assigned a compensatory of 30 cents a pound, on the theory that they must be made partly of materials such as carpet wool, reworked wool, cotton, etc., dutiable at less than 25 cents a pound. Fabrics made with an all-cotton warp are assigned a compensatory duty of 25 cents a pound, irrespective of their value, inasmuch as there is no duty levied on raw cotton in H. R. 7456.

It may be noted that the full compensatory of 36 cents a pound, and the lower compensatories of 30 and 25 cents, are based on the assumption that the wool contained in the fabric is dutiable at 25 cents a pound; in cases where such wool pays less than 25 cents a pound, by virtue of the maximum ad valorem provision of 35 per cent in paragraph 1102, the result is that the compensatory duty is more than sufficient to maintain the ratio.

PARAGRAPH 1109.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1109. Woven fabrics, weighing more than four ounces per square yard, wholly or in part of wool, valued at not more than 75 cents per pound, 20 cents per pound and, in addition thereto, 18 per centum ad valorem; valued at more than 75 cents but not more than \$1.25 per pound, 25 cents per pound and, in addition thereto, 21 per centum ad valorem; valued at more than \$1.25 but not more than \$2.50 per pound, 30 cents per pound and, in addition thereto, 24 per centum ad valorem; valued at more than \$2.50 per pound, 36 cents per pound and, in addition thereto, 27½ per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 378. On cloths, * * * made wholly or in part of wool * * * valued at not more than forty cents per pound, the duty per pound shall be three

PAR. 288. Cloths, * * * wholly or in chief value of wool, not specially provided for in this section, 35 per centum ad valorem; * * *

ACT OF 1909.

times the duty imposed by this section on a pound of unwashed wool of the first class; valued at above forty cents per pound and not above seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto, upon all the foregoing, fifty per centum ad valorem; valued at over seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class and fifty-five per centum ad valorem.

PAR. 379. On * * * flannels for underwear composed wholly or in part of wool, valued at not more than forty cents per pound, the duty per pound shall be the same as the duty imposed by this section on two pounds of unwashed wool of the first class, and in addition thereto thirty per centum ad valorem; valued at more than forty cents and not more than fifty cents per pound, the duty per pound shall be three times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto thirty-five per centum ad valorem. * * *

PAR. 381. On women's and children's dress goods, coat linings, Italian cloths, bunting, and goods of similar description or character composed wholly or in part of wool, and not specially provided for in this section, the duty shall be eleven cents per square yard; and in addition thereto on all the foregoing valued at not above seventy cents per pound, fifty per centum ad valorem; valued above seventy cents per pound, fifty-five per centum ad valorem: *Provided*, That on all the foregoing, weighing over four ounces per square yard, the duty shall be the same as imposed by this schedule on cloths.

ACT OF 1913.

PAR. 289. * * * flannels, composed wholly or in chief value of wool, 25 per centum ad valorem; flannels composed wholly or in chief value of wool, valued at above 50 cents per pound, 30 per centum ad valorem.

CLOTHS, AND OTHER HEAVY-WEIGHT FABRICS, OF WOOL.

Description and uses.—This paragraph relates primarily to wool "cloths" for men's wear, but it includes also any women's dress goods, flannels, and other wool fabrics, which weigh over 4 ounces per square yard.

The term "wool cloths" signifies woven fabrics of wool destined for men's suits, overcoats, etc., and for women's cloaks. Cloths are ordinarily heavier, firmer, and stronger than dress goods and without the draping quality of the latter, but the distinction is no longer clear-cut. Fabrics weighing over 4 ounces have usually been considered cloths; the act of 1909 contained a definite provision by which dress goods weighing over 4 ounces per square yard were held dutiable as cloths, but this provision was omitted in the act of 1913.

which made cloths and dress goods dutiable at the same ad valorem rate. Because of the extensive use of heavier fabrics for women's suits, the term "dress goods" has lost its original significance as a light-weight fabric, so that a dividing line can no longer be definitely drawn between cloths and dress goods on the basis of weight, process of manufacture, or cost of production. Some fabrics by nature dress goods weigh over 4 ounces per square yard; while some men's summer fabrics weigh less.

Woven fabrics of wool are of two general classes, (1) woolens, woven of carded yarns, and (2) worsteds, woven of combed yarns. The dress goods are usually worsted; the cloths may be either woolen or worsted. The weave structure of woolen fabrics is usually more or less concealed by a nap, and the colors are thereby somewhat softened and intermerged. The weave structure and colors of the worsted fabrics are more sharply defined, and the surface is smoother and firmer. In making worsted, wools of long or medium lengths are more generally employed, although the use of the shorter wools in worsteds has been increasing; in making woolens, not only short wools, but shoddy and waste are also utilized. Typical woolens are broadcloths, cassimeres, tweeds, and meltons; typical worsteds are sergas, unfinished worsteds, and fancy trouserings.

Flannels; heretofore specially provided for, will fall either here or in paragraph 1108, according to the weight. That the greater portion will fall here, however, seems to be indicated by the preliminary census figures for 1919, from which may be derived the average number of ounces per square yard produced, as follows: Flannels for underwear, 7.82 ounces (for all-wool) and 6.91 ounces (for cotton-mixed); domet flannels and shirtings, 8.51 ounces. But the term flannel can not be precisely defined, and it is for this reason that specific provision for it is abandoned. In general, a flannel is a loosely woven fabric, largely of wool and having a soft, "smooth" finish, the texture being practically the same as when it leaves the loom. It is usually made of woolen yarns. Flannels are of three general classes, corresponding to their use for underwear, shirtings, and outer garments. Only underwear and shirtings are clearly defined. Flannels for outer wear are hard to distinguish from other fabrics; in the garment trade they have come to signify a cloth with a soft, springy feel similar to flannel for underwear, despite the absence of nap and of high finish. But this feel can be given to many cloths.

Production.—No distinction is drawn in the report of the Census Bureau between light-weight and heavy-weight wool fabrics. Below is shown the production, in 1914 and 1919, of all varieties of woven fabrics of wool (except upholstery fabrics—probably largely pile). These figures refer to the fabrics covered by paragraphs 1108 and 1109 combined.

Production of women fabrics of wool.

| Kinds | 1914 | | 1919 | |
|--|------------------------------|---------------|--|---------------|
| | Quantity. | Value. | Quantity. | Value. |
| Total, all kinds..... | Square yards. 522,919,228 | \$254,434,415 | Sq. yds. 491,961,000 (Lbs. 298,190,000) | \$692,179,000 |
| All-wool: | | | | |
| Woolen suitings, overcoatings, dress goods, etc..... | 90,950,381 | 55,630,503 | Sq. yds. 140,338,000 (Lbs. 118,488,000) | 241,988,000 |
| Worsted suitings, overcoatings, dress goods, etc..... | 272,420,785 | 141,778,035 | Sq. yds. 166,791,000 (Lbs. 81,288,000) | 301,850,000 |
| Flannels for underwear..... | 2,176,264 | 880,494 | Sq. yds. 1,755,000 (Lbs. 888,000) | 1,906,000 |
| Cotton-warp: | | | | |
| Woolen suitings, overcoatings, dress goods, etc..... | 52,509,462 | 13,598,007 | Sq. yds. 89,063,000 (Lbs. 23,845,000) | 34,992,000 |
| Worsted suitings, overcoatings, dress goods, etc..... | 56,763,091 | 15,563,099 | Sq. yds. 58,154,000 (Lbs. 23,251,000) | 45,707,000 |
| Domest flannels and shirtings..... | 16,092,266 | 2,814,054 | Sq. yds. 19,942,000 (Lbs. 10,607,000) | 11,162,000 |
| Batists and lineays..... | 8,415,079 | 1,535,291 | Sq. yds. 4,770,000 (Lbs. 5,922,000) | 3,671,000 |
| Linings, Italian cloths, and lastings. | 36,196,243 | 9,804,661 | Sq. yds. 26,064,000 (Lbs. 6,491,000) | 13,337,000 |
| Union or cotton-mixed: | | | | |
| Suitings, overcoatings, dress goods, etc..... | 31,400,082 | 11,710,610 | Sq. yds. 23,578,000 (Lbs. 24,823,000) | 32,297,000 |
| Flannels for underwear..... | 4,995,575 | 1,089,661 | Sq. yds. 6,508,000 (Lbs. 2,617,000) | 5,219,000 |

The tendency which for decades had been toward a larger proportion of worsteds in the cloth (suitings, overcoatings, etc.) and dress-goods output, since 1909 has been in the opposite direction. Between the latter year and 1914 woolen production increased slightly, while that of worsted, especially of cotton warp and worsted filled goods, declined. Consequently, the ratio of woolen to total production (based on square yards) advanced from about 35 per cent in 1909 to approximately 40 per cent in 1914. Between 1914 and 1919, primarily because of the stimulus provided by the great Army demand during the war, the woolen production increased by about 32,000,000 square yards, while the worsted production fell off by about 50,000,000 square yards, so that in 1919 practically one-half of the total output was woolen. Production of woolens of all-wool increased by almost 50,000,000 square yards, but this increase was partly offset by a marked decline in the cotton-warp woolens and a slight decline in the cotton-mixed goods (mainly woolens). All of the decline in the worsted production was in the all-wool worsteds, production of cotton-warp worsteds having slightly increased. The combined production (in square yards) of woolens and worsteds declined between 1909 and 1914, and still further between 1914 and 1919.

Production of flannels for underwear increased somewhat between 1914 and 1919 (the increase being in the cotton-mixed variety), but it still remains small in comparison with the output of twenty or thirty years ago, when the principal production of flannels was for underwear. Because of the competition of knitted and woven underwear, both cotton and silk, this branch of flannel manufacture has declined

about one-half since 1899. The present output is chiefly of the finer qualities, such as are used for infants. Production of flannels for shirts, continuing the marked development which began a decade ago, increased by about 25 per cent between 1914 and 1919. In the reports of the Census Bureau, flannels for outer garments are not differentiated from cloths and dress goods. They include white fabrics for trouserings, and women's skirts or dress goods with a flannel finish. Production of such fabrics has undoubtedly been increasing.

Imports of wool cloths (including cloths of mohair, alpaca, etc.) from 1910 to 1913 averaged 4,742,081 pounds, valued at \$5,164,287. In the first half of the fiscal year 1914 imports were 1,984,689 pounds, valued at \$2,298,765. Thereafter cloths of mohair, alpaca, etc., are given separately. With such fabrics omitted, imports of wool cloths for the second half of the fiscal year 1914 were 9,474,620 pounds, valued at \$9,725,041; and for the calendar year 1914 they were 16,439,655 pounds, valued at \$16,107,505. Thereafter they declined. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|--|-------------|-------------|
| 1918..... | Lbs. 2,073,260 (Sq. yds. 3,000,955) | \$4,175,499 | \$1,461,425 |
| 1919..... | Lbs. 2,072,115 (Sq. yds. 3,079,259) | 5,484,234 | 1,919,482 |
| 1920..... | Lbs. 4,840,351 (Sq. yds. 7,544,890) | 12,604,989 | 4,443,246 |
| 1921 (9 months)..... | Lbs. 5,083,652 (Sq. yds. 7,414,424) | 9,770,883 | ..... |

¹ Includes 1,546,574 pounds, valued at \$2,904,225, imported under the emergency tariff act of 1921.

For 1910-1913 the imports of cloths and dress goods (combined) averaged about 4 per cent, and in the calendar year 1914 about 11 per cent, of the domestic production in 1914 (in square yards); in 1919 they were about 1 per cent of the production (in pounds) of that year.

Imports under former tariffs, and to a considerable extent under the act of 1913, have generally been of fine goods, fancy weaves, and specialties—cloths largely for the best custom tailors, such as Scotch and Irish tweeds, superior faced goods, etc. Some imports of shoddy cloths appeared in 1914, but were checked by the war before their acceptability to American consumers had been ascertained. The ready-to-wear trade has never utilized imported cloths to any great extent.

The relative imports of woolens and worsteds since 1917 have been as follows:

| Calendar year. | Woolens. | | Worsteds. | |
|----------------------|--|-------------|--------------------------------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| 1918..... | Lbs. 1,624,666 (Sq. yds. 2,300,784) | \$2,997,192 | Lbs. 448,594 (Sq. yds. 700,171) | \$1,178,307 |
| 1919..... | Lbs. 1,742,523 (Sq. yds. 2,485,723) | 4,324,024 | Lbs. 329,592 (Sq. yds. 563,596) | 1,160,210 |
| 1920..... | Lbs. 4,283,174 (Sq. yds. 6,544,805) | 10,710,798 | Lbs. 557,177 (Sq. yds. 1,000,064) | 1,984,191 |
| 1921 (9 months)..... | Lbs. 4,531,491 (Sq. yds. 6,473,345) | 8,167,574 | Lbs. 552,061 (Sq. yds. 941,079) | 1,603,309 |

In prewar years, from 50 to 60 per cent of the imports came from the United Kingdom and from 25 to 33 per cent from Germany and Belgium. During and since the war practically all of the imports have come from the United Kingdom; about 10 per cent came from Canada in 1918; about 5 per cent from France in 1920. Practically all of the imports from countries other than the United Kingdom have been woollens.

As regards imports of flannels, statistics prior to January 1, 1914, pertain only to flannels for underwear, of which the average importation from 1910 to 1913, inclusive, amounted to \$108,746, or about 5.5 per cent of domestic production in 1914. Almost 90 per cent of these imports consisted of flannels weighing over 4 ounces per square yard. Notwithstanding the widening of the provision in the act of 1913 so as to include all flannels, and a lowering of the duty, imports for the second half of the fiscal year 1914 amounted to only 193,222 pounds, valued at \$160,668. Imports of flannels since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------------|-----------|----------|
| | <i>Pounds.</i> | | |
| 1918..... | 46,004 | \$112,646 | \$33,790 |
| 1919..... | 150,426 | 331,554 | 99,476 |
| 1920..... | 337,692 | 780,820 | 234,037 |
| 1921 (9 months)..... | ¹ 414,767 | 667,195 | ..... |

¹ Includes 44,157 pounds, valued at \$97,387, imported under the emergency tariff act of 1921.

Exports.—Until 1918 separate figures for exports of woven fabrics of wool were not obtainable; thereafter they have been available only for cloths and dress goods combined. Under the designation "wool manufactures, all other" (including carpets and rugs, blankets, etc., as well as cloths and dress goods), exports before 1914 were usually under \$1,000,000, decreasing after 1909. In 1914 (fiscal year) they amounted to \$1,668,199; in 1916, they reached \$33,331,873, declining to \$13,435,946 in 1918 (fiscal year), of which latter figure \$7,009,554 was for cloths and dress goods. Later exports of cloths and dress goods have been as follows:

| Calendar year. | Quantity. | | Value |
|----------------------|---------------|-----------------------|-------------|
| | Square yards. | Equivalent in pounds. | |
| 1918..... | 5,626,729 | 3,152,224 | \$8,636,888 |
| 1919..... | 12,113,649 | 7,852,785 | 19,799,725 |
| 1920..... | 11,998,579 | 8,724,742 | 24,258,584 |
| 1921 (9 months)..... | 2,593,474 | 1,795,241 | 3,438,933 |

The leading markets have been Canada and Cuba, but others prominent in a very wide distribution of the trade include Argentina, Chile, Norway, Denmark, and Russia in Asia.

Important changes in classification.—This paragraph covers mainly "cloths" of wool for men's wear. The reason for the omission of trade terms and the basing of the classification on weight has been stated under paragraph 1108.

As stated in paragraph 1108, 36 cents is used as "full compensatory" for all-wool goods where the wool is subject to a duty of 25 cents a pound. It is assumed that, in the case of these heavy goods for men's wear, only those valued at above \$2.50 a pound will be entitled to this rate. Cloths of lower values per pound are assumed to contain more or less carpet wool, reworked wool, cotton, or other materials which enter at lower rates than that levied on clothing wools; such cloths are therefore given lower compensatory duties. The lower the value the larger is assumed to be the proportion of such materials; therefore a compensatory duty of 30 cents a pound has been assigned to goods valued at more than \$1.25 but not more than \$2.50 a pound; a compensatory duty of 25 cents for those valued at more than 75 cents but not more than \$1.25, and one of 20 cents a pound for those valued at not more than 75 cents a pound.

As stated under paragraph 1108, these compensatory duties are based on the wool being subject to a duty of 25 cents a pound and where the wool pays less duty, by reason of the maximum ad valorem provision, the compensatory rates are more than sufficient to maintain the ratio.

PARAGRAPH 1110.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1110. Woven fabrics, wholly or in part of wool, which have been cut to garment or suiting lengths or which have been subject to the process of damping, sponging, or shrinking, shall pay, in addition to the rates hereinbefore provided, 2 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

Important changes in classification.—This is an entirely new provision. It levies on cloths imported in short lengths suitable for individual use a duty additional to that which would apply if such cloths were imported in whole pieces. It also levies on cloths which have been dampened, sponged, or shrunk a duty additional to that which would apply if such cloths were imported without being subjected to such processes.

PARAGRAPH 1111.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1111. Pile fabrics, cut or uncut, whether or not the pile covers the whole surface, made of wool or of which wool is a component material, whether or not constituting chief value, and manufactures, in any form, made or cut from such pile fabrics, 36 cents per pound and, in addition thereto, 27½ per centum ad valorem.

ACT OF 1909.

PAR. 378. On * * * all manufactures of every description made wholly or in part of wool, not specially provided for in this section, valued at not more than forty cents per pound, the duty per pound shall be three times the duty imposed by this section on a pound of unwashed wool of the first class, valued at above forty cents per pound and not above seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto, upon all the foregoing, fifty per centum ad valorem; valued at over seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class and fifty-five per centum ad valorem.

PAR. 443. Plushes * * * and manufactures thereof, composed of the hair of the camel, goat, alpaca, or any animal, combined with wool, vegetable fiber, or silk, shall be classified and dutiable as manufactures of wool.

ACT OF 1918.

PAR. 288. * * * plushes, velvets and all other pile fabrics, cut or uncut, woven * * * whether or not the pile covers the entire surface, made wholly or in chief value of wool, and articles made wholly or in chief value of such plushes, velvets, or pile fabrics, 40 per centum ad valorem; * * *

PAR. 309. Plushes, velvets, and all other pile fabrics, cut or uncut, woven * * * whether or not the pile covers the entire surface, made wholly or partly of the hair of the Angora goat, alpaca, or other like animals, and articles made wholly or in chief value of such plushes, velvets, or pile fabrics, 45 per centum ad valorem.

PAR. 358. * * * coach, carriage, and automobile laces, * * * 60 per centum ad valorem.

PILE FABRICS, OF WOOL OR HAIR, AND MANUFACTURES OF.

Description and uses.—Pile fabrics consist of a foundation cloth covered in whole or in part by short projecting ends or loops made with an extra set of threads.

Pile fabrics of mohair, and to a lesser extent of alpaca, are used in covering furniture (especially seats in Pullman cars and in inclosed automobiles), as well as for curtains and portières. They are also employed often as imitation fur, in cloaks for women and children, and in covering "Teddy bears" and other imitation animal toys.

Wool, because of its lack of resilience and its tendency to felt, is little used as pile. When so employed, for women's cloaks, etc., it is usually of the light-shrinking and coarser varieties.

In most fabrics made with a pile of mohair, alpaca, or wool the foundation cloth is of cotton or other vegetable fiber.

Production is not separately recorded.

Imports were first separately stated in 1914. Imports of pile fabrics during the first six months of 1914 were 214,385 pounds, valued at \$239,861; in 1915, 151,978 pounds, valued at \$191,536. Imports of articles made from pile fabrics during the first six months of 1914 were \$23,578; in 1915, \$52,975. Later imports have been, by calendar years, as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|------------------------------------|----------------|----------|---------|
| PILE FABRICS OF WOOL, MOHAIR, ETC. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 10,536 | \$13,521 | \$5,940 |
| 1919..... | 7,365 | 23,074 | 10,036 |
| 1920..... | 33,812 | 95,423 | 40,538 |
| 1921 (9 months)..... | 131,616 | 178,221 | ..... |

¹ Includes 14,345 pounds, valued at \$24,139; imported under emergency tariff act of 1921.

| Calendar year. | Quantity. | Value. | Duty. |
|---|----------------|----------|---------|
| MANUFACTURES OF PILE FABRICS OF WOOL, MOHAIR, ETC. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | | \$16,226 | \$3,637 |
| 1919..... | 4,003 | 20,977 | 8,457 |
| 1920..... | | 61,114 | 25,721 |
| 1921 (9 months)..... | | * 31,312 | ..... |

* includes \$6,370, value of 1,583 pounds, imported under emergency tariff act of 1921.

Exports are not separately recorded.

Important changes in classification.—In the act of 1909 pile fabrics of wool, mohair, etc., were dutiable under paragraph 378 without specific mention other than a reference thereto in paragraph 443; in the act of 1913 pile fabrics of wool were dutiable under paragraph 288, and pile fabrics of mohair, etc., under paragraph 309.

The manufacture of pile fabrics forms a distinct branch of the textile industry and for this reason, and to secure uniformity with pile fabric provisions (pars. 909 and 1011) in other textile schedules, a special paragraph is here devoted to pile fabrics and manufactures thereof, falling under the wool schedule. This paragraph does not include manufactures of pile fabrics used as clothing or as floor covering which are provided for elsewhere.

Suggested changes.—Attention may be called to the fact that the 36 cents a pound compensatory duty is that which has been applied in other paragraphs to all-wool goods. Inasmuch as pile fabrics of wool, mohair, etc., are usually made with a cotton back, the full compensatory thus provided as applied to such goods of mixed material is more than adequate. (See Report of the Tariff Board on Schedule K, 1912, p. 133.)

PARAGRAPH 1112.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1112. Blankets, wholly or in part of wool, not exceeding three yards in length, plain woven, with not more than one color in warp or filling, and not advanced beyond weaving by any process of finishing, valued at not more than 75 cents per pound, 20 cents per pound and, in addition thereto, 20 per centum ad valorem; valued at more than 75 cents, but not more than \$1.50 per pound, 25 cents per pound and, in addition thereto, 20 per centum ad valorem; valued at more than \$1.50 per pound, 30 cents per pound and, in addition thereto, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 379. On blankets, * * * composed wholly or in part of wool, valued at not more than forty cents per pound, the

PAR. 289. Blankets * * * composed wholly or in chief value of wool, 25 per centum ad valorem; * * *

ACT OF 1909.

ACT OF 1909.

duty per pound shall be the same as the duty imposed by this section on two pounds of unwashed wool of the first class, and in addition thereto thirty per centum ad valorem; valued at more than forty cents and not more than fifty cents per pound, the duty per pound shall be three times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto thirty-five per centum ad valorem. On blankets composed wholly or in part of wool, valued at more than fifty cents per pound, the duty per pound shall be three times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto forty per centum ad valorem. * * *

WOOL BLANKETS.

Description.—The foregoing provision was originally intended to cover ordinary blankets and to exclude the fancy varieties; but the clause limiting this provision to blankets "not advanced beyond weaving by any process of finishing" would, as explained below, result in eliminating practically all blankets from this paragraph and should be omitted. At the same time the paragraph should be made to include not only bed blankets and horse blankets (to which varieties the courts have limited the term "blankets"), but also carriage and automobile robes and other articles when made in the same manner as blanketing. (See "Suggested changes," p. 982.)

Blankets are made of woollen yarns, or of cotton and woollen yarns, fulled or shrunken to a high degree, and napped on both sides of the cloth. They may be all-wool, merino (cotton and wool mixture in the yarn), or cotton-warp. Practically all of the horse blankets, and fully two-thirds of the bed blankets, are in part cotton—the former largely cotton-warp; the latter, both cotton-warp and merino, with the merino rapidly gaining in popularity. In addition to cotton, other substitutes for new wool, such as wool wastes, shoddy, and cattle or other hair, are used, so that new wool forms but a small proportion of the raw material in most blankets.

Blanket cloth is usually woven of coarse yarns with a plain or twill weave; it is then put into a large, closed box where it is soaked with water, or water and soap, and passed between rollers or under a heavy hammer. By this operation (called "fulling") the area of the cloth may be reduced as much as 20 or 25 per cent, and the weave compressed or even obliterated. Thereafter the cloth goes to the napping machine, in which the individual fibers are raised to a thick nap by the fine teeth on the cylinders. The designs are usually elementary and conventional. The most critical stages in manufacture are the choice and blending of the raw materials, and the finishing operations, as respects the latter especially the attainment of a thick, high nap.

Production.—The domestic production in 1914 and 1919 of bed blankets and horse blankets, also of carriage robes and carriage

cloths (the latter, as well as most of the former, falling under paragraph 1112 only in case the wording is revised), was as follows:

| Article. | 1914 | | 1919 | |
|--------------------------------|-----------------------------------|-------------|------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| Blankets: | | | | |
| All-wool..... | <i>Square yards.</i> 6,482,639 | \$4,186,754 | 6,344,000 | \$7,196,000 |
| Cotton-warp..... | 17,973,821 | 3,010,070 | 9,291,000 | 7,391,000 |
| Cotton-mixed..... | 3,937,463 | 2,067,934 | 10,465,000 | 8,711,000 |
| Total..... | 28,400,973 | 9,364,758 | 26,100,000 | 23,298,000 |
| Horse blankets: | | | | |
| All-wool..... | 102,205 | 82,398 | (1) | (1) |
| Cotton-warp..... | 5,831,305 | 1,539,526 | (1) | (1) |
| Cotton-mixed..... | 2,231,162 | 395,858 | (1) | (1) |
| Total..... | 8,164,672 | 2,017,782 | 1,696,000 | 1,606,000 |
| Carriage robes: | | | | |
| All-wool..... | 132,399 | 158,900 | (1) | (1) |
| Cotton-warp..... | 1,282,417 | 936,687 | (1) | (1) |
| Cotton-mixed..... | 354,049 | 137,968 | (1) | (1) |
| Total..... | 1,768,865 | 1,233,555 | 2,197,000 | 3,845,000 |
| Carriage cloths, all-wool..... | 514,226 | 443,223 | 687,000 | 1,371,000 |
| Grand total..... | 38,548,736 | 12,959,318 | 30,680,000 | 30,120,000 |

¹ Not separately shown in preliminary census returns.

Prior to the war the production of bed blankets wholly or in part of wool had been declining to some extent by virtue of the growing competition of all-cotton blankets; but, seemingly on account of foreign military orders, production increased greatly in 1914, and, as appears above, remained at almost the same high level in 1919. Fewer cotton-warp and more merino blankets have been produced since 1914. Production of horse blankets had already been declining prior to the war (except in 1914), but the decline between 1914 and 1919 is particularly striking. The increasing replacement of horses by automobiles is probably an important factor in the decline.

Imports.—Prior to the war imports of blankets usually amounted to only 25,000 to 50,000 pounds annually, valued at from \$25,000 to \$50,000. Despite a distinct lowering of the duty in 1913, imports immediately thereafter increased only slightly. In the fiscal year 1918, 5,206,613 pounds, valued at \$5,839,921, were imported, but this exceptional importation was clearly due to the tremendous army requirements. Later imports are shown below. The countries from which they came are not recorded.

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-------------|-----------|
| | <i>Pounds.</i> | | |
| 1918..... | 2,327,882 | \$2,981,212 | \$745,303 |
| 1919..... | 20,350 | 38,263 | 9,566 |
| 1920..... | 75,749 | 140,556 | 35,139 |
| 1921 (9 months)..... | 130,746 | 148,898 | |

¹ Includes 13,612 pounds, valued at \$21,142, imported under the emergency tariff act of 1921.

Exports.—Blankets are among the few domestic wool manufactures that have been exported to any noticeable extent. Between 1900 and 1910 exports of blankets and flannels (combined in the statistics) ranged annually from \$50,000 to \$125,000—a small figure, but in some years larger than the imports. Thereafter, until 1918, exports were not separately listed. Later exports of blankets only have been as follows by calendar years: 1918, \$2,691,408; 1919, \$823,544; 1920, \$1,257,433; and in the first nine months of 1921, \$222,872. In 1918 about 80 per cent of the exports went to Italy and about 15 per cent to France; in 1919 about one-half went to France and Austria, and the remainder was scattered; and in 1920 almost one-half went to Russia in Asia, considerable quantities to Mexico, Turkey, and Poland, and the remainder was scattered.

Important changes in classification.—As stated above, paragraph 1112, as worded, was intended to exclude fancy blankets; in fact, it excludes practically all blankets. The words “not advanced beyond weaving by any process of finishing” would eliminate practically all blankets from the paragraph, because at least two of the most characteristic operations of blanket manufacture, namely “fulling” and “napping,” are finishing operations.

Suggested changes.—Paragraph 1112 should be so worded as to distinguish between the ordinary and the fancy blankets without the vitiating clause which reads “not advanced beyond weaving by any process of finishing.” At the same time it should be made to include all carriage and automobile robes, steamer rugs, and other articles, when similar to blankets in construction and method of manufacture. It is true that the articles named are generally of better quality than the ordinary grades of blankets, but this is likewise true of the fancy blankets. Differentiation in duties should be made between the cheaper and the more expensive goods, irrespective of whether they are blankets or other articles of similar construction. This can best be accomplished not by describing the articles but by applying to all of these goods the same general scheme of classification by valuation (further expanded) as contained in paragraph 1112 above. The lower brackets will thus catch mainly horse blankets (containing very little new wool) and shoddy bed blankets—types characterized not only by low raw material costs but by simplicity of construction, since they are generally given a minimum of manipulation and finish, and are woven either plain or twill, and also usually have only one color in the warp or filling. The higher brackets will catch the better grades of bed blankets and other articles containing a larger proportion of new wool and more generally characterized by elaboration of color or finish.

It is suggested that paragraph 1112 be made to read as follows:

Blankets and similar articles, including carriage and automobile robes and steamer rugs, made of blanketing, wholly or in part of wool, not exceeding three yards in length, valued at not more than 75 cents per pound, 20 cents per pound and, in addition thereto, — per centum ad valorem; valued at more than 75 cents but not more than \$1.50 per pound, 25 cents per pound and, in addition thereto, — per centum ad valorem; valued at more than \$1.50 but not more than \$2.50 per pound, 30 cents per pound and, in addition thereto, — per centum ad valorem; valued at more than \$2.50 per pound, 35 cents per pound and, in addition thereto, — per centum ad valorem.

The foregoing classification expands paragraph 1112 so as to include fancy blankets and articles similar to blankets in construction and method of manufacture. The compensatory rates are based on

the assumption that in the lower grades of goods comparatively little new wool is used, but that the proportion of new wool increases with the value of the blankets, etc., until, among the highest grades, it constitutes practically the entire raw material and requires a compensatory rate as high as that for cloth. This latter, assuming a duty of 25 cents a pound on raw wool, clean content, should be 36 cents per pound. (Report of Tariff Board, 1912, p. 626.)

PARAGRAPH 1113.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1113. Felts, not woven, wholly or in part of wool, valued at not more than 75 cents per pound, 20 cents per pound and, in addition thereto, 20 per centum ad valorem; valued at more than 75 cents but not more than \$1.50 per pound, 25 cents per pound and, in addition thereto, 20 per centum ad valorem; valued at more than \$1.50 per pound, 30 cents per pound and, in addition thereto, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 382. On * * * felts not woven, and not specially provided for in this section, composed wholly or in part of wool, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto sixty per centum ad valorem.

PAR. 288. * * * felts not woven, * * * wholly or in chief value of wool, not specially provided for in this section, 35 per centum ad valorem; * * *

FELTS, NOT WOVEN.

Description and uses.—Felts, not woven, known in the trade as pressed felts, are produced by matting or felting together wool or hair under the influence of moisture, heat, and pressure. The property of felting is peculiar to wools and some hairs; the felting results from the tendency of the curly fibers to wind around each other, as well as from the cohesion caused by the interlocking of the scales. On the number of scales or serrations, together with the curly or wavy nature of the fiber, the felting quality of any wool largely depends.

In making felts the wool is sorted and scoured, and, if desired, then mixed and blended with other materials; it is then carded, a process which tends to straighten out the fibers to their fullest extent. The filmy web leaving the card is laid down on traveling aprons and superimposed until a sufficient thickness is obtained; the different layers are then pressed together and consolidated in a hardening machine, containing either steam-heated rollers which have a rotary and vibrating motion, or a huge vibrating flatiron under which the material is automatically fed. The goods are then soaped and placed in a fulling machine where they are subjected to the continued action of kicking beams. Here the actual felting of the fibers takes place. The individual fibers subjected to work entangle themselves more closely by reason of their tendency to regain their

original length and condition of curl, and, being prevented from slipping back from position because of the interlocking of their scales, they become firmly united in a fabric which has shrunk in both length and width.

Wool felts are of many grades and values, varying according to the quality of the wool and the percentage of other fibers mixed therewith, according to the thickness, and according to the extent of the felting and finishing operations. They include lining felts for padding suits and overcoats, boot and shoe linings, polishing felts, saddle felts, typewriter cushion pads, chair seat covers, etc. Piano felts represent the highest grade.

Production of the felt goods industry was valued at \$13,693,000 in 1914 and \$39,230,000 in 1919, but deducting the items of woven felt cloths (which include endless belts for paper makers), hair felting (which includes gun-wad felts), and waste, the value was \$7,952,000 in 1914 and \$27,154,000 in 1919. The main item so embraced was listed as trimming and lining felts, including felt skirts and skirtings; other items are boot and shoe linings, polishing felts and buffing wheels, piano felts, and saddle felts; while "all other" without description constitute over half of the total value recorded.

Massachusetts has the largest number of felt mills, followed by New York, New Jersey, Pennsylvania, and Connecticut.

Imports were 88,864 pounds, valued at \$105,624, in the fiscal year 1914. Imports since 1917 are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|----------|----------|
| | <i>Pounds.</i> | | |
| 1918..... | 17,074 | \$33,286 | \$11,630 |
| 1919..... | 10,965 | 27,664 | 8,682 |
| 1920..... | 122,808 | 64,483 | 22,569 |
| 1921 (9 months)..... | 23,531 | 40,814 | |

¹ Includes 3,280 pounds, valued at \$5,909, imported under emergency tariff act of 1921.

Exports are not recorded.

Important changes in classification.—Unwoven felts are the product of a distinct branch of the wool manufacturing industry and for this reason are given a separate paragraph instead of being included with goods made by weaving or other processes, as has been the case in other tariff acts. The compensatory duty of 30 cents a pound is assigned to felt valued at more than \$1.50 a pound on the assumption that felts above this value would be made entirely of wool subject to a duty of 25 cents a pound and that the loss of material would not exceed that in the manufacture of yarns. Felts ranging in value up to \$1.50 a pound are divided into two classes, with compensatory duties based on the assumption that the lower the value the larger the percentage of other materials, such as wool waste, reworked wool, cotton, cattle hair, etc., dutiable at less than 25 cents a pound.

This paragraph covers only unwoven felts, wholly or in part of wool, and does not include woven felts, such as used in paper makers' endless belts and for other purposes. It does not include hair felting if not in part of wool, such as is used in making gun wads or as insulation in ice houses and refrigerators, etc., as this type is more specifically provided for in paragraph 1426. (See p. 1140.)

PARAGRAPH 1114.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1114. Fabrics with fast edges not exceeding twelve inches in width, and articles made therefrom; tubings, garters, suspenders, braces, cords, and cords and tassels; if wholly of wool, 36 cents per pound; if in part of wool, whether or not wool constitutes chief value, 25 cents per pound; and, in addition thereto on all the foregoing, 30 per centum ad valorem.

ACT OF 1909.

PAR. 383. Webbing, gorings, suspenders, braces, bandings, beltings, bindings, * * * cords, cords and tassels, ribbons, * * * any of the foregoing made of wool or of which wool is a component material, whether containing india rubber or not, fifty cents per pound and sixty per centum ad valorem.

ACT OF 1913.

PAR. 292. Webbing, suspenders, braces, bandings, belts, beltings, bindings, cords, cords and tassels, and ribbons; any of the foregoing made of wool or of which wool or wool and india rubber are the component materials of chief value, and not specially provided for in this section, 35 per centum ad valorem.

PAR. 358. * * * coach, carriage, and automobile laces, * * * 60 per centum ad valorem.

WOOL SMALL WARES.

Description and uses.—This paragraph embraces narrow woven fabrics which have not been ornamented after leaving the loom, manufactures of such narrow woven fabrics, and certain articles made by braiding or twisting together yarns or threads. The small wares thus covered here include all made in whole or in part of wool.

“Fabrics with fast edges not exceeding 12 inches in width” is an inclusive term for narrow woven fabrics as distinguished from cloth, which is a woven fabric over 12 inches in width. These narrow woven fabrics, such as tape, ribbons, bandings, beltings, bindings, webbing, etc., are produced on narrow-ware looms by means of numerous small shuttles positively driven by a rack and pinions. Articles made therefrom include bands, belts, webs, etc. Tubings are tubular woven products of the narrow-ware loom. Garters, suspenders, and braces are articles made from narrow fabrics; largely from elastic webbing which are woven with rubber threads in the warp. Cords are made by braiding or cabling three or more threads. Tassels are pendant ornaments ending in a tuft of loose threads or cords. Cords and tassels are formed by securing tassels to cords.

Production is not recorded separately.

Imports in 1915 were valued at \$5,781. Imports since 1917 for calendar years are recorded as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|---------|---------|---------|---------------------|
| Value..... | \$4,824 | \$1,652 | \$3,907 | \$1,154 |
| Duty..... | 1,688 | 578 | 1,367 | ..... |

¹ Includes 76 pounds, valued at \$133, imported under emergency tariff act of 1921.

Exports are not recorded.

Important changes in classification.—This is the small-wares paragraph of the wool schedule and, with few exceptions, is confined to products of the narrow-ware or ribbon loom, and to articles made from such products. For the sake of uniformity the basic wording has been made the same as in the small-wares paragraphs of the other textile schedules (pars. 912, 1614, and 1207), although small wares of wool are much less important than those of cotton, jute, flax, or silk. Reasons for the revised wording have been stated under paragraph 912.

PARAGRAPH 1115.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1115. Knit fabrics, made of wool or of which wool is a component part, whether or not constituting chief value, valued at not more than \$1.25 per pound, 25 cents per pound and, in addition thereto, 20 per centum ad valorem; valued at more than \$1.25 per pound, 36 cents per pound and, in addition thereto, 25 per centum ad valorem.

Hose and half hose, and gloves and mittens, made of wool or of which wool is a component part, whether or not constituting chief value, valued at not more than \$3 per dozen pairs, 30 cents per pound and, in addition thereto, 25 per centum ad valorem; valued at more than \$3 per dozen pairs, 36 cents per pound and, in addition thereto, 30 per centum ad valorem.

Knit underwear, finished or unfinished, made of wool or of which wool is a component part, whether or not constituting chief value, valued at not more than \$2.50 per pound, 30 cents per pound and, in addition thereto, 20 per centum ad valorem; valued at more than \$2.50 per pound, 36 cents per pound and, in addition thereto, 25 per centum ad valorem.

Outerwear and other articles, knit or crocheted, finished or unfinished, made of wool or of which wool is a component part, whether or not constituting chief value, valued at not more than \$2.50 per pound, 30 cents per pound and, in addition thereto, 28 per centum ad valorem; valued at more than \$2.50 per pound, 36 cents per pound and, in addition thereto, 33½ per centum ad valorem.

ACT OF 1909.

PAR. 378. On * * * knit fabrics * * * made wholly or in part of wool, not specially provided for in this section, valued at not more than forty cents per pound, the duty per pound shall be three times the duty imposed by this section on a pound of unwashed wool of the first class; valued at above forty cents per

ACT OF 1913.

PAR. 288. * * * knit fabrics, * * * wholly or in chief value of wool, not specially provided for in this section, 35 per centum ad valorem; * * * stockings, hose and half hose, made on knitting machines or frames, composed wholly or in chief value of wool, not specially provided for in this section, 2)

ACT OF 1909.

ACT OF 1913.

pound and not above seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto, upon all the foregoing, fifty per centum ad valorem; valued at over seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class and fifty-five per centum ad valorem.

PAR. 382. On * * * articles of wearing apparel of every description, including shawls whether knitted * * * and knitted articles of every description made up or manufactured wholly or in part * * * and not specially provided for in this section, composed wholly or in part of wool, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto sixty per centum ad valorem.

per centum ad valorem; stockings, hose and half hose, selvedged, fashioned, narrowed, or shaped wholly or in part by knitting machines or frames, or knit by hand, including such as are commercially known as seamless stockings, hose and half hose, and clocked stockings, hose and half hose, gloves and mittens, all of the above, composed wholly or in chief value of wool, if valued at not more than \$1.20 per dozen pairs, 30 per centum ad valorem; if valued at more than \$1.20 per dozen pairs, 40 per centum ad valorem:
* * *

PAR. 291. * * * shawls * * * knitted * * * and knitted articles of every description made up or manufactured wholly or in part, and not specially provided for in this section, composed wholly or in chief value of wool, 35 per centum ad valorem.

WOOL KNIT FABRICS.

(See Survey K-3.)

Description and uses.—Wool knit fabric in the piece, as distinct from knitted articles, represents a field in which there has been enormous development during recent years and in which there is every prospect for greater development in the future. The most common form of wool knit fabrics is jersey cloth made on large circular machines, but flat machines on which a greater variety of stitch is possible are also used. Wool knit fabrics are made in a wide range of textures.

Production.—Statistics for the production of wool knit fabric in the piece were not separately stated in former census reports. Cotton knit fabric and wool knit fabric amounted to a value of \$1,639,612 in 1914. In 1919 the production of wool knit fabric alone was 6,055,361 square yards, valued at \$13,240,491. Most frequently wool knit fabric is made by small concerns which knit wool articles. One or two large concerns have become interested in the piece-goods trade. The bulk of the output is consumed by the ready-to-wear garment industry, but each year larger quantities are sold at retail.

Imports recorded as "Wool knit fabrics, not wearing apparel," were 13,666 pounds, valued at \$14,923, in 1914. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|----------|---------|
| | <i>Pounds.</i> | | |
| 1918..... | 8,561 | \$16,164 | \$5,657 |
| 1919..... | 229 | 679 | 238 |
| 1920..... | 4,123 | 12,181 | 4,263 |
| 1921 (9 months)..... | 1,605 | 6,166 | ..... |

¹ Includes 754 pounds, valued at \$1,842, imported under emergency tariff act of 1921.

Exports are not recorded.

Important changes in classification.—Wool knit fabric has been removed from the paragraph for woven wool cloths (288 of 1913 and 378 of 1909) and placed here in order to assemble all knit goods belonging under the wool schedule. This obviates the danger of discrepancies in rates. The same separation and assembling of knit goods have been carried out in the other textile schedules.

WOOL HOSIERY.

(See Survey K-3.)

Description.—The three classes of wool hosiery (according to methods of manufacture) are covered by this paragraph. These are described under "Cotton hosiery," paragraph 915. Wool hosiery is probably made in a greater variety of colors than either cotton or silk hosiery and in a greater range of texture—from the finest cashmere, not much heavier than silk, to thick ribbed athletic hose. Much of the domestic production is of a cheap coarse grade often known as lumbermen's socks, because of its use by men in such out-of-door occupations. Imports are largely of the fancy sport hose.

Production of all-wool hosiery declined from 1,985,833 dozen pairs, valued at \$3,875,486 in 1914, to 1,047,000 dozen pairs, valued at \$5,397,000 in 1919, while the output of wool and cotton (mixed) or "merino" hosiery, increased from 3,059,294 dozen pairs, valued at \$4,798,949 in 1914; to 4,193,000 dozen pairs, valued at \$14,998,000 in 1919. The proportion of merino to all-wool hosiery has increased with each census. The manufacture of wool hosiery is usually carried on in connection with that of other wool knit goods, particularly gloves and underwear.

Imports of wool and wool-mixed hosiery in the second half of the fiscal year 1914 were 28,827 dozen pairs, valued at \$63,310; in 1915, 70,053 dozen pairs, valued at \$168,877. Imports since 1917 are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|---------------------|-------------|-----------|
| | <i>Dozen pairs.</i> | | |
| 1918..... | 448,787 | \$2,633,587 | \$933,339 |
| 1919..... | 42,747 | 379,292 | 151,706 |
| 1920..... | 380,649 | 3,074,113 | 1,225,910 |
| 1921 (9 months)..... | 229,075 | 1,428,722 | |

¹ Includes 251,742 pounds, valued at \$693,807, imported under emergency tariff act of 1921.

England is the chief source of supply.

Exports are not recorded.

Important changes in classification.—The word "stockings" has been omitted since the term "hose and half-hose" is sufficiently inclusive. No subdivision according to methods of manufacture has been retained because wool hosiery, other than seamless or fashioned, imported under the act of 1913 was only a small proportion of the total. The dividing line between value classifications has been raised, as the rise in prices since the act of 1913 was passed has thrown almost the

entire import into the higher category. Value classifications which will approximate an equal division of imports are difficult to establish at a time when prices are undergoing such radical changes. "Clocked" hosiery has been omitted from this paragraph. (See par. 915, p. 890 for explanation.)

WOOL GLOVES AND MITTENS.

(See Survey K-3.)

Description and uses.—Wool gloves and mittens may be cut from jersey cloth and stitched to shape; they may be knit continuously, so that no seams are required in the finishing; or they may be fashioned in the knitting with selvaged edges. Gloves are of all three types; mittens, as a rule, are seamless.

Production.—No statistics are available for former census years. Production in 1919 amounted to 239,984 dozen pairs of woolen and worsted gloves, valued at \$1,235,140. The industry is conducted by about 50 concerns, which vary from small establishments equipped with less than a dozen machines to large organizations capitalized at one-half to a million dollars, but in almost every instance wool knit goods other than gloves are also manufactured.

Imports in the second half of the fiscal year 1914 were 26,126 dozen pairs, valued at \$40,343; in 1915, 148,377 dozen pairs, valued at \$218,194. Imports since 1917 are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|--------------------------------|-------------|-----------|
| 1918..... | <i>Dozen pairs.</i> 224,494 | \$1,718,353 | \$687,324 |
| 1919..... | 39,135 | 315,513 | 126,200 |
| 1920..... | 48,221 | 273,286 | 109,298 |
| 1921 (9 months)..... | 184,768 | 1,231,447 | ..... |

¹ Includes 70,038 pounds, valued at \$155,253, imported under emergency tariff act of 1921.

The United Kingdom is the main source of imports, normally supplying over nine-tenths of the total. The record import, attained in 1918, was due to war demands and was mainly supplied by Canada.

Exports are not recorded.

Important changes in classification.—The same change has been made in the value dividing line as in hose and half hose. Gloves and mittens are retained in the clause with hosiery rather than transferred to the clause covering outerwear, because, like hosiery, the commercial unit is the dozen, and retention in this classification will more likely insure separate statistical record with the dozen as the unit of quantity. Moreover, the manufacture of gloves and mittens is no more closely allied to the manufacture of outerwear than to that of hosiery. They are frequently made in connection with one or the other or both, and there are some concerns which make only gloves and mittens. Like hosiery, gloves and mittens are more highly standardized than outerwear and less subject to style variation. There may be certain popular models, but fewer varieties and less marked differences from season to season are demanded for gloves and mittens than for sweaters and other articles of outer apparel. There is no apparent reason why gloves and mittens should carry a higher rate of duty than hosiery; hence the classification with hosiery seems more logical.

WOOL KNIT UNDERWEAR.

(See Survey K-3.)

Description and uses.—The different types of knit underwear are described under the paragraph on knit cotton underwear (par. 916). Most of the wool underwear produced in the United States is made from tubular fabric knit on circular machines. There is very little demand for full-fashioned underwear.

Production of all-wool and wool-mixed knit shirts and drawers increased from 1,808,000 dozen, valued at \$12,077,000, in 1914 to 2,164,000 dozen, valued at \$22,677,000, in 1919, and union suits from 633,000 dozen, valued at \$8,197,000, in 1914 to 1,211,000 dozen, valued at \$23,418,000, in 1919. Less than one-eighth of the foregoing consisted of all-wool underwear.

Imports of wool knit underwear and outerwear are included under the classification "Wool knitted articles, n. s. p. f.," from which knitted shawls, hosiery, and gloves and mittens are excluded by special mention. Imports of wool knitted articles were valued at \$415,773 in 1914.

Imports of "wool knitted articles, n. s. p. f.," since 1917 are recorded by calendar years as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------|-----------|-----------|-----------|-----------------|
| Value..... | \$756,894 | \$109,303 | \$215,094 | \$132,823 |
| Duty..... | 264,911 | 39,256 | 75,282 | ..... |

¹ Includes \$16,574 imported under emergency tariff act of 1921.

Exports are not recorded.

Important changes in classification, etc.—See under "Wool Knit Outerwear," etc., below.

WOOL KNIT OUTERWEAR AND OTHER ARTICLES, N. S. P. F.

(See Survey K-3.)

Description and uses.—The demand for wool knit outerwear has grown rapidly in the last few years, especially for such garments as sweaters, toques, scarfs, and bathing suits. Knit outerwear, like other types of knit goods, may be fashioned or may be cut from knit fabric. It is more frequently fashioned than is underwear.

Production of wool knit articles of outerwear is not stated separately from those of other fibers.

Imports are not separately recorded, being included under imports of "wool knitted articles, n. s. p. f.," shown above.

Exports are not recorded.

Important changes in classification.—It has been considered advisable to mention specifically knit underwear and outerwear in this paragraph, as the two represent entirely distinct industries. The development of the knit outerwear industry during the last few years makes it particularly desirable to have separate statistics of imports. The word "crocheted" has been inserted in the classification concerning outerwear and other knit articles because crocheted

goods, although differing in process of production, are similar to knit goods in appearance and use.

Suggested changes.—The words “and not specially provided for” might be inserted after the words “not constituting chief value” in the clause concerning outerwear in order that “other articles” in this clause may not conflict with the articles enumerated above.

PARAGRAPH 1116.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1116. Clothing and articles of wearing apparel of every description, not knit or crocheted, manufactured wholly or in part, made of wool or of which wool is a component part, whether or not constituting chief value, valued at not more than \$2.50 per pound, 20 cents per pound and, in addition thereto, 25 per centum ad valorem; valued at more than \$2.50 but not more than \$5 per pound, 25 cents per pound and, in addition thereto, 25 per centum ad valorem; valued at more than \$5 per pound, 36 cents per pound and, in addition thereto, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 382. On clothing, ready-made, and articles of wearing apparel of every description, including shawls * * * woven, * * * and not specially provided for in this section, composed wholly or in part of wool, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto sixty per centum ad valorem.

PAR. 291. Clothing, ready-made, and articles of wearing apparel of every description, including shawls * * * woven * * * made up or manufactured wholly or in part, and not specially provided for in this section, composed wholly or in chief value of wool, 35 per centum ad valorem.

WOOL WEARING APPAREL, N. S. P. F.

Description and uses.—This paragraph covers wearing apparel of every description, manufactured wholly or in part of wool, camel's hair, mohair, alpaca, and the like, not knit or crocheted, and not specially provided for. Articles excluded by virtue of special provision elsewhere are garters, suspenders, braces, and other articles made from narrow wares (par. 1114); knit goods (par. 1115); and apparel ornamented with lace, embroidery, etc. (par. 1430).

Production is not recorded.

Imports in the fiscal year 1915 were valued at \$1,368,866, including wool hats to the value of \$49,081, but not including any knit goods. Similar imports since 1917 by calendar years are recorded as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------|-------------|-------------|-------------|-----------------|
| Value..... | \$4,694,021 | \$1,426,890 | \$5,011,135 | \$2,376,715 |
| Duty..... | 1,712,907 | 499,062 | 1,758,892 | ..... |

¹ Includes 328,394 pounds, valued at \$1,465,158, imported under emergency tariff act of 1921.

Imports are mainly from the United Kingdom; in 1920 relatively small amounts came from France, Canada, and Switzerland.

Exports are larger than imports; in the fiscal year 1914 they were valued at \$2,148,235. Later exports by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------|-------------|--------------|-------------|------------------|
| For men and boys..... | \$2,797,704 | \$10,401,744 | \$5,386,441 | \$1,193,918 |
| For women and girls..... | 1,441,558 | 4,263,325 | 2,773,975 | 1,443,717 |
| Total..... | 4,239,262 | 14,665,069 | 8,160,416 | 2,637,635 |

In 1920 the largest purchaser of American clothing for men and boys was Russia in Asia; Poland and Danzig, Canada, Mexico, and British South Africa in the order named followed.

Canada was the largest purchaser of clothing for women and girls; Poland and Danzig, Germany, Mexico, and France were the next best markets.

Important changes in classification.—This paragraph has been drawn to exclude all wearing apparel that is knitted or crocheted, these being provided for in paragraph 1115. The word "ready-made" has been omitted as unnecessary because this paragraph covers wearing apparel whether ready-made or custom-made. The scope of this paragraph has been extended beyond that of paragraph 291 of the act of 1913, and 382 of the act of 1909, by the provision that it shall include all wearing apparel made of wool "whether or not constituting chief value."

PARAGRAPH 1117.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1117. Oriental, Axminster, Savonnerie, Aubusson, and other carpets and rugs, not made on a power-driven loom; carpets and rugs of oriental weave or weaves, produced on a power-driven loom; chenille Axminster carpets and rugs, whether woven as separate carpets and rugs or in rolls of any width; all the foregoing, plain or figured, 5 cents per square foot and, in addition thereto, 30 per centum ad valorem.

ACT OF 1909.

PAR. 384. Aubusson, Axminster, moquette, and chenille carpets, figured or plain, and all carpets or carpeting of like character or description, sixty cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 391. Carpets of every description, woven whole for rooms, and Oriental, Berlin, Aubusson, Axminster, and similar rugs, ten cents per square foot and forty per centum ad valorem: *Provided*, That in the measurement of all mats, rugs, carpets and similar articles, of whatever material composed, the selvage, if any, shall be included.

ACT OF 1913.

PAR. 293. Aubusson, Axminster, moquette, and chenille carpets, figured or plain, and all carpets or carpeting of like character or description, 35 per centum ad valorem.

PAR. 300. Carpets of every description, woven whole for rooms, and Oriental, Berlin, Aubusson, Axminster, and similar rugs, 50 per centum ad valorem.

HANDMADE CARPETS AND RUGS, CHENILLE AXMINSTERS, ETC.

(See Survey K-6.)

Description and uses.—This paragraph includes the following types of carpets and rugs: (1) Handmade, usually knotted-pile fabrics; (2) machine-made knotted-pile fabrics; and (3) chenille Axminsters.

Handmade knotted-pile floor coverings include both the oriental and the European hand-tufted rugs. The term oriental rug includes the hand products not only of countries of the Near East, such as Persia and Turkey, but also similar products of India, China, and other countries of the Middle and Far East. This hand industry, as a whole confining its operations to the production of the finest qualities of handmade rugs, has managed to survive, although on a limited scale. Oriental rugs are usually produced in the home and with primitive appliances. The foundation threads are generally of linen or hemp and these are covered with a pile consisting of tufts of wool knotted to the warp by the weaver's fingers. The design required is produced by using tufts of different colors. Such rugs are fundamentally superior to machine-made goods in that the knot is the best method of securing the pile to the warp. The permanence thus secured, the individuality attaching to each rug because of manufacture by hand, and the oriental or exotic designs make them very popular.

European hand-tufted rugs are usually produced in workshops having improved appliances and where better materials are used than those employed in oriental rugs, but although the two varieties differ in design the details of their manufacture are essentially the same. Typical European hand-tufted rugs are the "real" Axminster, the Savonnerie, and the Aubusson; there are also less important varieties, such as the Berlin, which are not specifically mentioned.

Until recently it was thought impossible to develop a power loom which would make carpets and rugs of oriental weave; that is, with knotted pile. A loom has, however, been invented that produces a fabric of similar structure. Pile yarns are inserted vertically between the warp threads as required and knotted into place by a mechanical crossing and recrossing of alternate warp threads.* One such loom is in operation in the United States and there are two or three in Europe.

Chenille Axminsters are mainly high-priced articles and their manufacture, although on a power loom, closely approaches the handicraft method of production. The preparation of the chenille, or "fur" as it is known in the trade, necessitates the preliminary weaving of a special cloth which is cut in strips and twisted to make a tufted yarn. The loom has to be stopped while the fur is being aligned in position; it is then started up to throw in binding picks, and again stopped to align another row of fur. The loom therefore is operated only intermittently and considerable handwork is involved. The warp binder threads are of cotton; the stuffer or backing threads used in the warp are of jute; for weft threads which do not appear on the surface there may be used jute or coarse woolen yarns (the latter often containing a large percentage of hair).

* A technical description of this loom is to be found in the *Scientific American* of June 6, 1914.

The "Smyrna" rug resembles the chenille Axminster, although it is inferior; as yet, however, it is made only in this country. It is so woven that the chenille or fur projects on both sides, making a reversible piece of goods. The warp yarns are usually of cotton, and the filling yarns, which are inserted between the rows of fur, are usually of jute.

Production.—Handmade knotted-pile carpets and rugs are not made in the United States. One loom is in operation which produces a knotted-pile fabric very similar to the handmade article.

Chenille Axminster rugs, woven whole, were 178,000 square yards, valued at \$715,000 in 1914; and 310,000 square yards, valued at \$2,527,000 in 1919. Smyrna rugs, woven whole, were 822,000 square yards, valued at \$871,000, in 1914; and 808,000 square yards, valued at \$1,914,000, in 1919.

Imports.—Imports which would be dutiable under the wording of paragraph 1117 are not determinable precisely owing to the listing of imports of chenille Axminsters with other machine-made Axminsters. Imports listed as "carpets woven whole for rooms, and oriental, Berlin, Aubusson, Axminster, and other similar rugs" would practically all fall under paragraph 1117. Imports by calendar years since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|-------------------|-------------|-----------|------------------|
| CARPETS WOVEN WHOLE FOR ROOMS, AND ORIENTAL, BERLIN, AUBUSSON, AXMINSTER, AND OTHER SIMILAR RUGS. | | | | |
| | <i>Sq. yards.</i> | | | <i>Per cent.</i> |
| 1918 | 268,897 | \$1,257,399 | 1,802,869 | 50 |
| 1919 | 391,592 | 2,529,692 | 1,264,846 | 50 |
| 1920 | 920,453 | 7,808,031 | 3,904,015 | 50 |
| 1921 (9 months) | 694,741 | 4,964,253 | | |
| AUBUSSON, AXMINSTER, MOQUETTE, AND CHENILLE CARPETS, AND CARPETS AND CARPETING OF LIKE CHARACTER. | | | | |
| 1918 | 43,397 | \$220,269 | \$77,064 | 35 |
| 1919 | 55,898 | 290,487 | 101,874 | 35 |
| 1920 | 223,535 | 993,077 | 347,577 | 35 |
| 1921 (9 months) | 194,351 | 865,414 | | |

¹ Includes 511 square yards, valued at \$3,295, imported under emergency tariff act of 1921.

² Includes 799 square yards, valued at \$1,951, imported under emergency tariff act of 1921.

Exports are not recorded.

Important changes in classification.—The number of tariff paragraphs heretofore devoted to carpets and rugs of wool—for instance, 11 in the act of 1909 and the same number in the act of 1913—has been disproportionately large. In wording this bill it was decided to use only three paragraphs: One to cover wool carpets and rugs that are distinctively luxuries, another to include all other varieties of carpets and rugs made with the use of wool, and a third to cover special articles made from wool carpets or rugs. These paragraphs are numbered 1117, 1118, and 1119, respectively.

The intent of paragraph 1117 is to include only such carpets and rugs as are distinctively luxuries. Falling within this classification are handmade carpets and rugs such as the oriental, "real" Axmin-

ster, Savonnerie, and Aubusson, and also chenille Axminsters which, although made on a power loom, necessitate a large amount of hand-work and are costly goods which are in much the same class as hand-made goods. There is also included "carpets and rugs of oriental weave or weaves, produced on a power-driven loom." The term "oriental weave or weaves" means woven similar to the oriental; that is, with knotted pile. This provision at present covers the product of only one loom, that invented by J. K. Dalkranian, but is inserted because of possible future developments in the production of knotted-pile carpets by machinery.

The compensatory duty of 5 cents per square foot is based on evidence obtained in a careful study of the domestic carpet industry by the Tariff Commission. (See Tariff Information Survey K-6, "Carpets and rugs of wool.") The average weight of wool yarn per square yard in the chenille Axminsters reported to the commission was 3.82 pounds, and statements from the trade show that on an average about 60 pounds of yarn were produced from 100 pounds of carpet wool in the condition in which imported. The maximum duty applicable to carpet wool entered under paragraph 1101 would be 7 cents a pound. The duty paid on the wool required per pound of yarn would therefore be 7 divided by 0.60, or 11 $\frac{2}{3}$ cents. The wool duty for a square yard of chenille Axminster would be 11 $\frac{2}{3}$ \times 3.82, or 44.57 cents per square yard, and this divided by 9 is 4.95 cents per square foot. A round figure of 5 cents per square foot was therefore suggested and adopted for the compensatory duty. This is considered liberal, particularly as much of the carpet wool dutiable under paragraph 1101, would, by virtue of the ad valorem clause, pay less duty than 7 cents a pound.

PARAGRAPH 1118.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1118., Axminster carpets and rugs, not specially provided for, and carpets and rugs of like character or description, 2 cents per square foot; Wilton carpets and rugs, and carpets and rugs of like character or description, 3 cents per square foot; Brussels carpets and rugs, and carpets and rugs of like character or description, 2 cents per square foot; velvet and tapestry carpets and rugs, and carpets and rugs of like character or description, 1 $\frac{1}{2}$ cents per square foot; and, in addition thereto, on all the foregoing, 25 per centum ad valorem.

Ingrain carpets, and ingrain rugs or art squares, of whatever material composed, and carpets and rugs of like character and description, not specially provided for, 1 cent per square foot and, in addition thereto, 20 per centum ad valorem.

All other floor coverings, including mats and druggets, not specially provided for.

H. R. 7456.

SENATE AMENDMENTS.

composed wholly or in part of wool, whether or not constituting chief value, 2 cents per square foot and, in addition thereto, 25 per centum ad valorem.

Parts of any of the foregoing shall be dutiable at the rate provided for the complete article.

ACT OF 1909.

PAR. 384. * * * Axminster, moquette, and chenille carpets, figured or plain, and all carpets or carpeting of like character or description, sixty cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 385. Saxony, Wilton, and Tournay velvet carpets, figured or plain, and all carpets or carpeting of like character or description, sixty cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 386. Brussels carpets, figured or plain, and all carpets or carpeting of like character or description, forty-four cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 387. Velvet and tapestry velvet carpets, figured or plain, printed on the warp or otherwise, and all carpets or carpeting of like character or description, forty cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 388. Tapestry Brussels carpets, figured or plain, and all carpets or carpeting of like character or description, printed on the warp or otherwise, twenty-eight cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 389. Treble Ingrain, three-ply, and all chain Venetian carpets, twenty-two cents per square yard and in addition thereto 40 per centum ad valorem.

PAR. 390. Wool Dutch and two-ply ingrain carpets, 18 cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 392. Druggets and bockings, printed, colored, or otherwise, twenty-two cents per square yard and in addition thereto forty per centum ad valorem.

PAR. 393. Carpets and carpeting of wool, * * * not specially provided for in this section, * * * fifty per centum ad valorem.

PAR. 394. Mats, rugs for floors, * * * * * besides, art squares, and other portions of carpets or carpeting made wholly or in part of wool, and not specially provided for in this section, shall be subjected to the rate of duty herein imposed on carpets or carpetings of like character or description.

ACT OF 1913.

PAR. 293. * * * Axminster, moquette, and chenille carpets, figured or plain, and all carpets or carpeting of like character or description, 35 per centum ad valorem.

PAR. 294. Saxony, Wilton, and Tournay velvet carpets, figured or plain, and all carpets or carpeting of like character or description, 30 per centum ad valorem.

PAR. 295. Brussels carpets, figured or plain, and all carpets or carpeting of like character or description, 25 per centum ad valorem.

PAR. 296. Velvet and tapestry velvet carpets, figured or plain, printed on the warp or otherwise, and all carpets or carpeting of like character or description, 30 per centum ad valorem.

PAR. 297. Tapestry Brussels carpets, figured or plain, and all carpets or carpeting of like character or description, printed on the warp or otherwise, 20 per centum ad valorem.

PAR. 298. Treble ingrain, three-ply, and all-chain Venetian carpets, 20 per centum ad valorem.

PAR. 299. Wool Dutch and two-ply ingrain carpets, 20 per centum ad valorem.

PAR. 301. Druggets and bockings, printed, colored, or otherwise, 20 per centum ad valorem.

PAR. 302. Carpets and carpeting of wool * * * or composed in part of either of them [wool or cotton], not specially provided for in this section, * * * 20 per centum ad valorem.

PAR. 303. Mats, rugs for floors, * * * * * besides, art squares, and other portions of carpets or carpeting, composed wholly or in part of wool, and not specially provided for in this section, shall be subjected to the rate of duty herein imposed on carpets or carpeting of like character or description.

CARPETS AND RUGS, N. S. P. F.

(See Survey K-6.)

Description and uses.—The carpets and rugs covered by this paragraph may be divided into four classes.

(1) Axminster carpets and rugs, not specially provided for, signifies Axminsters other than the handmade ("real") Axminsters and the chenille Axminsters. The machine-made Axminsters here covered are sometimes known as "spool" Axminsters, a term derived from the fact that the pile yarns are, in weaving, drawn from wide spools, each spool being as wide as the loom. The spool Axminster is an imitation of the oriental weave, in that the pile threads are drawn from outside and not formed from the warp; it differs from it in that the pile is not knotted to the warp threads but inserted around a filling thread and bound in by additional filling threads. It is made with uncut loop pile. The materials consist of cotton or linen for the binding warp; jute for stuffer warp, float and bottom or back weft; cotton, linen, or jute for top and binding weft; and worsted yarn of good quality for the fur or tufts. Weight and firmness are supplied by the jute and cotton threads and the worsted yarn gives the surface only.

(2) Wilton, Brussels, velvet, and tapestry carpets form a distinct class, being warp-pile fabrics having a foundation made with warp and filling and a surface made of an extra set of warp threads woven over wires.

The Wilton is a cut-pile fabric and the better varieties rank among the highest examples of machine-made floor coverings. The warp is usually of cotton and the weft yarns of either cotton or jute. The extra warp threads to form the piles are drawn from superimposed frames of spools at the back of the loom; the spools in each frame are usually of a single color and the fabric therefrom known as a "five-frame" or "six-frame" Wilton; the larger the number of frames the greater variation of color and design obtainable. These pile-warp threads may be either woolen or worsted yarn. The term Saxony usually signifies a Wilton made with woolen pile yarns.

The Brussels is a loop (uncut) pile fabric, durable and of high quality. It is made in much the same manner as the Wilton, drawing the dyed warp-pile yarns from frames of spools at the back of the loom, but differing in construction in certain details. The pile is always worsted yarn; the warp is of jute, and the weft yarns of linen or jute; sometimes jute stuffer threads are inserted to give greater bulk and weight to the goods.

Velvet (sometimes known as tapestry velvet) is a cut-pile fabric made in imitation of the Wilton but cheaper and less durable. Instead of a design formed from dyed warp-pile yarns, the pattern is printed on the pile warp. As this printed pile is used only for the surface there is a smaller proportion of wool and a larger proportion of jute and cotton than is the case in Wiltons in which the dyed pile when not used to form pile is buried in the body of the fabric. Tournay velvet is a type of velvet carpeting of fine quality.

Tapestry (sometimes known as tapestry Brussels) is a loop (uncut) pile fabric made in imitation of the Brussels. The pattern is printed on the warp and this, as for velvet, permits a greater economy of wool; the fabric produced is cheaper but less durable than the Brussels.

(3) Ingrain carpets differ from all the preceding in that they are not pile fabrics but multiple cloths. The primary meaning of the term "ingrain" is "dyed in the grain"; that is, yarn dyed. Ingrain carpets are composed of two or more webs, each with its own warp and filling of a distinctive color. The superimposed webs are interlaced in weaving and the design is secured by bringing to the surface, from either the warp or the filling, the color required. Three-ply or treble ingrain has three sets of warp and filling interlaced; it is possible in this type to have six colors, a different one for each warp and filling, instead of four as in two-ply ingrain. Venetian is an inexpensive ingrain carpet, made with worsted or cotton warp and jute filling, and used only for stairs and hallways. The warp predominates on the face to such an extent that it is sometimes known as "all-chain" (meaning "all-warp") Venetian. Ingrain rugs woven in one piece are known as art squares. "Wool Dutch," a term now obsolete, was used to designate a coarse heavy carpet, woven in stripes and similar in appearance to ingrain. Production of the old-fashioned wool ingrain carpeting has practically ceased in this country; but the production of fiber (paper) and wool and fiber floor coverings on ingrain looms has grown to large proportions.

(4) "All other floor coverings, including mats and druggets, not specially provided for, composed wholly or in part of wool, whether or not constituting chief value" is a basket clause that covers a number of miscellaneous floor coverings. Mats are small rugs not longer than 36 inches and not wider than 18 inches. A mat or small rug for use at the side of a bed is a "bedside," but this term is now rarely used. The term "druggets," also "bockings," a more obsolete term, was formerly used to mean coarse woolen cloths, felted or woven, used for floor coverings; druggets now usually signify a lighter woven cloth that is used to cover carpets in summer time or to substitute therefor. Felt carpets are included in this catch-all provision.

Production in 1914 and 1919 was recorded by the Federal Census as follows:

| Carpets and rugs. | Quantity. | | Value. | |
|-------------------------------------|-----------------|-----------------|--------------|--------------|
| | 1914 | 1919 | 1914 | 1919 |
| | <i>Sq. yds.</i> | <i>Sq. yds.</i> | | |
| Axminster and moquette..... | 15,742,000 | 14,700,000 | \$18,579,000 | \$35,503,000 |
| Wilton..... | 5,616,000 | 4,959,000 | 11,930,000 | 23,431,000 |
| Brussels..... | 2,895,000 | 785,000 | 3,986,000 | 2,188,000 |
| Tapestry velvet..... | 13,228,000 | 9,865,000 | 12,867,000 | 20,626,000 |
| Tapestry Brussels..... | 13,615,000 | 9,996,000 | 9,853,000 | 13,119,000 |
| Ingrain, including art squares..... | 8,973,000 | 1,956,000 | 3,406,000 | 1,770,000 |
| Wool and paper..... | 4,169,000 | 6,329,000 | 1,543,000 | 6,248,000 |
| Colonial or rag..... | | 290,000 | | 505,000 |
| All other..... | 1,302,000 | 1,498,000 | 933,000 | 2,246,000 |
| Total..... | 65,340,000 | 50,873,000 | 63,097,000 | 105,636,000 |

If the chenille Axminster and Smyrna types (dutiable under par. 1117) be added, the grand total for the American production of carpets and rugs is 66,340,000 square yards, valued at \$64,683,000, in 1914; and 51,991,000 square yards, valued at \$110,077,000, in 1919. As this decrease in quantity of production was accompanied by a greater

decrease in imports and is a continuation of a decline that began earlier (for instance, production in 1904 totaled 82,670,000 square yards and in 1909, 81,219,000 square yards), it is evident that the demand for carpets and rugs in general is declining in this country. This is largely explained by two factors, the increasing use of hardwood floors, requiring less carpeting, and the substitution of other styles of floor covering, such as felt base fabrics, linoleums, and grass rugs.

In spite of this decline the United States continues to rank as the world's largest producer of carpets and rugs of wool.

Imports of machine-made carpets and rugs of wool constitute less than 1 per cent of the domestic production. Imports of goods covered by this paragraph during the fiscal years ended June 30, 1914 and 1919, were as follows:

| Carpets and rugs. | Quantity. | | Value. | |
|---|-----------------|-----------------|----------|---------|
| | 1914 | 1919 | 1914 | 1919 |
| | <i>Sq. yds.</i> | <i>Sq. yds.</i> | | |
| Axminster and moquette..... | (1) | (1) | (1) | (1) |
| Wilton, Saxony, and Tournay velvet..... | 34,606 | 1,126 | \$64,851 | \$5,857 |
| Brussels..... | 6,760 | 122 | 8,110 | 468 |
| Velvet and tapestry velvet..... | 41,467 | 2,484 | 88,050 | 15,971 |
| Tapestry Brussels..... | 8,730 | 11,779 | 7,083 | 13,568 |
| Ingrain..... | 9,372 | 10,481 | 7,150 | 353 |
| All other..... | 56,543 | 8,272 | 66,538 | 9,390 |
| Total ² | 157,478 | 34,264 | 234,782 | 44,607 |

¹ Imports of spool Axminsters here dutiable not recorded separately. See imports under preceding paragraph.

² Exclusive of spool Axminsters.

It is obvious from the above that imports of Wilton, Brussels, velvet, tapestry, ingrain, and other machine-made carpets included under this paragraph are too small to affect the domestic market.

Exports of machine-made carpets and rugs included under this paragraph are not recorded separately but are now larger than imports. As an indication, Canadian statistics for the fiscal year ended March 31, 1921, record imports of carpets and rugs from the United States valued at \$71,509, in addition to \$198,696 worth of "Oriental and handwoven squares" which, as they are not made in the United States, were probably reexports.

Important changes in classification.—The intent of this paragraph is to cover all carpets and rugs which contain any wool, other than those that are strictly luxuries provided for in paragraph 1117; but the first two sentences of the paragraph are not restricted to wool.

This paragraph includes (1) Axminsters, other than the handmade and the chenille Axminsters; (2) warp-pile, such as the Wilton, Brussels, velvet, and tapestry; (3) ingrain; and (4) all other floor coverings, not specially provided for, which contain any wool.

The floor coverings thus covered in one paragraph concisely worded have in past acts required several paragraphs and these were worded more loosely and contained terms which are to-day obsolete or else designations of varieties covered by other terms.

Terms used in previous acts and here omitted include moquette (a variety of spool Axminster); Saxony (a variety of Wilton); Tour-

ny velvet (a variety of velvet); two-ply, three-ply, treble, all-chain Venetian, and wool Dutch (all varieties of ingrain); bocking (an obsolete term for a coarse woollen cloth similar to the drugget); and bedsides (small mats or rugs). There has also been omitted the perplexing phrase "carpets woven whole for rooms," as well as the phrase "rugs for floors," and the Tariff Commission recommendation was adopted to omit any differentiation between carpets and rugs and to base the tariff classifications solely on method of manufacture.

The compensatory duties used for wool pile carpets in this paragraph were derived by calculations similar to that stated in paragraph 1117. They are based on the highest duty (7 cents a pound) applicable to carpet wool under paragraph 1101, and a yield of 60 pounds of yarn from 100 pounds of carpet wool in the condition imported. The calculations, and compensatory duties based thereon, are as follows:

| | Average weight of wool yarn per square yard of carpet. | Duty paid on wool. | | | Compensatory duty suggested per square foot of carpet. |
|----------------------------|--|------------------------|--------------------------------|--------------------------------|--|
| | | In each pound of yarn. | In each square yard of carpet. | In each square foot of carpet. | |
| | <i>Pounds.</i> | <i>Cents.</i> | <i>Cents.</i> | <i>Cents.</i> | <i>Cents.</i> |
| Axminster, n. s. p. f..... | 1.42 | 11½ | 16.57 | 1.84 | 2 |
| Wilton..... | 2.31 | 11½ | 26.95 | 2.99 | 3 |
| Brussels..... | 1.52 | 11½ | 17.85 | 1.98 | 2 |
| Velvet..... | .96 | 11½ | 10.62 | 1.18 | 1½ |
| Tapestry..... | .47 | 11½ | 5.48 | 0.69 | 1½ |

These compensatory duties are considered liberal, particularly as much of the carpet wool dutiable under paragraph 1101 would, by virtue of the ad valorem clause, pay less duty than 7 cents a pound.

Ingrain carpets and rugs are assigned a compensatory duty of 1 cent per square foot. Wool yarns used in such goods are generally of the poorest class of carpet wools, the duty on which, under paragraph 1101, would generally be less than 7 cents a pound. At present only a small amount of wool ingrain is made in this country; in most ingrains the yarns are now in part or in whole of "fiber" (paper).

"All other" floor coverings cover various types and the compensatory duty has been made the same as that assigned to Brussels and spool Axminsters on the assumption that they will be mostly medium grade goods with approximately the same percentage of wool to total weight.

Specific mention of carpets and carpeting of cotton, n. s. p. f. (par. 393, act of 1909, and 302, act of 1913), has been omitted, with the intent that these shall fall under the basket proviso in paragraph 1020.

PARAGRAPH 1119.

H. R. 7456.

SENATE AMENDMENTS.

Par. 1119. Screens, hassocks, and all other articles composed wholly or in part of carpets or rugs, and not specially provided for, 22 per centum ad valorem

ACT OF 1909.

PAR. 394. * * * screens, covers, hassocks, * * * made wholly or in part of wool, and not specially provided for in this section, shall be subjected to the rate of duty herein imposed on carpets or carpetings of like character or description.

ACT OF 1913.

PAR. 303. * * * screens, covers, hassocks, * * * composed wholly or in part of wool, and not specially provided for in this section, shall be subjected to the rate of duty herein imposed on carpets or carpeting of like character or description.

ARTICLES MADE FROM CARPETS.

Description and uses.—Carpets and rugs are not infrequently used in making other articles. Screens made of such materials are here dutiable, as also are hassocks, which are thick, hard cushions used for footstools. These are mentioned specifically only as an indication of the scope of the paragraph, which would include any article made in whole or in part from carpets or rugs.

Production, imports, and exports are not separately recorded.

Important changes in classification.—This paragraph is a modification of a part of paragraphs 394, act of 1909, and 303, act of 1913, and is intended to secure separate enumeration of articles made from carpets and rugs. This provision would include articles made wholly or in part of carpets or rugs, whatever the materials might be, and whether or not any wool be used. It does not include any such floor coverings themselves.

PARAGRAPH 1120.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1120. All manufactures not specially provided for, composed of wool or of which wool is a component part, whether or not constituting chief value, 25 per centum ad valorem.

ACT OF 1909.

PAR. 378. On * * * all manufactures of every description made wholly or in part of wool, not specially provided for in this section, valued at not more than forty cents per pound, the duty per pound shall be three times the duty imposed by this section on a pound of unwashed wool of the first class; valued at above forty cents per pound and not above seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto, upon all the foregoing, fifty per centum ad valorem; valued at over seventy cents per pound, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class and fifty-five per centum ad valorem.

ACT OF 1913.

PAR. 288. * * * all manufactures of every description made, by any process, wholly or in chief value of wool, not specially provided for in this section, 35 per centum ad valorem; * * *

PAR. 308. * * * and all manufactures of every description made by any process, wholly or in chief value of the hair of the Angora goat, alpaca, and other like animals, not specially provided for in this section, 40 per centum ad valorem.

PAR. 289. Blankets, * * * composed wholly or in chief value of wool, 25 per centum ad valorem; * * *

ACT OF 1909.

ACT OF 1913.

PAR. 379. * * * On blankets composed wholly or in part of wool, valued at more than fifty cents per pound, the duty per pound shall be three times the duty imposed by this section on one pound of unwashed wool of the first class, and in addition thereto forty per centum ad valorem. * * * *Provided*, That on blankets over three yards in length the same duties shall be paid as on cloths.

BASKET PARAGRAPH OF WOOL SCHEDULE.

Description and uses.—The basket paragraph for the wool schedule is intended to cover miscellaneous articles, in whole or in part of wool, which are not individually important enough to be specially provided for. Among the items covered are articles of furniture in chief value of wool; fancy baskets composed of willow or metal and wool; cotton quilts with wool fringe; dolls' wigs of goat hair attached to a cotton foundation; dusters having strips of wool cloth attached to a wooden handle; hat crowns of wool and silk; musical instrument key pads of leather, cotton, and wool; penwipers, for use or for ornament, containing wool; and scapulars of wool and cotton, with religious emblems printed thereon. It also includes manufactures of woven felt, such as endless belts used by paper makers; all blankets, containing wool, other than those mentioned in paragraph 1112, and carriage and automobile robes, steamer rugs, and the like.

Production.—It is impossible to make up an inclusive total of domestic output for contrast with imports under a basket paragraph. However, the production of carriage robes was 1,768,000 square yards, valued at \$1,231,000, in 1914; and 2,197,000 square yards (2,470,000 pounds), valued at \$3,845,000, in 1919; the production of endless belts, largely paper makers' felts, was valued at \$4,164,186 in 1914.

Imports of manufactures of wool not specially provided for were valued at \$658,337 in the fiscal year 1914, and at \$1,112,678 in the calendar year 1920. These figures can hardly be used in contrast, however, since the list of unenumerated articles under paragraph 1120 of H. R. 7456 will be somewhat different from that of preceding acts.

Exports are not recorded.

Important changes in classification.—Heretofore manufactures of wool not specially provided for have been included in paragraphs (such as 378 of 1909 and 288 of 1913) which also covered other goods specifically mentioned. A basket or catchall paragraph is here provided, in accordance with the logical arrangement usual in the other textile schedules, to include all manufactures, in whole or in part of wool, which are not provided for elsewhere.

Inasmuch as many of these miscellaneous articles, such as fancy baskets, wooden-handled dusters, musical instrument key pads, etc., would be in part of other materials, it was considered inadvisable to attempt a compensatory wool duty based on the total weight of the article, or to have a compensatory wool duty based on the weight of wool contained in the article, as this latter would in many instances involve destructive analysis. For these reasons the duty on such miscellaneous articles is made a straight ad valorem.

The wool schedule of H. R. 7456 provides for manufactures *in part* of wool, whereas the wool schedule of the tariff act of 1913 requires manufactures to be wholly or *in chief value* of wool. The other textile schedules require cotton, flax, silk, etc., to be in chief value. The general rule of construction is that a provision for manufactures in chief value of a material is more specific than a provision for manufactures in part of a material. However, in prior tariff acts an exception has been made of manufactures in part of wool. Thus, in the act of 1897 there was a proviso to paragraph 391 reading:

Provided, That all manufactures, of which wool is a component material, shall be classified and assessed for duty as manufactures of wool.

And in the act of 1909 there was a proviso to paragraph 403 reading:

Provided, That all manufactures of silk enumerated under any paragraph of this schedule, if composed in any part of wool, shall be classified and assessed for duty as manufactures of wool.

There is no such provision in the act of 1913.

Under H. R. 7456 as passed by the House of Representatives, articles in chief value of some other textile than wool, or in chief value of india rubber, might be held not to come within the wool schedule, although in substantial part of wool, in cases where the same descriptive terms, such as "wearing apparel" or "manufactures", are used in the paragraph requiring the particular material to constitute chief value of the article and in the paragraph permitting the particular component material to constitute a minor part of the article. Thus a provision for "manufactures in chief value of india rubber" might govern as against a provision for "manufactures in part of wool," but a different situation would be presented if the competing provisions were such as "wearing apparel in part of wool," and "manufactures in chief value of india rubber", (or of any other material other than wool). The expression "whether or not constituting chief value" in H. R. 7456 is, however, broader in form than usual.

Suggested changes.—Because there is no compensatory duty, a straight ad valorem duty does not give fancy blankets, traveling rugs, etc., the equality of treatment accorded other manufactures of wool that are specially provided for. It is suggested that, in lieu of a compensatory duty in this paragraph, paragraph 1112 be extended to include, in such form as desired, all blankets, carriage robes, steamer rugs, and the like.

If a compensatory duty is inserted in this basket paragraph, it is suggested that the wording be changed to cover only manufactures wholly or in chief value of wool.

If paragraph 1120 should be construed to apply to importations having wool in any quantity, however small, as a component part, merchandise might be manufactured for the express purpose of avoiding a higher rate of duty than 25 per cent, such as cotton tapestries and other jacquard figured upholstery goods, carrying 30 per cent ad valorem under paragraph 908. Substitution of the word "substantial" for "component" before "part" in line 21, page 125, of H. R. 7456, would require something more than a negligible part such as a few picks of wool in a silk tie.

PARAGRAPH 1121.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1121. Whenever in this title the word "wool" is used in connection with a manufactured article of which it is a component material, it shall be held to include wool or hair of the sheep, camel, Angora goat, alpaca, or other like animals, whether manufactured by the woolen, worsted, felt, or any other process.

ACT OF 1909.

PAR. 395. Whenever, in any schedule of this Act, the word "wool" is used in connection with a manufactured article of which it is a component material, it shall be held to include wool or hair of the sheep, camel, goat, alpaca or other animal, whether manufactured by the woolen, worsted, felt, or any other process.

ACT OF 1913.

PAR. 304. Whenever in this section the word "wool" is used in connection with a manufactured article of which it is a component material, it shall be held to include wool or hair of the sheep, camel, or other like animals, whether manufactured by the woolen, worsted, felt, or any other process.

Important changes in classification.—In the act of 1913, manufactures of hair of the Angora goat, alpaca, and other like animals are provided for separately from manufactures of wool or hair of the sheep, camel, and other like animals. Paragraph 1121 of H. R. 7456 eliminates such separate provision and restores paragraph 395 of the act of 1909, with the word "like" inserted between "other" and "animals" and "Angora" before "goat."

This paragraph deals with the hair covering of certain animals and not with the animals themselves; therefore the expression "other like animals" does not mean animals which are like the sheep, camel, Angora goat, or alpaca in build or appearance, but those which are like them in the wool or hair which they produce. (*Bloomingtondale v. United States*, 8 Ct. Cust. Appls., 104, of 1917.) Animal hair which is dissimilar in its characteristics and uses to the above—for instance, hair of the horse and cattle—is provided for in paragraph 1579.

A true fur does not differ materially from a true wool, which, like fur, is a modified form of hair and is distinguished by its fine, soft, and curly nature and by pointed scales or plates attached to the filament. Hair which is so short that it is commercially unfit to be spun into yarn or for the making of textiles, and is chiefly employed in the making of furs or fur garments, or for other fur uses, is that kind of hair which is known as fur, though it be taken from the back of a sheep. Hair which possesses all the characteristics of fur, but is so long and of such quality that it can be spun into yarn and converted into cloth and is chiefly used for that purpose, should be classified as a wool or hair other than fur. (*Bloomingtondale v. United States*, *supra*.) Undressed furs are provided for in paragraph 1573.

Suggested changes.—Litigation is now pending as to whether the hair of the Cashmere goat is more "similar" to that of the Angora goat than to that of the camel. It might therefore be well to insert in paragraph 1121 (and also in par. 1102, the words "Cashmere goat" after the words "Angora goat.")

PARAGRAPH 1122.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1122. All samples of manufactures of wool which are not admitted under bond for exportation within six months shall be subject to the same rates of duty and the same valuation as the manufactured articles which they are intended to represent.

ACT OF 1909.

[No corresponding provision.]

ACT OF 1913.

[No corresponding provision. Subsec. 4 of par. J of Section IV, however, exempts from duty "samples solely for use in taking orders for merchandise."]

Suggested changes.—This is a new provision in the wool schedule. It is peculiarly difficult of administration, especially in appraisement. In Title III, section 311, of H. R. 7456, provision is made for samples solely for use in taking orders for merchandise.

REVENUE TARIFF SCHEDULES

SCHEDULE 12.—SILK AND SILK GOODS.

PARAGRAPH 1201.

H. R. 7456.

PAR. 1201. Silk partially manufactured from raw silk, waste silk, or cocoons, and silk noils exceeding two inches in length, not twisted or spun, 35 cents per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 25 per centum ad valorem.

ACT OF 1909.

SCHEDULE L.—SILKS AND SILK GOODS.

PAR. 396. Silk partially manufactured from cocoons or from waste silk, and not further advanced or manufactured than carded or combed silk, thirty-five cents per pound.

SENATE AMENDMENTS.

ACT OF 1913.

SCHEDULE L.—SILKS AND SILK GOODS.

PAR. 811. Silk partially manufactured from cocoons or from waste silk and not further advanced or manufactured than carded or combed silk, and silk noils exceeding two inches in length, 20 cents per pound.

RAW SILK PARTIALLY MANUFACTURED.

(See Survey L-1.)

Description.—Raw silk passes through only a few stages in the course of its manufacture into thrown silk; therefore possible imports of silk partially manufactured from cocoons are practically limited to silk wound on spools or tubes.

Production.—The winding of silk on spools or tubes in the United States is a preliminary operation to "throwing" (see par. 1203, p. 1013), and hence practically none is offered for sale.

Imports.—See below under "Silk Waste Partially Manufactured."

Exports are not recorded and are probably nil.

SILK WASTE PARTIALLY MANUFACTURED.

(See Survey L-1.)

Description and use.—Where silk waste (par. 1650) in course of conversion into spun silk has gone through any or all of the processes up to but not including roving, it is dutiable under this paragraph. Until recently waste silk degummed by boiling seems to have been dutiable under the paragraph, but in *Smillie v. United States*, 11 Ct. Cust. Appeals, —; T. D. 38966, of 1922, it has been held that waste silk so degummed is not advanced in manufacture and thus comes in duty-free as silk waste. (See par. 1650, p. 1430.) Dressed and combed silk, known as peignée, is the only important article of commerce covered by this paragraph; it is useful only in the further processes of silk spinning.

Production.—The making of waste silk into peignée involves numerous technical processes requiring highly skilled adult male

labor. Domestic spinners prefer to make their own peigné, and there is no domestic output for sale. It is estimated that about 7,300,000 pounds were produced here in 1920. In Europe little is manufactured in excess of needs of European spinners. The same was true of Japan until the World War. Japanese producers during that period, however, enlarged their peigné-making capacity without proportionately increasing their spinning facilities. In recent years they have been installing additional spindles in order to sell spun silk instead of peigné.

Imports.—Imports prior to 1917 averaged less than 1,000 pounds annually. With American participation in the war, there was an enormous Government requirement for cartridge bag cloth made from noil yarn or coarse spun silk yarn (see par. 1202). The demand caused a shortage of peigné. As low-grade coarse yarn was needed, the peigné furnished by the newly expanded Japanese industry was used. In 1918 and subsequent years, moreover, domestic spinning facilities were expanded somewhat more rapidly than peigné-making facilities, and the Japanese product was also imported to make up for the deficiency thus arising in the domestic supply. Furthermore there has recently been established here a spun-silk plant owned by the European spun silk combination and importing its peigné from Europe. The results will be seen in the following statistics of imports of partially manufactured silk, chiefly peigné.

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-----------|----------|------------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 478,716 | \$995,450 | \$95,743 | 9.62 |
| 1919..... | 717,953 | 2,089,493 | 143,591 | 6.87 |
| 1920..... | 479,044 | 1,552,732 | 95,809 | 6.17 |
| 1921 (9 months)..... | 583,967 | 1,848,986 | | |

Imports in 1919, the year of largest entry, were probably about 10 per cent of domestic production.

Exports are not recorded.

LONG SILK NOILS.

(See Survey L-1.)

Description and use.—Silk noils are the short fibers removed when silk waste is dressed. Those above 2 inches in length, known as long silk noils, are capable of being redressed or combed; shorter lengths can not be so used, and are admitted free as silk waste (par. 1650).

Production is not recorded.

Import statistics do not appear separately, being included in the figures for imports given under "Silk Waste Partially Manufactured;" they constitute, however, only a small percentage of this item.

Exports.—None.

Important changes in classification.—The corresponding paragraphs in the act of 1909 (par. 396) and in the act of 1913 (par. 311) do not cover waste silk advanced beyond the peigné state; sliver and roving, intermediates between peigné and spun silk, came in under the basket paragraph of Schedule L (pars. 403 of 1909, and 318 of 1913) at a higher rate of duty than either peigné or spun silk. In H. R. 7456

sliver comes within this paragraph (1201); roving, within paragraph 1202 at the same rate of duty as spun silk.

Suggested changes.—If it is desired to bring degummed silk under the operation of this paragraph, the following changes are suggested:

(1) In line 11, page 126: Insert after "manufactured" a comma and the words "including total or partial degumming" followed by a comma.

(2) In line 13, page 126: Change the comma after "length" to a semicolon and insert the words "all the foregoing" before the word "not."

PARAGRAPH 1202.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1202. Spun silk or schappe silk yarn, and roving, in skeins, cops or warps, if not bleached, dyed, colored, or advanced beyond the condition of singles, by grouping or twisting two or more yarns together on all numbers up to and including number 205, 45 cents per pound and in addition thereto ten one-hundredths of 1 cent per number per pound; exceeding number 205, 45 cents per pound, and in addition thereto fifteen one-hundredths of 1 cent per number per pound; if advanced beyond the condition of singles by grouping or twisting two or more yarns together, at the rate on the single yarn and in addition thereto 5 cents per pound cumulative; if bleached, dyed, or colored, at the rate on unbleached yarn and in addition thereto 10 cents per pound cumulative: *Provided*, That any of the foregoing on bobbins, spools, or beams shall pay the foregoing rates, according to the character of the yarn or roving, and in addition thereto 10 cents per pound: *Provided further*, That none of the foregoing shall pay a less rate of duty than 26 per centum ad valorem. In assessing duty on all spun silk or schappe silk yarn and roving, the number indicating the size of the yarn or roving shall be determined by the number of kilometers that weigh one kilogram, and shall, in all cases, refer to the size of the singles: *And provided further*, That in no case shall the duty be assessed on a less number of yards than is marked on the skeins, bobbins, cops, spools, or beams.

ACT OF 1909.

ACT OF 1913.

PAR. 397. Spun silk or schappe silk yarn, valued at not exceeding one dollar per pound, whether in singles, or advanced beyond the condition of singles by grouping or twisting two or more yarns together, thirty-five cents per pound; if valued at exceeding one dollar per pound, in the gray, in skeins, warps, or cops, if in

PAR. 312. Spun silk or schappe silk yarn, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1918.

singles or not advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, forty-five cents per pound, and in addition thereto ten one-hundredths of one cent per number per pound; exceeding number two hundred and five, forty-five cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound; if advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, fifty cents per pound, and in addition thereto ten one-hundredths of one cent per number per pound; exceeding number two hundred and five, fifty cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound; if valued at exceeding one dollar per pound, in the gray, on bobbins, spools, or beams, if in singles or not advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, fifty-five cents per pound, and in addition thereto ten one-hundredths of one cent per number per pound; exceeding number two hundred and five, fifty-five cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound; if advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, sixty cents per pound, and in addition thereto ten one-hundredths of one cent per number per pound; exceeding number two hundred and five, sixty cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound; if valued at exceeding one dollar per pound, colored, bleached, or dyed, in skeins or warps, if in singles or not advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, fifty-five cents per pound, and in addition thereto ten one-hundredths of one cent per number per pound; exceeding number two hundred and five, fifty-five cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound; if advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, sixty cents per pound, and in addition thereto ten one-hun-

ACT OF 1909.

ACT OF 1913.

dredths of one cent per number per pound; exceeding number two hundred and five, sixty cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound; if valued at exceeding one dollar per pound, colored, bleached, or dyed, on bobbins, cops, spools, or beams, if in singles or not advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, sixty-five cents per pound, and in addition thereto ten one-hundredths of one cent per number per pound; exceeding number two hundred and five, sixty-five cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound; if advanced beyond the condition of singles by grouping or twisting two or more yarns together, on all numbers up to and including number two hundred and five, seventy cents per pound, and in addition thereto ten one-hundredths of one cent per number per pound; on all numbers exceeding number two hundred and five, seventy cents per pound, and in addition thereto fifteen one-hundredths of one cent per number per pound. In assessing duty on all spun silk or schappe silk yarn, the number indicating the size of the yarn shall be taken according to the metric or French system, and shall, in all cases, refer to the size of the singles: *Provided*, That in no case shall the duty be assessed on a less number of yards than is marked on the skeins, bobbins, cops, spools, or beams. But in no case shall any of the goods enumerated in this paragraph pay less rate of duty than thirty-five per centum ad valorem.

ROVING.

(See Survey L-1.)

Description and uses.—Silk roving—a loosely compressed rope of fibers in which has been inserted a slight twist—is the product of the process which, in the conversion of waste silk into spun silk, immediately precedes spinning; it is of use only for spinning into yarn.

Production.—The amount of silk roving produced in the United States is approximately equal to the production of spun silk. (See p. 1011.) It is produced as an intermediate in the manufacture of spun silk, and hence none is offered for sale.

Imports have never been separately recorded; they have been negligible.

Exports are not recorded.

Important changes in classification.—See page 1012.

SPUN SILK.

(See Survey L-1.)

Description and uses.—Spun silk or schappe yarn is manufactured from waste silk by a series of highly technical processes, chiefly dressing and drawing, the products of which are covered by paragraph 1201; and roving and spinning, the products of which are covered by paragraph 1202. Spun silk is employed principally in velvets and plushes, piece-dyed broad silks, wool-mixed fabrics, and knit goods; its use is rapidly expanding. A low grade of spun-silk yarns, called noil yarn, made from exhausted silk noils, is used in cartridge-bag cloth and in various wool and silk goods; a shortage of noil yarn during the war caused the substitution of coarse spun silk yarns.

There are two general systems for numbering spun silk. In the metric system, used on the Continent of Europe, the count indicates the number of thousand meters per kilogram, and is based on the singles. In the English system, which is more generally used in this country, the count indicates the number of 840-yard hanks to the pound. The latter system is similar to the cotton-yarn numbering so far as single yarn is concerned, but is different for ply yarn, where cotton is based on the single and spun silk on the finished yarn.

Production.—In recent years the industry, almost wholly in the hands of seven large producers, has rapidly expanded both in volume and in variety of output. In 1914 there were reported 101,382 active spindles engaged in spun silk production; in 1919, 187,306. In 1914 the output for sale was 1,607,416 pounds; in 1919, 3,957,000 pounds (1,764,000 pounds of single and 2,193,000 of ply yarns). Including that for manufacturers' own use, the estimated production in 1914 was around 2,500,000 pounds; in 1919, 8,000,000 pounds; in 1920, 6,700,000 pounds. Until recently, American spinners have manufactured yarns chiefly of coarse or medium size from high-grade wastes, which require in their production less skill and labor per unit than do fine yarns or yarns from low-grade waste. They now, however, manufacture on a large scale fine yarns from high-grade waste and are slowly developing their manufacture from low-grade waste.

Other leading producers are France, Switzerland, the United Kingdom, Italy, Germany, and Japan. Production in France, Switzerland, and Italy is largely by three concerns which work in close cooperation and which supply the bulk of American imports. The war greatly stimulated coarse spun silk and noil yarn spinning in Japan.

Imports.—Imports of spun silk, which supply about one-third of the present annual consumption, are used chiefly in the manufacture of velvets, where fine yarns made of low-grade waste are preferred. Before the war this type of yarn was not produced here, but recently domestic spinners have, to a limited extent, undertaken its production; this branch of the domestic industry is, however, not yet entirely out of the experimental stage. In the decade 1901 to 1910 (fiscal year) the average annual import was 2,226,324 pounds;

in the decade 1911 to 1920, 2,943,000 pounds. The latest import figures are given below:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-------------|-------------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 2,146,897 | \$6,261,871 | \$2,191,655 | 35 |
| 1919..... | 2,255,235 | 9,548,871 | 3,342,105 | 35 |
| 1920..... | 2,864,264 | 13,164,585 | 4,607,605 | 35 |
| 1921 (9 months)..... | 1,625,346 | 4,880,746 | ..... | 35 |

General imports for nine months in 1921 were as follows:

| Month. | Quantity. | Value. | Month. | Quantity. | Value. |
|---------------|----------------|-----------|----------------------|----------------|-----------|
| | <i>Pounds.</i> | | | <i>Pounds.</i> | |
| January..... | 94,756 | \$328,353 | July..... | 265,327 | \$785,653 |
| February..... | 90,320 | 290,592 | August..... | 223,467 | 597,633 |
| March..... | 134,850 | 432,726 | September..... | 132,658 | 345,777 |
| April..... | 328,000 | 842,793 | Total for 9 months.. | 1,823,728 | 5,110,730 |
| May..... | 316,469 | 765,839 | | | |
| June..... | 242,831 | 721,309 | | | |

The chief sources of imports are Switzerland, France, the United Kingdom, and Italy. Germany was, before the war, also an important source. Imports from Japan, except for the calendar year 1918, when there were fairly large purchases of coarse spun silk and noil yarns for Army uses from that country, have always been less than 50,000 pounds annually.

Exports are not separately recorded and are probably negligible.

Important changes in Classification.—Roving is for the first time placed in this paragraph (1202). In the acts of 1909 and of 1913 it came in like sliver (see par. 1201 above), under the basket paragraph of Schedule L (pars. 403 of 1909, and 318 of 1913), at a higher rate of duty than that on the spun silk into which it was made.

In this paragraph (1202 of H. R. 7456) the bracket, contained in paragraph 397 of the act of 1909, covering yarns valued at not more than \$1.00 per pound, is omitted. Under the act of 1909 only 1 per cent or less of the total imports came in under this bracket and with present values there probably would be no importations thereunder. However, should prices fall to the 1913 level, very low-grade coarse tussah waste silk yarns and noil yarns would probably be below that value, and with this provision omitted would come in at a materially higher duty than they paid under the act of 1909, and at a materially higher ad valorem equivalent than most other yarns covered by paragraph 1202.

Suggested changes.—Strike out comma after the word "singles" in line 18, page 126, of H. R. 7456.

Page 126, line 19: Insert a comma after "together."

Page 126, line 20: Insert a comma after "pound."

Page 127, lines 1 and 2: Insert a comma after the word "yarn."

Page 127, line 13: Strike out the colon after "singles"; also the words "And provided further, That" and begin a sentence with "In," to agree with paragraphs 1203 and 1204.

PARAGRAPH 1203.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1203. Thrown silk in the gum, if singles, 50 cents per pound; if tram, 75 cents per pound; any of the foregoing containing more than thirty turns of twist per inch, and organzine, \$1 per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture, in addition to the rates herein provided, 50 cents per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 12½ per centum ad valorem. In no case shall the duty be assessed on a less number of yards than is marked on the goods as imported.

ACT OF 1909.

ACT OF 1913.

PAR. 398. Thrown silk in the gum, if singles, fifty cents per pound; if tram, seventy-five cents per pound; if organzine, one dollar per pound; and if ungummed, wholly or in part, or if further advanced by any process of manufacture, in addition to the rates herein provided, fifty cents per pound. * * *

PAR. 313. Thrown silk not more advanced than singles, tram, or organzine, * * * 15 per centum ad valorem.

THROWN SILK.

(See Survey L-1.)

Description and uses.—Thrown silk is a yarn made from raw silk by doubling and twisting or by twisting only. The more important thrown silks are known according to the method of manufacture, as "organzine" made by twisting separately two or more singles and then doubling and retwisting in the opposite direction; "tram," made by twisting together, usually with a slack twist, two or more raw-silk threads; crêpe, which is in structure a tram made with extra-hard twist; and "singles" (if hard twist, known as "poilè") consisting of raw silk singles twisted without doubling. Organzine is used chiefly for warp; tram, for filling; crêpe yarn, for crêpe fabrics; singles, for chiffons.

In the United States there are two methods of numbering thrown silk: (1) The English method based upon the weight (in drams) of a hank 1,000 yards in length; (2) the continental European method based upon the weight (in deniers) of a hank 450 meters long. To reduce denier counts to dram counts, divide the deniers by 17.44. Thus four-thread tram of 16/18 denier size is $17 \times 4 \div 17.44 = 3.90$ drams. There are 256 drams to the pound avoirdupois.

Production.—In 1914 a total of 13,869,000 pounds of raw silk was thrown on contract by commission throwsters and 4,070,401 pounds thrown for sale; in 1919 the amounts were 18,476,000 and 5,569,000 pounds, respectively. In neither year are figures presented for the large amount of thrown silk produced by weavers for their own use. The estimated total production for 1914 was 23,500,000 pounds; for 1919, 28,000,000 pounds. The United States is by far the greatest thrown silk producer and has an almost continuously increasing output.

Imports.—Imports of thrown silk have long formed a negligible proportion of domestic consumption. For the thirty years ended June 30, 1920, the average annual import was 34,213 pounds, valued at \$116,322. The record import of the period was in 1917, when there were imported 125,495 pounds, a quantity probably a little less than one-half of one per cent of domestic production. The latest import data are presented below:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 30,146 | \$230,354 | \$34,553 | 15 |
| 1919..... | 12,599 | 126,303 | 19,021 | 15 |
| 1920..... | 95,355 | 929,494 | 139,424 | 15 |
| 1921 (9 months)..... | 23,580 | 204,719 | ..... | 15 |

Exports are not recorded and are probably small.

Important changes in classification.—In the act of 1909 (par. 398) three types of thrown silk were differentiated: Singles, tram, and organzine. Crêpe yarn (i. e., hard twist tram), although costing more to produce than organzine, was subject, as tram, to a lower rate of duty than organzine. In H. R. 7456, crêpe yarn comes within the provision for singles, and tram "containing more than 30 turns of twist per inch" is given the same rate of duty as organzine.

In 1909 (par. 398) and in 1913 (par. 313) thrown silk and sewing silk were included in the same paragraph. For uniformity with other textile schedules, as well as on account of their distinct character and uses, the two products are placed in separate paragraphs in H. R. 7456.

PARAGRAPH 1204.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1204. Sewing silk, twist, floss, and silk threads or yarns of any description, made from raw silk, not specially provided for, if in the gum, \$1 per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 20 per centum ad valorem; if ungummed, wholly or in part, or if further advanced by any process of manufacture, \$1.50 per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 26 per centum ad valorem. In no case shall the duty be assessed on a less number of yards than is marked on the goods as imported.

ACT OF 1909.

ACT OF 1913.

PAR. 398. * * * Sewing silk, twist, floss, and silk threads or yarns of any description made from raw silk, not specially provided for in this section, if in the gum, one dollar per pound; if ungummed wholly or in part, or if further advanced by any process of manufacture, one dollar and fifty cents per pound: *Provided*, That in no case shall duty be assessed on a less number of yards than is marked on the skeins, bobbins, cops, spools, or beams.

PAR. 313. * * * sewing silk, twist, floss, and silk threads or yarns of every description made from raw silk, 15 per centum ad valorem.

SEWING SILK, TWIST, FLOSS, ETC.

(See Survey L-1.)

Description and uses.—Sewing silk is a thread made by winding and doubling silk, giving it a hard twist, and doubling and twisting again in reverse direction under a strong tension; it is used for hand sewing. Twist is a thread resembling sewing silk, but is three-ply instead of two-ply; it is used for both machine and hand sewing, principally the former. Embroidery silk consists of numerous slackly twisted singles, doubled, and slackly twisted together in the reverse direction. Floss silk is a variety of embroidery silk composed of a large number of singles slackly twisted together.

Production.—Silk-thread production, the oldest branch of the domestic industry, has long supplied the bulk of domestic needs. It is carried on largely by automatic machinery. In 1914 the output of all kinds of silk and embroidery threads was 1,562,039 pounds, valued at \$9,681,613; in 1919, 1,326,000 pounds, valued at \$9,682,000. Silk thread has in recent years been steadily superceded by cotton thread, mercerized and unmercerized.

Imports.—In the fiscal year 1910 imports were 43,624 pounds, about 2.3 per cent of domestic production in the calendar year 1909. Since then imports have, except in 1920, been a fraction—usually a small fraction—of 1 per cent thereof. In the fiscal year 1914 they amounted to only 3,031 pounds, or less than one-fifth of 1 per cent. In the calendar year 1920 they amounted to 22,499 pounds, or 1.7 per cent, of the domestic production in 1919. Imports for the calendar years 1918–1921 are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|---------|--------|------------------|
| | Pounds. | | | Per cent. |
| 1918..... | 2,285 | 85,473 | \$821 | 15 |
| 1919..... | 5,302 | 24,295 | 8,644 | 15 |
| 1920..... | 22,499 | 135,155 | 20,273 | 15 |
| 1921 (9 months)..... | 800 | 5,724 | | |

Exports.—Exports are not separately reported but are larger than imports. Before the war there was a fair export to Australia and small shipments to a few other countries; since that time this trade has increased. Canada is now apparently the best market. Canadian statistics for the fiscal year ended March 31, 1921, record imports from the United States valued at \$407,313, as compared with imports from the United Kingdom valued at only \$173,026.

Important changes in classification.—In the act of 1909 (par. 398) and the act of 1913 (par. 313) sewing silk and thrown silk were included in the same paragraph. For uniformity with other textile schedules, as well as on account of their distinct character and uses, the two products are in H. R. 7456 placed in separate paragraphs.

PARAGRAPH, 1205.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1205. Woven fabrics in the piece, composed wholly or of chief value of silk, if dyed in the thread or yarn, and the weight is not increased in dyeing beyond the original weight of raw silk, if containing not more than 30 per centum in silk, \$1.25 per pound; if containing more than 30 per centum but not more than 45 per centum in weight of silk, \$1.60 per pound; if containing more than 45 per centum in weight of silk, \$3 per pound; if weight is increased in dyeing beyond the original weight of raw silk; if weighing more than one-third of one ounce but not more than one ounce per square yard, if black (except selvages), \$2.25 per pound; if other than black, \$3 per pound; if weighing more than one ounce but not more than one and one-third ounces per square yard, if black (except selvages), \$2 per pound; if other than black, \$2.75 per pound; if weighing more than one and one-third but not more than one and two-thirds ounces per square yard, if black (except selvages), \$1.80 per pound; if other than black, \$2.50 per pound; if weighing more than one and two-thirds but not more than two ounces per square yard, if black (except selvages), \$1.65 per pound; if other than black, \$2.25 per pound; if weighing more than two but not more than eight ounces per square yard, and if containing not more than 30 per centum in weight of silk, if black (except selvages), 75 cents per pound; if other than black, 90 cents per pound; if containing more than 30 per centum but not more than 45 per centum in weight of silk; if black (except selvages), \$1.10 per pound; if other than black, \$1.30 per pound; if containing more than 45 per centum in weight of silk, but not more than 60 per centum, if black (except selvages), \$1.40 per pound; if other than black, \$1.60 per pound; if containing more than 60 per centum in weight of silk, or if composed wholly of silk, and if having not more than four hundred and forty single threads to the inch in the warp; if black (except selvages), \$1.50 per pound; if other than black, \$2 per pound; if having more than four hundred and forty, but not more than six hundred single threads to the inch in the warp, if black (except selvages), \$1.65 per pound; if other than black, \$2.25 per pound; if having more than six hundred but not more than seven hundred and sixty single threads to the inch in the warp, if black (except selvages), \$1.80 per pound; if other than black, \$2.50 per pound; if having more than seven hundred and sixty, but

H. R. 7486.

SENATE AMENDMENTS.

more than nine hundred and twenty single threads to the inch in the warp, if black (except selvages), \$2 per pound; if other than black, \$2.75 per pound; if having more than nine hundred and twenty single threads to the inch in the warp, if black (except selvages), \$2.25 per pound; if other than black, \$3 per pound; if weighing more than 8 ounces per square yard, 33 $\frac{1}{2}$ per centum ad valorem.

Woven fabrics in the piece, composed wholly or in chief value of silk, not specially provided for, weighing not more than one-third of one ounce per square yard, \$4 per pound; weighing more than one-third of one ounce, but not more than two-thirds of one ounce per square yard, if in the gum, \$3 per pound; if ungummed, wholly or in part, \$3.25 per pound; if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$3.50 per pound; if weighing more than two-thirds of one ounce, but not more than one ounce per square yard, if in the gum, \$2.65 per pound; if ungummed, wholly or in part, \$3 per pound; if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$3.25 per pound; if weighing more than one ounce, but not more than one and one-third ounces per square yard, if in the gum, \$2.50 per pound; if ungummed, wholly or in part, \$2.85 per pound; if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$3.10 per pound; if weighing more than one and one-third ounces, but not more than two and one-half ounces, and if containing not more than 20 per centum in weight of silk, if in the gum, 75 cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, 85 cents per pound; if containing more than 20 per centum, but not more than 30 per centum in weight of silk, if in the gum, 85 cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$1.10 per pound; if containing more than 30 per centum, but not more than 40 per centum in weight of silk, if in the gum, \$1.05 per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$1.25 per pound; if containing more than 40 per centum, but not more than 50 per centum in weight of silk, if in the gum, \$1.25 per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$1.50 per pound; if

H. R. 7452.

SENATE AMENDMENTS.

containing more than 50 per centum in weight of silk or if wholly of silk, if in the gum, \$2.50 per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$3 per pound; if weighing more than two and one-half ounces, but not more than eight ounces per square yard, and if containing not more than 20 per centum in weight of silk, if in the gum, 57½ cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, 70 cents per pound; if containing more than 20 per centum but not more than 30 per centum in weight of silk, if in the gum, 75 cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, 90 cents per pound; if containing more than 30 per centum, but not more than 40 per centum in weight of silk, if in the gum, 90 cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$1.10 per pound; if containing more than 40 per centum, but not more than 50 per centum in weight of silk, if in the gum, \$1.10 per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, \$1.30 per pound; if containing more than 50 per centum in weight of silk, or if wholly of silk, if in the gum, \$2.25 per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture, or otherwise, or if dyed or printed in the piece, \$2.75 per pound.

Woven fabrics in the piece, composed wholly or in chief value of silk, having threads or yarns whether in the warp or filling containing more than thirty turns of twist to the inch, or woven on Jacquard looms, or having more than one color in the filling, shall pay, in addition to the foregoing specific rates, 25 cents per pound. None of the foregoing fabrics in this paragraph shall pay a less rate of duty than 31 per centum ad valorem.

ACT OF 1909.

PAR. 399. * * * Woven fabrics in the piece, composed wholly or in chief value of silk, not specially provided for in this section, weighing not more than one-third of one ounce per square yard, four dollars per pound; weighing more than one-third of one ounce, but not more than two-thirds of one ounce per square yard; if in the gum, three dollars per pound; if un-

ACT OF 1913.

PAR. 318. Woven fabrics, in the piece or otherwise, of which silk is the component material of chief value, * * * not specially provided for in this section, 45 per centum ad valorem.

ACT OF 1908.

ACT OF 1918.

gummed, wholly or in part, three dollars and twenty-five cents per pound; if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, three dollars and fifty cents per pound; if weighing more than two-thirds of one ounce but not more than one ounce per square yard; if in the gum, two dollars and sixty-five cents per pound; if ungummed, wholly or in part, three dollars per pound; if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, three dollars and twenty-five cents per pound; if weighing more than one ounce but not more than one and one-third ounces per square yard; if in the gum, two dollars and fifty cents per pound; if ungummed, wholly or in part, two dollars and eighty-five cents per pound; if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, three dollars and ten cents per pound; if weighing more than one and one-third ounces, but not more than two and one-half ounces, and if containing not more than twenty per centum in weight of silk, if in the gum, seventy cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, eighty-five cents per pound; if containing more than twenty per centum, but not more than thirty per centum in weight of silk; if in the gum, eighty-five cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, one dollar and ten cents per pound; if containing more than thirty per centum, but not more than forty per centum in weight of silk; if in the gum, one dollar and five cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, one dollar and twenty-five cents per pound; if containing more than forty per centum, but not more than fifty per centum in weight of silk; if in the gum, one dollar and twenty-five cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, one dollar and fifty cents per pound; if containing more than fifty per centum in weight of silk or if wholly of silk; if in the gum, two dollars and fifty cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, three dollars per pound; if weighing more than two and one-half ounces, but not more

ACT OF 1909.

ACT OF 1918.

than eight ounces per square yard, and if containing not more than twenty per centum in weight of silk; if in the gum, fifty-seven and one-half cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, seventy cents per pound; if containing more than twenty per centum, but not more than thirty per centum in weight of silk; if in the gum, seventy-five cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, ninety cents per pound; if containing more than thirty per centum, but not more than forty per centum in weight of silk; if in the gum, ninety cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, one dollar and ten cents per pound; if containing more than forty per centum, but not more than fifty per centum in weight of silk; if in the gum, one dollar and ten cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, one dollar and thirty cents per pound; if containing more than fifty per centum in weight of silk, or if wholly silk; if in the gum, two dollars and twenty-five cents per pound; if ungummed, wholly or in part, or if further advanced by any process of manufacture or otherwise, or if dyed or printed in the piece, two dollars and seventy-five cents per pound.

* * * Woven fabrics in the piece, composed wholly or of chief value of silk, if dyed in the thread or yarn, and the weight is not increased in dyeing beyond the original weight of raw silk, if containing less than thirty per centum in silk, one dollar and twenty-five cents per pound; if containing more than thirty per centum but not more than forty-five per centum in weight of silk, one dollar and sixty cents per pound; if containing more than forty-five per centum in weight of silk, three dollars per pound; if weight is increased in dyeing beyond the original weight of raw silk; if weighing more than one-third of one ounce, but not more than one ounce, per square yard; if black (except selvages), two dollars and twenty-five cents per pound; if other than black, three dollars per pound; if weighing more than one ounce, but not more than one and one-third ounces per square yard; if black (except selvages), two dollars per pound; if other than black, two

ACT OF 1909.

ACT OF 1913.

dollars and seventy-five cents per pound; if weighing more than one and one-third but not more than one and two-thirds ounces per square yard; if black (except selvages), one dollar and eighty cents per pound; if other than black, two dollars and fifty cents per pound; if weighing more than one and two-thirds but not more than two ounces per square yard; if black (except selvages), one dollar and sixty-five cents per pound; if other than black, two dollars and twenty-five cents per pound; if weighing more than two but not more than eight ounces per square yard, and if containing not more than thirty per centum in weight of silk; if black (except selvages), seventy-five cents per pound; if other than black, ninety cents per pound; if containing more than thirty per centum but not more than forty-five per centum in weight of silk; if black (except selvages), one dollar and ten cents per pound; if other than black, one dollar and thirty cents per pound; if containing more than forty-five per centum in weight of silk, but not more than sixty per centum; if black (except selvages), one dollar and forty cents per pound; if other than black, one dollar and sixty cents per pound; if containing more than sixty per centum in weight of silk, or if composed wholly of silk, and if having not more than four hundred and forty single threads to the inch in the warp; if black (except selvages), one dollar and fifty cents per pound; if other than black, two dollars per pound; if having more than four hundred and forty, but not more than six hundred single threads to the inch in the warp; if black (except selvages), one dollar and sixty-five cents per pound; if other than black, two dollars and twenty-five cents per pound; if having more than six hundred, but not more than seven hundred and sixty single threads to the inch in the warp; if black (except selvages), one dollar and eighty cents per pound; if other than black, two dollars and fifty cents per pound; if having more than seven hundred and sixty, but not more than nine hundred and twenty single threads to the inch in the warp; if black (except selvages), two dollars per pound; if other than black, two dollars and seventy-five cents per pound; if having more than nine hundred and twenty single threads to the inch in the warp; if black (except selvages), two dollars and twenty-five cents per pound; if other than black, three dollars per pound; if printed in the warp and weighing not more than one and one-third ounces per square yard, three dollars and fifty cents per pound; weighing more than one and one-third but not more

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ACT OF 1913.

than two ounces per square yard, three dollars and twenty-five cents per pound; weighing more than two ounces per square yard, two dollars and seventy-five cents per pound.

But in no case shall any goods made on Jacquard looms or any goods containing more than one color in the filling, or any of the goods enumerated in this paragraph, including such as have India rubber as a component material, pay a less rate of duty than forty-five per centum ad valorem.

BROAD SILKS.

(See Survey L-3.)

Description and uses.—In value of imports and in revenue derived this is by far the most important paragraph of the silk schedule. All broad silks (i. e., woven silk fabrics in the piece over 12 inches in width), except bolting cloth (par. 1526), of which silk is the component material of chief value, are included in paragraph 1205, unless they are covered with pile (i. e., plushes and velvets, pars. 1206 and 1453); or are embroidered, tamboured, etc., or made wholly or in part of lace, netting, veiling, etc. (par. 1430). "Broad silks" are used for many purposes, particularly as women's dress goods, as linings, and as materials for shirts, ties, underclothing, furniture coverings, and draperies.

Production.—Broad silk manufacture, it is estimated, consumes about 50 per cent of raw silk imports and considerable quantities of spun silk, artificial silk, cotton, wool, and mohair yarns. The output of broad silks in 1914 was 216,034,000 yards, valued at \$137,720,000, or 54 per cent of the total value of all silk manufactures; in 1919, 307,104,000 yards, valued at \$391,225,000, or 44 per cent of the total value of all silk manufactures. From 1904 to 1914 yardage increased 73 per cent and value 105 per cent; from 1914 to 1919 yardage increased 42 per cent and value 184 per cent. The industry employed in 1919, 85,071 looms, while 7,829 additional looms were idle. In making woven-silk fabrics, skilled labor is essential, although a large proportion of women and girls of 16 years of age and older can be utilized. The bulk of domestic production consists of goods of standard weave, made from high quality silk, of coarse and medium sizes, permitting a high degree of machine manipulation and mass production. In recent years, however, domestic weavers have increased the variety of their product and have gone extensively into the manufacture of fancies such as are required in large quantities.

Imports.—Imports vary widely from year to year with seeming independence of tariff changes. The general tendency has in the past been for imports to supply a decreasing proportion of domestic consumption. Both in 1914 and 1919, however, they were in value about 7.2 per cent of domestic production, although in most intermediate years the percentage was evidently somewhat smaller. For the five fiscal years 1911 to 1915, inclusive, the average annual import was 1,872,577 pounds; for the five fiscal years 1916 to 1920, inclusive,

2,585,128 pounds, an average materially raised by the large import in 1919, which corresponds with the large domestic production of that year. Imports for the three calendar years 1918, 1919, and 1920 and for the first nine months of 1921 are shown below:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------------|-------------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,676,168 | \$10,645,113 | \$4,790,301 | 45 |
| 1919..... | 3,123,889 | 28,416,782 | 12,787,551 | 45 |
| 1920..... | 2,555,535 | 25,470,283 | 11,445,262 | 45 |
| 1921 (9 months)..... | 3,394,393 | 19,892,120 | ..... | 45 |

General imports in 1921 are shown by months, as follows:

| Month. | Quantity. | Value. | Month. | Quantity. | Value. |
|---------------|----------------|-------------|----------------|----------------|-------------|
| | <i>Pounds.</i> | | | <i>Pounds.</i> | |
| January..... | 202,358 | \$1,180,931 | June..... | 464,884 | \$2,624,528 |
| February..... | 285,542 | 1,797,909 | July..... | 437,048 | 2,465,451 |
| March..... | 420,513 | 2,643,703 | August..... | 333,020 | 1,716,091 |
| April..... | 566,927 | 3,279,057 | September..... | 290,752 | 1,536,772 |
| May..... | 617,165 | 3,337,922 | | | |

Since the fiscal year 1914 there has been a radical change in the relative importance of the different sources of broad silk imports. In that year 52.1 per cent of the total value of imports came from France; 12.2 per cent from Switzerland; 24.8 per cent from Japan; and 1 per cent from China. In the fiscal year 1921 the percentages were: Japan, 71.1; France, 10.3; China, 5.5; Switzerland, 4.8. In quantity Japan's predominance in 1921 is even greater. Accompanying this change in the source of imports, there has been almost as great a modification in their character. Fabrics obtained from Europe are chiefly expensive goods demanded because of style, unique design or construction, and because desired in small amounts, or because of complicated weave, requiring much labor, frequently hand weaving. In general, they are supplementary rather than directly competitive. Imports from China and Japan are ordinarily low and medium grade goods of simple weave, made from fine or coarse silk filaments. The silks imported from Japan are mainly habutae—an unweighted fabric woven of pure, unthrown (i. e., untwisted) raw silk—although considerable quantities of light-weight wash satins and crêpes, pongees, and striped and figured shirtings have in recent years come from that country. Considerably more than half of the total from Japan are light-weight habutae and light-weight wash satins such as are not made in the United States and therefore only indirectly competitive; the rest of them are heavy-weight habutae and other goods similar to those made in the United States and therefore directly competitive, although a considerable percentage is brought in from time to time to supply temporary shortages in domestic production. From China come chiefly pongees woven in the gum from wild tussah silk.

Exports have been recorded only for 1918 and subsequent years, and all available annual figures are therefore presented below. Before the war the export was small, consisting, except for a fairly

regular trade with Canada, of men's linings and a few other lines of specialties and goods sold for "quick delivery." Such exportation (except possibly that of linings) did not attest American ability to compete with similar goods in neutral markets. During the war the trade rapidly expanded, enlarged markets being found in Canada, Cuba, and South America, and to a limited extent in Europe. Since the war this export has been reduced by more than one-half, but is still far above the prewar level. It consists of satins, taffetas, crêpes, and other staples, and to a less extent of specialties of American origin. Much the largest market is Canada. Official trade figures for that country show that broad silk imports from the United States in the fiscal year ended March 31, 1920, amounted in value to \$7,270,981; in the fiscal year 1921, to \$2,961,727. From Japan the Canadian import was in 1920, \$6,938,400; in 1921, \$4,202,884. From Switzerland, the largest European source, Canada imported broad silks valued at \$5,165,531 in 1920 and at \$7,431,829 in 1921. Exports from the United States since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-----------------------|-------------|--------------|-------------|-----------------|
| Quantity (yards)..... | 10,623,304 | 8,983,647 | 5,645,038 | 2,356,742 |
| Value..... | \$9,671,058 | \$10,225,376 | \$8,775,079 | \$2,542,241 |

Important changes in classification.—The classification of silk fabrics in H. R. 7456 is, with two exceptions, the same as that in the act of 1909. The two exceptions are as follows:

(1) In H. R. 7456 the brackets contained in the act of 1909 covering fabrics printed in the warp, are omitted. This omission makes it doubtful where, in the various divisions of paragraph 1205, such fabrics will fall, and will, therefore, probably lead to litigation.

(2) A new departure in H. R. 7456 is the additional duty (of 25 cents per pound) superimposed upon all other specific duties in the case of the following types of fabrics:

(a) Those containing threads of more than 30 turns of twist to the inch—a provision which covers crêpe fabrics and a wide variety of other piece-dyed fabrics, some of them European specialties. Crêpe fabrics from Japan, however, make up the only very important import of goods containing this type of yarn, and that import is not more than 3 per cent—usually less—of the total import from that country and an even smaller percentage of the total import from all countries.

(b) Those made on Jacquard looms—a provision which covers most fancy figured fabrics. Imports from Europe consist largely of this type of goods; most of them coming from that source are high-priced specialties.

(c) Those containing more than one color in the filling—a provision which covers changeable taffeta and other box-loom specialties. Imports of these are small but regular.

Suggested changes.—Change "of" to "in" between "or" and "chief" in line 12, page 128, of H. R. 7456.

Page 128, line 15: Insert "weight of" before "silk,"

Page 129, line 12: Change semicolon after "silk" to a comma to agree with similar provisions elsewhere.

Page 129, lines 17, 18: Omit the phrase "or if composed wholly of silk" as unnecessary.

Page 129, line 19: Change semicolon after "warp" to a comma.

Page 129, line 21: Strike out comma after "four hundred and forty."

Page 130, line 4: Strike out comma after "sixty."

Page 130, line 11: Insert the following, which was in paragraph 399 of the act of 1909, and which was apparently inadvertently omitted:

Woven fabrics in the piece, composed wholly or in chief value of silk, if printed in the warp, and if weighing not more than one and one-third ounces per square yard [rate]; if weighing more than one and one-third ounces, but not more than two ounces per square yard [rate]; if weighing more than two ounces per square yard [rate].

Page 130, lines 13, 15: Insert "if" before "weighing" to agree with similar provisions elsewhere.

Page 132, lines 1, 2; page 133, line 1: Omit as unnecessary the phrase "or if wholly of silk."

Page 133, line 4: Change the period after "pound" to a semicolon, and add "if weighing more than eight ounces per square yard [rate]" to agree with lines 10 and 11, page 130. This was apparently inadvertently omitted.

Specific provision is not made for yarn-dyed fabrics advanced beyond the original weight of raw silk, weighing one-third and less of an ounce per square yard. Provision, therefore, might be made by striking out the words "more than one-third of one ounce but" in lines 19 and 20, page 128, thereby making the context read "if weighing not more than one ounce per square yard."

To avoid possible uncertainty, the last sentence (lines 11 and 12, page 133), "None of the foregoing fabrics in this paragraph shall pay a less rate of duty than 31 per centum ad valorem" should be made a paragraph and the word "foregoing" omitted therefrom.

PARAGRAPH 1206.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1206: Plushes, cut or uncut, composed wholly or in chief value of silk, weighing not less than nine and one-half ounces per square yard, \$1 per pound; weighing less than nine and one-half ounces per square yard, \$2.40 per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 33½ per centum ad valorem. Velvets, chenilles, and other pile fabrics, not specially provided for, cut or uncut, composed wholly or in chief value of silk, weighing not less than five and three-fourths ounces per square yard, \$1.50 per pound; weighing less than five and three-fourths ounces per square yard, but not less than

H. R. 7456.

SENATE AMENDMENTS.

four ounces, if all the filling is not cotton, \$2.75 per pound; if all the filling is cotton, \$2 per pound; all the foregoing weighing less than four ounces per square yard, \$4 per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 33½ per centum ad valorem. Measurements to ascertain widths of goods for determining weight per square yard of the foregoing articles shall not include the selvedge, but the duty shall be levied upon the total weight of goods, including the selvedges. The distinction between "plushes" and "velvets" shall be determined by the length of the pile; those having pile exceeding one-seventh of one inch in length to be taken as "plushes"; those having pile one-seventh of one inch or less in length shall be taken as "velvets." The distance from the end of the pile to the bottom of the first binding pick shall be considered as the length of the pile.

Velvet or plush ribbons, and all other pile fabrics, cut or uncut, composed wholly or in chief value of silk, not specially provided for, not over twelve inches and not less than three-fourths of one inch in width, containing no silk except that in the pile and selvedges; if black, \$1.60 per pound; if other than black, \$1.75 per pound; if containing silk other than that in the pile and selvedges; if black, \$2 per pound; if other than black, \$2.25 per pound; for each one-fourth of one inch or fraction thereof, less than three-fourths of one inch in width, there shall be paid in addition to the above rates, 40 cents per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 33½ per centum ad valorem.

ACT OF 1909.

PAR. 399. Velvets, chenilles, and other pile fabrics, not specially provided for in this section, cut or uncut, composed wholly or in chief value of silk, weighing not less than five and three-fourths ounces per square yard, one dollar and fifty cents per pound; weighing less than five and three-fourths ounces per square yard, but not less than four ounces, or if all the filling is not cotton, two dollars and seventy-five cents per pound; if all the filling is cotton, two dollars per pound; all the foregoing weighing less than four ounces to the square yard, four dollars per pound. Plushes, cut or uncut, composed wholly or in chief value of silk, weighing not less than nine and one-half ounces per square yard, one dollar per pound; weighing less than nine and one-half ounces per square yard, two dollars and forty cents per pound.

ACT OF 1913.

PAR. 314. Velvets, plushes, chenilles, velvet or plush ribbons, or other pile fabrics, composed of silk or of which silk is the component material of chief value, 50 per centum ad valorem:

PAR. 358. * * * coach, carriage, and automobile laces, * * * 60 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

Measurements to ascertain widths of goods for determining weight per square yard of the foregoing articles shall not include the selvages, but the duty shall be levied upon the total weight of goods, including the selvages. The distinction between "plushes" and "velvets" shall be determined by the length of the pile; those having pile exceeding one-seventh of one inch in length, to be taken as "plushes"; those having pile one-seventh of one inch or less in length, shall be taken as "velvets." The distance from the end of the pile to the bottom of the first binding pick shall be considered as the length of the pile. Velvet or plush ribbons, or other pile fabrics not over twelve inches and not less than three-fourths of one inch in width, cut or uncut, of which silk is the component material of chief value, not specially provided for in this section, containing no silk except that in the pile and selvages; if black, one dollar and sixty cents per pound; if other than black, one dollar and seventy-five cents per pound; if containing silk other than that in the pile and selvages; if black, two dollars per pound; if other than black, two dollars and twenty-five cents per pound; for each one-fourth of one inch or fraction thereof, less than three-fourths of one inch in width, there shall be paid in addition to the above rates, forty cents per pound. * * * But in no case shall any goods made on Jacquard looms or any of the goods containing more than one color in the filling, or any of the goods enumerated in this paragraph, including such as have India rubber as a component material, pay a less rate of duty than forty-five per centum ad valorem.

SILK PILE FABRICS.

(See Survey L-1.)

Description and uses.—Silk pile fabrics include cloths and ribbons composed of a woven ground of silk or other material more or less completely concealed by a covering of short silk threads, or pile, which project from it as cut ends or, in a few fabrics, as loops. Silk pile cloths are mainly velvets and plushes, which differ principally in that the pile of velvet is the shorter. Silk pile ribbons are almost invariably velvet. Velvets and plushes are usually woven as double pile fabrics, i. e., two cloths are woven one above the other, connected by the interlacing of pile warp threads. A knife traveling from side to side cuts the pile halfway between the two cloths, leaving each with its half of the pile. Silk velvets are used chiefly for women's garments and millinery purposes. Plushes serve for upholstery and decoration and for women's garments, especially imitation sealskins and other imitation furs. They are also used

for hats for both men and women, especially for men's high silk hats. If of the qualities and widths ordinarily used in making men's silk hats they are separately provided for. (See par. 1453.)

Chenille yarn is made by cutting a specially woven cloth into narrow strips and twisting the strips to produce a rough yarn from which the cut thread ends stick out in every direction. Fabrics woven of chenille yarn are used for curtains, rugs, upholstery, and as fringes for women's wear. Chenilles are a minor product.

Production.—From 1904 to 1914 production of silk velvet increased from 7,262,000 yards, valued at \$3,161,000, to 16,318,000 yards valued at \$8,570,022; of silk plushes, from 2,547,000 yards valued at \$1,341,000, to 9,115,000 yards, valued at \$10,136,000. For 1919, preliminary census figures show a production of 16,150,000 yards of silk velvets, valued at \$20,950,000, and of 5,860,000 yards of silk plush, valued at \$10,136,000. In the same year 2,144 active looms were reported as employed in the industry. Silk pile fabrics are as a rule made with cotton back or ground and spun silk pile; some all-silk velvets are made, mainly light draping velvets. Velvet-ribbon production is comparatively small, irregular demand making profit in manufacture uncertain.

Imports of broad pile fabrics are mainly fine all-silk velvets, produced only to a limited extent here; high-grade figured specialties, which American firms generally do not produce; and velvet ribbons, the import of which supplies a large proportion of domestic consumption. Imports of plush fabrics are small, usually one-tenth or less of the broad velvet import. The average annual import of all types of silk pile fabrics for the 30 years ended June 30, 1920, was 652,015 pounds, valued at \$2,496,817. In the fiscal year 1913, 864,714 pounds, valued at \$3,486,011, entered; in the fiscal year 1914, 740,795 pounds, valued at \$4,171,390. From that time through 1919, when only 95,807 pounds, valued at \$440,780, were imported, there was a steady decline. The year 1920 shows a considerable recovery, though in quantity the import was still less than half of the 1914 figure and about half of the 30-year annual average. Below are given statistics for the period 1918–1921:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate |
|----------------------|----------------|-----------|-----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$499,564 | \$219,782 | 44 |
| 1919..... | 213,405 | 1,145,620 | 572,810 | 50 |
| 1920..... | 311,121 | 2,279,698 | 1,139,849 | 50 |
| 1921 (9 months)..... | 151,196 | 1,157,110 | | |

France, England, Germany, and Switzerland are the chief sources of imports.

Velvet ribbons alone also showed a decline of from 140,304 pounds, valued at \$1,749,746, in 1914, to 59,902 pounds, valued at \$203,397, in 1919.

Imports of velvet or plush ribbons for the period 1918-1921 follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$172,169 | \$86,086 | 50 |
| 1919..... | 156,947 | 565,491 | 282,746 | 50 |
| 1920..... | 90,124 | 529,757 | 264,879 | 50 |
| 1921 (9 months)..... | 45,669 | 240,187 | | |

Exports are not recorded. A small export trade has grown up in broad pile fabrics, especially since the war, but its survival is questioned in the trade.

Suggested changes.—Page 134, line 19, of H. R. 7456: Change semicolon to a comma after "selvedges."

PARAGRAPH 1207.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1207. Fabrics with fast edges, wholly or in chief value of silk, not exceeding twelve inches in width, including ribbons, and articles made therefrom, tubings, garters, suspenders, braces, cords, tassels, and cords and tassels; all the foregoing composed wholly or in chief value of silk or silk and india rubber, if not embroidered in any manner by hand or machinery, and not specially provided for, 33½ per centum ad valorem.

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PAR. 401. Ribbons, bandings, including hatbands, beltings, bindings, all of the foregoing not exceeding twelve inches in width, and if with fast edges, bone casings, braces, cords, cords and tassels, garters, gorings, suspenders, tubings, and webs and webbings, composed wholly or in chief value of silk, and whether composed in any part of India rubber or otherwise, if not embroidered in any manner, by hand or machinery, fifty per centum ad valorem.

PAR. 316. Ribbons, bandings, including hatbands, belts, beltings, bindings, all of the foregoing not exceeding twelve inches in width and if with fast edges, bone casings, braces, cords, cords and tassels, garters, suspenders, tubings, and webs and webbings; all the foregoing made of silk or of which silk or silk and india rubber are the component materials of chief value, if not embroidered in any manner, and not specially provided for in this section, 45 per centum ad valorem.

PAR. 358. * * * coach, carriage, and automobile laces, * * * 60 per centum ad valorem.

SILK SMALL WARES, INCLUDING RIBBONS.

(See Survey L-1.)

RIBBONS.

Description.—Ribbons are narrow-woven fabrics with straight selvages. This paragraph applies only to ribbons wholly or in chief value of silk, or of silk and india rubber, with fast selvages, not over

12 inches in width, not embroidered, and not covered with pile. (See par. 1206.)

Production of ribbons in 1914 was valued at \$38,201,000; in 1919, at \$66,053,000. Between 1899 and 1914 the ratio of domestic production to domestic consumption increased from 83 to 93 per cent; it was over 99 per cent in 1919.

Imports from 1910-1918 had an average value of \$676,000; in 1914 the value was \$2,146,988; in 1918, \$105,483. Changes in fashion largely account for variations in imports, which consist mainly of extreme novelties, goods of complicated, multicolored weave, or of those with metal threads and similar articles, in which the element of hand labor is exceptionally high. These are required in quantities so small that American manufacturers do not care to concern themselves with their production. Imports are for the most part supplementary rather than competitive. Ribbons made from low-grade silk, though not produced here, are not extensively imported, their prices, plus the duty, equaling those of better-grade domestic ribbons.

Later imports are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|------------|----------|----------|------------------|
| | Yards. | | | Per cent. |
| 1918..... | | \$96,127 | \$45,357 | 45 |
| 1919..... | 1,196,128 | 182,082 | 81,923 | 45 |
| 1920..... | 10,484,874 | 989,661 | 445,347 | 45 |
| 1921 (9 months)..... | 3,728,910 | 421,957 | | |

Exports.—Small quantities of ribbons are exported, principally to Canada and Latin America.

OTHER SILK SMALL WARES.

Description and uses.—Small wares include, in addition to ribbons, practically all products of ribbon looms and some small articles which are not woven, such as cords and tassels. Many of the items enumerated are in whole or in part of elastic banding which has india-rubber threads woven into the warp.

Production statistics are only partially comparable. In 1914 silk braids and bindings valued at \$3,073,648 were reported; trimmings, cords, tassels, ornaments, etc., other than military and tailors' trimmings, valued at \$1,674,399; labels, at \$971,789; hatbands, at \$607,204; and fishlines, at \$177,150.

Imports.—During 1910-1914 the import value averaged \$567,000; in 1914 it was \$527,100; and in 1918, \$147,461. Hatbands, largely from Germany, formed 80 to 90 per cent of the imports prior to the war. In 1914 they amounted to \$484,369. Thus, although the imports of small wares as a whole are far below the total domestic production, they are competitive with one branch of the industry, because they consist so largely of one item. There has been some increase in the imports of hatbands in 1920 and 1921, and also of cords and tassels, principally from the Far East.

Imports since 1917 by calendar years are recorded as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months.) |
|------------|----------|----------|-----------|---------------------|
| Value..... | \$82,604 | \$80,264 | \$416,204 | \$218,925 |
| Duty..... | 37,171 | 36,118 | 187,291 | |

Exports.—None recorded.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—This small-wares paragraph is appropriately begun with the words "Fabrics with fast edges * * * not exceeding twelve inches in width * * * and articles made therefrom." In both manufacture and trade, woven fabrics wider than twelve inches are known as cloth.

The description covers all narrow woven wares and for the most part it is not necessary to provide for articles separately. The term "tubings" has been retained because tubings are a special form of narrow wares woven as tubes and therefore having no edges. "Bone casings" has been omitted as it is included under the term "tubings." Specific mention of "garters, suspenders, braces" is retained because if not mentioned here they might possibly be construed as belonging under wearing apparel. "Cords, tassels, and cords and tassels" are specifically mentioned because they are not woven fabrics and have heretofore been listed with woven small wares. "Tassels" is added because tassels alone were not covered by "cords" or "cords and tassels" in the act of 1913 (par. 316) and act of 1909 (par. 401). Narrow wares ornamented with embroidery or lace are more specifically provided for in paragraph 1430.

Suggested changes.—Page 135, lines 3 and 4: Omit words "wholly or in chief value of silk" because this is duplication of phrase in line 7.

Page 135, line 5, H. R. 7456: Change comma to semicolon after "therefrom."

Page 135, lines 8 and 9: Articles embroidered by hand or machine are specifically provided for in paragraph 1430 and the words here used "if not embroidered in any manner by hand or machinery" are unnecessary; such wording has been omitted from other paragraphs of the textile schedules.

PARAGRAPH 1208.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1208. Knit fabrics, in the piece, composed wholly or in chief value of silk, 35 per centum ad valorem; knit underwear, hose, half hose, and gloves, finished or unfinished, composed wholly or in chief value of silk, 40 per centum ad valorem; outerwear and other goods, knit or crocheted, finished or unfinished, composed wholly or in chief value of silk, 40 per centum ad valorem.

ACT OF 1909.

PAR. 402. * * * clothing ready made, and articles of wearing apparel of every description, including knit goods, made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer; all of the foregoing composed of silk, or of silk and metal, or of which silk is the component material of chief value, whether in part of India rubber or otherwise * * * not specially provided for in this section * * * sixty per centum ad valorem: *Provided*, That articles composed wholly or in chief value of any of the materials or goods dutiable under this paragraph shall pay not less than the rate of duty imposed upon such materials or goods by this section: * * *

PAR. 403. All manufacturers of silk, or of which silk is the component material of chief value, including such as have India rubber as a component material, not specially provided for in this section, fifty per centum ad valorem: * * *

ACT OF 1913.

PAR. 317. Clothing, ready-made, and articles of wearing apparel of every description, including knit goods, made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer: all the foregoing composed of silk or of which silk or silk and india rubber are the component materials of chief value, not specially provided for in this section, 50 per centum ad valorem.

PAR. 318. * * * manufactures of silk, or of which silk or silk and india rubber are the component materials of chief value, not specially provided for in this section, 45 per centum ad valorem.

SILK KNIT GOODS.

(See Survey L-1.)

Description and uses.—Silk knit fabrics are made on both warp and weft knitting machines. (See cotton knit fabrics, par. 913.) The warp knit fabric is made up in the mills into underwear and gloves and to some extent into hosiery, but as yet is not on the market for the use of the home dressmaker. Other silk knit fabrics are produced in great variety and are sold in the piece at retail as well as to the garment trade. This is a field of manufacture which is constantly enlarging, new and improved processes adding to the uses of silk knit fabric. Silk underwear made in the United States is almost entirely of warp knit silk fabric, variously known as glove silk, Italian silk, tricot, milanese, etc. Gloves are made of this same fabric. Silk hosiery is made by the same processes as cotton hosiery (par. 915). "Cut" silk hosiery, made of glove silk, however, is a much more important division of the industry than is "cut" cotton hosiery. Sweaters are probably the most important articles of knit outer wear, but silk knit scarfs, bathing suits, caps, blouses and even dresses are increasingly used.

Production.—The total production of silk knit goods increased from a value of \$41,262,000 in 1914 to \$234,927,000 in 1919. The items which constituted the total in 1919 were hosiery valued at \$125,710,000; underwear, \$13,742,000; outer wear, including gloves, \$88,926,000; and warp-knit "cloth," \$6,437,000. The outer wear group showed the greatest percentage of increase over 1909 production. The silk hosiery industry is largely full-fashioned, but considerable quantities of seamless silk hosiery are also produced, varying with the relation of silk to cotton prices. "Cut" silk hosiery is of the best quality and is made by the underwear and glove mills.

Imports of silk knit goods, recorded as one item, amounted to \$181,135 in 1914. Later imports are recorded as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------|
| 1918..... | \$14,259 | \$7,125 | Per cent. 50 |
| 1919..... | 68,098 | 34,047 | 50 |
| 1920..... | 146,289 | 73,135 | 50 |
| 1921 (9 months)..... | 145,606 | | |

Exports are not recorded.

Important changes in classification.—In H. R. 7456 silk knit goods are for the first time placed in a separate paragraph—a position warranted both by their importance and by the desirability of uniformity with other textile schedules. In the acts of 1909 and 1913 silk knit fabrics, nowhere specifically provided for, came in under the general provision of Schedule L contained in paragraph 403 of 1909 and paragraph 318 of 1913. In both these acts silk knit goods “made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer,” including hosiery, knit underwear and outer wear and other “made-up” knit goods—came under the general paragraph embracing clothing and articles of wearing apparel of silk (par. 402 of 1909 and par. 317 of 1913).

PARAGRAPH 1209.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1209. Handkerchiefs, and woven mufflers, composed wholly or in chief value of silk, finished or unfinished, not hemmed, 33½ per centum ad valorem; hemmed or hemstitched, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 400. Handkerchiefs or mufflers composed wholly or in chief value of silk, finished or unfinished, if cut, not hemmed or hemmed only, shall pay fifty per centum ad valorem; if such handkerchiefs or mufflers are hemstitched or imitation hemstitched, * * * sixty per centum ad valorem.

PAR. 315. Handkerchiefs or mufflers composed wholly or in chief value of silk, finished or unfinished; if cut, not hemmed or hemmed only, 40 per centum ad valorem; if hemstitched or imitation hemstitched, * * * but not embroidered in any manner with an initial letter, monogram, or otherwise, 50 per centum ad valorem.

SILK HANDKERCHIEFS.

(See Survey L-1.)

Description and uses.—There is not a steady demand for silk handkerchiefs as there is for those of cotton and linen. They are more susceptible to the vagaries of fad and fashion. During recent years large quantities of women's cheap silk handkerchiefs have flooded the markets, but fine silk handkerchiefs, except a few for sport wear, have been little used. There is a constant though small demand for certain types of men's silk handkerchiefs. In the bandanna size they are worn as mufflers. Silk handkerchiefs printed with flags, etc., are extensively made as souvenirs.

Silk handkerchiefs may be woven in the loom, two or three to the breadth, and then cut and finished; or they may be cut from silk cloth and hemmed or hemstitched, ironed, folded, and boxed for the trade. The material is chiefly habutai (Japanese), a pure, soft, plain-woven, unthrown washable silk. Crêpe de chine, a cloth of domestic manufacture, is also extensively used.

Production.—The manufacture of silk handkerchiefs is not a separate industry in the United States; it is carried on in conjunction with the manufacture of broad silks or of other kinds of handkerchiefs—production is small and varies with demand, but imports supply by far the larger part of the domestic market.

Imports of embroidered and other fancy silk handkerchiefs, formerly included under the same paragraph at the same rates as the hemstitched article, but now covered by paragraph 358 of the act of 1913, have been slight. The plain hemstitched silk handkerchief has been the chief grade imported, occasionally constituting over 80 per cent of the total. Imports of silk handkerchiefs "cut, not hemmed or hemmed only," seldom equaled 10 per cent of the total until 1916, but since then have increased noticeably. Prior to 1916 import values of silk handkerchiefs remained fairly stationary at between \$300,000 and \$400,000 a year, despite reduced duties on the principal type (hemstitched). Japan is the chief source, supplying over 90 per cent of the total imports.

Imports from 1918–1921 are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-------------|-----------|
| | <i>Dozens.</i> | | |
| 1918..... | | \$1,195,628 | \$554,429 |
| 1919..... | 1,668,944 | 1,616,140 | 751,826 |
| 1920..... | 1,077,082 | 1,602,584 | 735,870 |
| 1921 (9 months)..... | 699,048 | 818,782 | |

Exports are not recorded.

Important changes in classification.—Knitted mufflers have been transferred from this provision to paragraph 1208.

PARAGRAPH 1210.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1210. Shirt collars, composed in whole or in part of silk, whether natural or artificial, 50 cents per dozen and 20 per centum ad valorem.

ACT OF 1909.

PAR. 402. * * * clothing ready made, and articles of wearing apparel of every description, * * * made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer; all of the foregoing composed of silk, * * * or of which silk is the component material of chief value. * * * not specially provided for in this section. * * *

ACT OF 1913.

PAR. 317. Clothing, ready-made, and articles of wearing apparel of every description, * * * made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer; all the foregoing composed of silk or of which silk * * * are the component materials of chief value, not specially provided for in this section, 50 per centum ad valorem.

ACT OF 1909. ACT OF 1913.

sixty per centum ad valorem: *Provided*, That articles composed wholly or in chief value of any of the materials or goods dutiable under this paragraph shall pay not less than the rate of duty imposed upon such materials or goods by this section: * * *

PAR. 405. * * * articles * * * composed wholly or in chief value of yarns, threads, filaments, or fibers of artificial or imitation silk or of artificial or imitation horsehair, by whatever name known, and by whatever process made, forty-five cents per pound, and in addition thereto, sixty per centum ad valorem.

PAR. 319. * * * articles * * * composed wholly or in chief value of yarns, threads, filaments, or fibers of artificial or imitation silk or of artificial or imitation horsehair * * * by whatever name known, and by whatever process made, 60 per centum ad valorem.

SILK SHIRT COLLARS.

(See Survey I-2.)

Description and uses.—This paragraph is restricted to shirt collars in whole or in part of silk or artificial silk, and would not include fancy collars for women.

Production, import, and export data are not available. It is known, however, that silk shirt collars are a small item both of production and import. Exports are probably negligible.

Important changes in classification.—In H. R. 7456 silk and artificial-silk shirt collars are for the first time given specific mention. The reason for this departure is not clear. Shirt collars wholly or in chief value of silk came in under the general wearing-apparel paragraphs of the acts of 1909 (par. 402) and of 1913 (par. 317) and shirt collars wholly or in chief value of artificial silk under the paragraphs of those acts (405 of 1909 and 319 of 1913) for articles of artificial silk.

This paragraph and paragraph 1211 alone of the paragraphs of this schedule provide for goods containing silk or artificial silk, when not in sufficient quantity to constitute chief value. It, therefore, includes goods which came within other textile schedules of the acts of 1909 and 1913.

Conflict in classification.—Paragraph 1210 conflicts with paragraph 1016, which provides for shirt collars composed wholly or in part of flax.

Suggested changes.—Since silk and artificial-silk shirt collars are a small item of import, and as there is no apparent reason why they should be given separate treatment, it is suggested that this provision be omitted. These articles would then come within paragraph 1212 if wholly or in chief value of silk, and within paragraph 1215 if wholly or in chief value of artificial silk. Silk striped collars in chief value of cotton would come within paragraph 918.

PARAGRAPH 1211.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1211. Shirts, for men and boys, in whole or in part of silk, whether natural or artificial, 40 per centum ad valorem, but not less than 10 per centum in addition to the duty on the component materials.

ACT OF 1909.

PAR. 402. * * * clothing ready made, and articles of wearing apparel of every description, * * * made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer; all of the foregoing composed of silk, * * * or of which silk is the component material of chief value, * * * not specially provided for in this section, * * * sixty per centum ad valorem: *Provided*, That articles composed wholly or in chief value of any of the materials or goods dutiable under this paragraph shall pay not less than the rate of duty imposed upon such materials or goods by this section: * * *

PAR. 405. * * * articles * * * composed wholly or in chief value of yarns, threads, filaments, or fibers of artificial or imitation silk or of artificial or imitation horsehair, by whatever name known, and by whatever process made, forty-five cents per pound, and in addition thereto, sixty per centum ad valorem.

ACT OF 1913.

PAR. 317. Clothing, ready-made, and articles of wearing apparel of every description, * * * made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer; all the foregoing composed of silk or of which silk * * * are the component materials of chief value, not specially provided for in this section, 50 per centum ad valorem.

PAR. 319. * * * articles * * * composed wholly or in chief value of yarns, threads, filaments, or fibers of artificial or imitation silk or of artificial or imitation horsehair, * * * by whatever name known, and by whatever process made, 60 per centum ad valorem.

SILK SHIRTS FOR MEN AND BOYS.

(See Survey L-1.)

Production.—While no figures are available as to the exact amount of domestic production, it is known that silk shirt manufacture is a large and growing industry, and that a large proportion of cotton shirts contain a silk stripe or figure and come within this paragraph. Artificial silk shirtings, usually woven with a warp or filling of cotton, are not widely produced; fancy shirts, however, often contain artificial silk stripes or figures. Shirt factories at Paterson, N. J., reported the 1921 season one of the most successful ever known.¹

Imports.—The import of silk shirts is small in actual quantity and forms only a negligible proportion of domestic consumption. This is true, even if one include silk striped shirts with cotton the component material of chief value. A few silk shirts are imported by exclusive men's furnishing shops from England and France.

Exports are not recorded.

Important changes in classification.—In H. R. 7456 silk and artificial silk shirts are for the first time given specific mention. The reason for this departure is not clear, especially since the duty, with the exception of the minimum in the proviso, is the same as the duty on

¹ Daily News Record, Nov. 16, 1921.

wearing apparel in paragraph 1212. Shirts wholly or in chief value of silk came in under the general wearing-apparel paragraphs of the acts of 1909 (par. 402) and of 1913 (par. 317), and shirts wholly or in chief value of artificial silk under the artificial silk paragraphs of those acts (405 of 1909 and 319 of 1913).

This paragraph (1211) and the preceding paragraph (1210) alone of the paragraphs of this schedule provide that goods shall come within its scope if they contain any silk or artificial silk, even though not in sufficient quantity to constitute chief value. It therefore includes goods which came within other textile schedules of the acts of 1909 and 1913. The provision that the duty shall not be less than 10 per cent in addition to the duty on the component materials is ambiguous and might require destructive analysis to determine the exact weights of the various materials used. Samples can not be taken as in the case of fabrics.

Suggested changes.—Since silk and artificial silk shirts are a small item of import, since shirts are not specially provided for in other textile schedules, and moreover, since there is no apparent reason why they should be given separate treatment, it is suggested that the provision be omitted. Shirts in chief value of silk would then come within paragraph 1212 and those in chief value of artificial silk, within 1215. Shirts in which silk or artificial silk is not the component material of chief value come within wearing-apparel provisions according to the material of chief value.

PARAGRAPH 1212.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1212. Clothing, ready-made, and articles of wearing apparel of every description, not knit or crocheted, manufactured wholly or in part, composed wholly or in chief value of silk, and not specially provided for, 40 per centum ad valorem: *Provided*, That articles composed wholly or in chief value of any of the materials or goods dutiable under this paragraph shall pay not less than the rate of duty imposed upon such materials or goods by this title.

ACT OF 1909.

ACT OF 1913.

PAR. 402. * * * clothing ready made, and articles of wearing apparel of every description, * * * made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer; all of the foregoing composed of silk or of silk and metal, or of which silk is the component material of chief value, whether in part of India rubber or otherwise, * * * not specially provided for in this section, * * * sixty per centum ad valorem: *Provided*, That articles composed wholly or in chief value of any of the materials or goods dutiable under this paragraph shall pay not less than the rate of duty imposed upon such materials or goods by this section: * * *

PAR. 317. Clothing, ready-made, and articles of wearing apparel of every description, * * * made up or manufactured in whole or in part by the tailor, seamstress, or manufacturer; all the foregoing composed of silk or of which silk or silk and india rubber are the component materials of chief value, not specially provided for in this section, 50 per centum ad valorem.

SILK CLOTHING.

(See Survey I.-1.)

Description.—This paragraph includes all clothing and wearing apparel wholly or in chief value of silk, except knit goods (par. 1208), shirts for men and boys (par. 1211), and shirt collars (par. 1210).

Production.—All but a small percentage of the domestic consumption of silk wearing apparel is made in this country. No statistics are available, but the industry is undoubtedly larger in this than in any other country. More broad silk is produced in the United States and the wearing-apparel industry is the largest consumer of broad silks.

Imports.—Imports in 1914 were valued at \$2,607,596, including corsets, \$8,463; and ready-made clothing and articles of wearing apparel, \$2,599,133. Imports in 1918 were valued at \$967,860, of which corsets amounted to \$3,809, and ready-made clothing and articles of wearing apparel to \$964,051. Figures for ready-made clothing include shirts and shirt collars, specially mentioned in paragraphs 1210 and 1211.

Later imports for calendar years are recorded as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------|-----------|-------------|-------------|---------------------|
| Value..... | \$655,028 | \$1,173,168 | \$2,074,279 | \$1,234,611 |
| Duty..... | 326,706 | 585,060 | 103,004 | |

Exports.—A considerable export trade was built up during the war. Statistics were not recorded prior to 1918, since which time they show values of exports during calendar years as follows: 1918, \$3,634,861; 1919, \$7,435,929; 1920, \$11,224,687; 1921 (9 months), \$2,831,259.

Important changes in classification.—In H. R. 7456 the following silk goods and articles covered in the corresponding paragraphs of the acts of 1909 (par. 402) and 1913 (par. 317) are placed in other paragraphs:

- (1) Knit wearing apparel—underwear and outerwear—paragraph 1208.
- (2) Shirt collars, paragraph 1210.
- (3) Shirts for men and boys, paragraph 1211.

See discussion of "Important changes in classification" under those paragraphs.

Suggested changes.—The word "ready-made" should be omitted, as has been done in the wearing-apparel paragraphs of the other textile schedules, that there may be no confusion as to the intent to cover in this paragraph all wearing apparel, whether ready-made or custom-made, wholly or in chief value of silk and not specially provided for elsewhere.

PARAGRAPH 1213.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1213. All manufactures of silk, or of which silk is the component material of chief value, not specially provided for, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 403. All manufactures of silk, or of which silk is the component material of chief value, including such as have India rubber as a component material, not specially provided for in this section, fifty per centum ad valorem: *Provided*, That all manufactures of silk enumerated under any paragraph of this schedule, if composed in any part of wool, shall be classified and assessed for duty as manufactures of wool.

PAR. 318. * * * all manufactures of silk, or of which silk or silk and india rubber are the component materials of chief value, not specially provided for in this section, 45 per centum ad valorem.

MANUFACTURES OF SILK N. S. P. F.

(See Survey I-2.)

Description and uses.—The principal items falling under this general catch-all provision are upholstery and made-up articles other than wearing apparel, composed wholly or in chief value of silk.

Production.—No data available.

Imports.—For the four fiscal years 1910 to 1913 the average annual imports of silk manufactures not specifically provided for (par. 403, act of 1909) were valued at \$548,791. In the fiscal year 1914 they amounted to \$1,090,411. Imports in later years are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. |
|----------------------|----------------|-----------|-----------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$476,659 | \$214,466 |
| 1919..... | 189,264 | 602,609 | 271,187 |
| 1920..... | | 1,183,408 | 532,529 |
| 1921 (9 months)..... | | 798,374 | |

Important changes in classification.—In H. R. 7456 the following items covered by the corresponding paragraphs of the acts of 1909 (par. 403) and 1913 (par. 318) have been provided for elsewhere:

(1) Sliver—the product of the drawing operation in the conversion of waste silk into spun silk yarn. (See “Important changes in classification,” par. 1201, p. 1007.)

(2) Roving—the product of the operation immediately preceding spinning in the conversion of waste silk into spun silk yarn. (See “Important changes in classification,” par. 1202, p. 1012.)

(3) Knit fabrics in the piece; specially provided for in paragraph 1208.

PARAGRAPH 1214.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1214. In ascertaining the weight or number of silk under the provisions of this title, either in the threads, yarns, or fabrics, the weight or number shall be taken in the condition in which found in the goods, without deduction there-

H. R. 7456.

SENATE AMENDMENTS.

from for any dye, coloring matter, or moisture, or other foreign substance or material. The number of single threads to the inch in the warp provided for in this title shall be determined by the number of spun or reeled singles of which such single or two or more ply threads are composed.

ACT OF 1909.

PAR. 404. In ascertaining the weight of silk under the provisions of this schedule, either in the threads, yarns, or fabrics, the weight shall be taken in the condition in which found in the goods, without deductions therefrom for any dye, coloring matter, or other foreign substance or material. The number of single threads to the inch in the warp provided for in this schedule shall be determined by the number of spun or reeled singles of which such single or two or more ply threads are composed.

ACT OF 1913.

[No corresponding provision.]

Important changes in classification.—There is but one difference between this paragraph and paragraph 404 of the act of 1909 (there is no corresponding provision in the act of 1913), and that is the insertion of the words "or number" after the word "weight" each time that it appears. Spun silk yarns are provided for in paragraph 1202 by number and silk fabrics in paragraphs 1205 and 1206 by weight.

Comments and suggestions.—Change "title" to "schedule" in line 17, page 136, H. R. 7456.

PARAGRAPH 1215.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1215. Yarns, threads, filaments, and lame, of artificial or imitation silk, or of artificial or imitation horsehair, or of the waste of such materials, by whatever name known, and by whatever process made, if singles, 45 cents per pound; if tram, 50 cents per pound; if organzine, 60 cents per pound: *Provided*, That none of the foregoing shall pay a less rate of duty than 23 per centum ad valorem. Knit goods, ribbons, and other fabrics and articles composed wholly or in chief value of any of the foregoing, 45 cents per pound, and in addition thereto 37½ per centum ad valorem.

ACT OF 1909.

PAR. 405. Yarns, threads, filaments of artificial or imitation silk, or of artificial or imitation horsehair, by whatever name known, and by whatever process made,

ACT OF 1913.

PAR. 319. Yarns, threads, filaments of artificial or imitation silk, or of artificial or imitation horsehair, by whatever name known, and by whatever process made.

ACT OF 1909.

ACT OF 1913.

if in the form of singles, forty-five cents per pound; if in the form of tram, fifty cents per pound; if in the form of organzine, sixty cents per pound: *Provided*, That in no case shall any yarns, threads, or filaments of artificial or imitation silk or imitation horsehair, or any yarns, threads, or filaments made from waste of such materials, pay a less rate of duty than thirty per centum ad valorem; * * * beltings, cords, tassels, ribbons, or other articles or fabrics composed wholly or in chief value of yarns, threads, filaments, or fibers of artificial or imitation silk or of artificial or imitation horsehair, by whatever name known, and by whatever process made, forty-five cents per pound, and in addition thereto, sixty per centum ad valorem.

35 per centum ad valorem; beltings, cords, tassels, ribbons, or other articles or fabrics composed wholly or in chief value of yarns, threads, filaments, or fibers of artificial or imitation silk or of artificial or imitation horsehair, or of yarns, threads, filaments or fibers of artificial or imitation silk, or of artificial or imitation horsehair and india rubber, by whatever name known, and by whatever process made, 60 per centum ad valorem.

ARTIFICIAL SILK.

(See Report T. I. S.-3.)

Description and uses.—Artificial silk and real silk have in common one property, luster; the former is the more lustrous of the two, but has a different "feel." Artificial silk is heavier, less elastic, weaker, and more difficult to manipulate than real silk. All of the commercially important artificial silks are obtained from some form of cellulose, the predominating constituent of plant tissue. They are cheaper than real silk, and sometimes for this reason are preferred, but in general artificial silk has distinct uses and is not directly competitive with the natural product. The chief uses of artificial silk are for hosiery and other knit goods, silk and cotton fabrics, braids, plush goods, and tapestries.

Production.—Domestic production of artificial silk increased from approximately 1,566,000 pounds in 1913 to 10,240,000 pounds in 1920. It supplied less than one-half of domestic consumption in most pre-war years, but covered 88 per cent of the home demand in the post-war years, 1919 and 1920. This increase was a result of the varied uses of artificial silk and of war and post-war conditions, which reduced imports from Europe, especially from Germany. Until recently practically the entire domestic output has been manufactured by one company, whose stock is controlled by an English artificial-silk firm. This company uses the "viscose" process—i. e., the dissolving of wood pulp in a strong alkali and the treatment of the resulting solution with dilute caustic soda. In Europe the nitro-cellulose, the cupra-ammonium, and the new acetate processes are also used. In 1920 and 1921 several large plants—some of them of domestic and some of foreign ownership—have been completed for the production of artificial silk by various processes. There is impending, therefore, an increase both in quantity and variety of output.

Imports declined from 2,733,952 pounds in the fiscal year 1914 to 259,373 pounds in the fiscal year 1918; that is, from about two-thirds to one-fiftieth of the domestic consumption. Imports for the calendar years 1918-1921 are shown below. The importation for 1920 is 12.6 per cent of the total consumption.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-----------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 120,540 | \$313,785 | \$109,825 | 35 |
| 1919..... | 1,072,040 | 4,415,813 | 1,545,535 | 35 |
| 1920..... | 1,479,610 | 5,059,903 | 1,770,967 | 35 |
| 1921 (9 months)..... | 2,785,939 | 4,998,918 | | |

General imports for 1921 are shown by months as follows:

| Month. | Quantity. | Value. | Month. | Quantity. | Value. |
|---------------|----------------|-----------|----------------|----------------|-----------|
| | <i>Pounds.</i> | | | <i>Pounds.</i> | |
| January..... | 139,560 | \$196,804 | June..... | 385,455 | \$665,039 |
| February..... | 76,593 | 168,783 | July..... | 473,260 | 831,254 |
| March..... | 353,476 | 540,242 | August..... | 318,348 | 507,480 |
| April..... | 648,276 | 1,171,549 | September..... | 261,587 | 418,927 |
| May..... | 502,292 | 841,864 | | | |

Imports are of practically all sizes—150 denier is the largest item, but the proportion of the finer sizes is greater than in domestic production. A Belgian concern has, however, recently installed a plant in this country for the production of fine sizes. The importation of a new type of artificial silk should be noted. It comes in ribbon form for making braids and is called "ribbon straw" or "lame." Ribbon straw or lame, although flat, is made in the first process of manufacture.

Belgium, France, England, Italy, Switzerland, and Germany are all important sources.

Exports are not reported.

MANUFACTURES OF ARTIFICIAL SILK.

(See Report T. I. S.-3.)

Description.—Artificial silk is used in an increasing range of goods. The domestic output in 1920 was distributed as follows: Hosiery, 25 per cent; silk weaving, 13 per cent; knit goods other than hosiery, 21 per cent; cotton weaving, 10 per cent; plush fabrics, 3 per cent; tapestry, 2 per cent; braids, 14 per cent; embroidery and other minor uses, 11 per cent.

Production figures are not available, but the domestic output is known to be many times greater than imports.

Imports in the fiscal year 1914 were valued at \$643,975. Later statistics are recorded as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|----------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$36,577 | \$21,946 | 60 |
| 1919..... | 129,154 | 77,492 | 60 |
| 1920..... | 726,438 | 438,863 | 60 |
| 1921 (9 months)..... | 319,354 | | |

Exports, made up chiefly of artificial silk hosiery, are larger than imports. England, Argentina, Australia, Denmark, Canada, British South Africa, Cuba, and Italy are all important markets. For the calendar years 1918-1921 exports have been as follows: 1918, \$3,406,191; 1919, \$9,694,248; 1920, \$7,909,299; 1921 (9 months) \$2,962,843.

ARTIFICIAL HORSEHAIR AND MANUFACTURES OF.

Description and use.—Artificial horsehair differs from artificial silk in that it is coarser and stiffer and is produced and used in coarse single filaments.

Production is not recorded separately. It has increased in recent years.

Import values of artificial horsehair and manufactures thereof decreased from \$569,283 in 1909 to \$63,970 in 1914. Formerly imports came principally from Germany and Austria, but lately they come from Switzerland. Imports since 1917 are recorded as follows:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|----------------|---------|---------|------------------|
| YARNS, THREADS, AND FILAMENTS. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,752 | \$5,185 | \$1,815 | 35 |
| 1919..... | 20,211 | 66,571 | 23,300 | 35 |
| 1920..... | 46,090 | 100,516 | 35,181 | 35 |
| 1921 (9 months)..... | 52,056 | 79,366 | | |
| MANUFACTURES OF ARTIFICIAL HORSEHAIR. | | | | |
| 1918..... | | \$398 | \$239 | 60 |
| 1919..... | | 1,571 | 943 | 60 |
| 1920..... | | 6,937 | 4,162 | 60 |
| 1921 (9 months)..... | | 5,504 | | |

Exports are not recorded.

SCHEDULE 13.—PAPERS AND BOOKS.

PARAGRAPH 1301.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1301. Printing paper, not specially provided for, one-fourth of 1 cent per pound and 10 per centum ad valorem: *Provided*, That if any country, dependency, province, or other subdivision of government shall forbid or restrict in any way the exportation of (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly), or impose any export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, the President may enter into negotiations with such country, dependency, province, or other subdivision of government to secure the removal of such prohibition, restriction, export duty, or other export charge, and if it is not removed he may, by proclamation, declare such failure of negotiations, setting forth the facts. Thereupon, and until such prohibition, restriction, export duty, or other export charge is removed, there shall be imposed upon printing paper provided for in this paragraph, when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, an additional duty of 10 per centum ad valorem and in addition thereto an amount equal to the highest export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon either an equal amount of printing paper or an amount of wood pulp or wood for use in the manufacture of wood pulp necessary to manufacture such printing paper.

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SCHEDULE M.—PULP, PAPERS, AND BOOKS.

PAR. 409. Printing paper (other than paper commercially known as handmade or machine handmade paper, japan paper, and imitation japan paper by whatever name known), unsized, sized, or glued, suitable for the printing of books and newspapers, but not for covers or bind-

ACT OF 1913.

SCHEDULE M.—PAPERS AND BOOKS

PAR. 322. Printing paper (other than paper commercially known as handmade or machine handmade paper, japan paper, and imitation japan paper by whatever name known), unsized, sized, or glued, suitable for the printing of books and newspapers, but not for covers or

ACT OF 1909.

ings, not specially provided for in this section, * * * valued above two and one-half cents per pound and not above four cents per pound, five-tenths of one cent per pound; valued above four cents and not above five cents per pound, eight-tenths of one cent per pound; valued above five cents per pound, fifteen per centum ad valorem: *Provided, however,* That if any country, dependency, province, or other subdivision of government shall forbid or restrict in any way the exportation of (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly) or impose any export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, there shall be imposed upon printing paper when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, an additional duty of one-tenth of one cent per pound when valued at three cents per pound, or less, and in addition thereto the amount of such export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp.

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bindings, not specially provided for in this section, valued above 2½ cents per pound, 12 per centum ad valorem: *Provided, however,* That if any country, dependency, province, or other subdivision of government shall impose any export duty, export license fee, or other charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, there shall be imposed upon printing paper, valued above 2½ cents per pound, when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, an additional duty equal to the amount of the highest export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon either printing paper, or upon an amount of wood pulp, or wood for use in the manufacture of wood pulp necessary to manufacture such printing paper.

[Value per pound changed from 2½ to 5 cents by sec. 600 of Revenue Act of 1916, and to 8 cents by Act of Apr. 23, 1920, chap. 158.]

PRINTING PAPER.

(See Survey M-2.)

NEWSPRINT PAPER.

Description and uses.—There are two kinds of printing paper, newsprint and book paper. Newsprint is a cheap grade, consisting usually of 80 per cent mechanically ground wood pulp and 20 per cent sulphite pulp. It is used primarily for printing newspapers, and secondarily for cheap magazines, books, catalogues, etc.

For further information in regard to newsprint, see paragraph 1659, p. 1440.

BOOK PAPER.

Description and uses.—Book paper is of a higher grade than newsprint and is usually made entirely of chemical wood pulp. Rag pulp alone or mixed in a greater or less proportion with chemical wood pulp is used for the better grades, while some of the cheaper grades contain a small proportion of mechanically ground wood pulp. It is used primarily for printing books, magazines, and catalogues. It serves a great number of secondary purposes, among which may be mentioned its use for school pads and cheap writing papers. There are four principal grades of book paper—machine finish, sized and supercalendered, coated, and cover.

Production in 1914, was 934,979 short tons, valued at \$73,499,514; in 1919, 1,001,000 short tons, valued at \$153,368,000. The chief centers of production are to be found in the Northeastern and Lake States. The rank in percentages of output, by States, in 1914 was Pennsylvania (15), Massachusetts (14), Maine (12), Michigan (11), New York (10), Wisconsin (9), Ohio (8), all other (21).

Imports of book paper in 1914 were 3,359 short tons, valued at \$310,551, and in 1918, 139 short tons, valued at \$41,377. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 230,679 | \$44,445 | \$0.93 | \$5,333 | 12 |
| 1919..... | 164,886 | 58,319 | .35 | 6,998 | 12 |
| 1920..... | 4,156,464 | 493,411 | .12 | 59,209 | 12 |
| 1921 (9 months)..... | 1,298,349 | 191,838 | | | |

Under the act of 1913, printing papers were classified for tariff purposes as (1) printing paper valued at not more than 2½ cents per pound, and (2) printing paper valued at more than 2½ cents per pound. By act of September 8, 1916, the dividing line was changed from 2½ cents to 5 cents, and by act of April 23, 1920, from 5 cents to 8 cents. This division by price corresponds roughly with division into newsprint and book paper. The above table is based on the division by price. The great increase in imports in 1920—the year of the so-called “paper famine”—will be noted. In spite of the great increase, however, the imports in 1920, amounted to only one-fifth of 1 per cent of the domestic production of that year.

Exports of book paper in 1914 were 14,301 short tons, valued at \$1,612,370, and in 1918, 45,036 short tons, valued at \$7,695,298. Later statistics for calendar years follow:

Book paper (printing paper other than newsprint).

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|--------------|--------------|--------------------|
| Quantity (pounds)..... | 99,220,241 | 153,382,000 | 95,116,118 | 36,155,330 |
| Value..... | \$8,710,940 | \$16,169,055 | \$13,776,464 | \$5,150,387 |

In 1919 exports of book paper amounted to 8 per cent of the domestic production, in 1920 the proportion fell to 4 per cent, and the decrease has continued in 1921.

Important changes in classification.—The distinction made previously between the two kinds of printing paper on the basis of value per pound has been dropped. Newsprint paper is specifically provided for as “standard newsprint paper” (par. 1659). Printing paper other than standard newsprint, which includes not only book paper (except the coated and cover grades which are provided for in other paragraphs) but also grades of newsprint other than standard newsprint paper, takes the place of printing paper valued above the maximum value per pound specified for newsprint.

The reason for the change is that the value distinction between newsprint and book paper is now unsatisfactory because of the markedly fluctuating prices of printing paper. The term "standard newsprint paper" is the commercial term for the principal subdivision of newsprint paper, being paper weighing 32 pounds per ream, used for printing newspapers. It constitutes more than nine-tenths of the total output of newsprint paper in this country. It applies to practically all the newsprint shipments from Canada to the United States. The use of this term furthermore disposes of complaints that because of the present 8-cent maximum free limit on printing paper, some cheap grades of book paper are allowed to enter this country free.

In each of the following paragraphs—paragraph 1301 on book paper, paragraph 1610 on wood pulp, and paragraph 1659 on newsprint—there is inserted a clause for a countervailing duty in case any country or part of a country restricts the free export of pulp wood, wood pulp, newsprint, or book paper. It consists of a 10 per cent ad valorem duty plus a duty equal to the highest export duty or other charge applied by the country in question to an equal or equivalent amount of pulp wood, wood pulp, or printing paper.

All three of these clauses providing countervailing duties are so phrased that an export duty placed by another country on one of the three items (wood pulp, newsprint, or book paper) or on pulp wood (in case of presidential proclamation to that effect) would presumably result in a 10 per cent import duty on all of them except pulp wood, a conditional countervailing duty on some of which is provided for independently and in a different manner in paragraph 402. In addition, the highest foreign export duty on one of them or on pulp wood would be translated into an equivalent duty on all of them (but not on pulp wood). For example, according to this interpretation, if another country should impose a certain export duty on a cord of pulp wood and it should be so announced by the President, such duty (plus 10 per cent) would immediately be applied on an amount of ground wood pulp that on the average is made from a cord of pulp wood. As considerably less chemical pulp than ground wood can be made from a cord of pulp wood, the equivalent import duty per ton of chemical pulp would be higher than on ground wood. In a similar way the equivalent duty would be worked out for standard newsprint and book paper, based on a general average of the percentages of ground wood and chemical pulp entering into the finished paper, for with these varying percentages the amounts of wood used to make a ton of paper vary considerably. Similarly, a foreign export duty on either standard newsprint, book paper, or wood pulp would be applied as an import duty (in addition to 10 per cent ad valorem) either direct or in equivalent form to all three items named.

PARAGRAPH 1302.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1302. Paper board and pulpboard, including cardboard, and leather board or compress leather, not laminated, glazed, coated, lined, embossed, printed, decorated or ornamented in any manner, nor cut into shapes for boxes or other articles and not specially provided for, 10 per centum ad valorem: *Provided*, That for the purposes of this Act any of the foregoing less than nine one-thousandths of an inch in thickness shall be deemed to be paper; sheathing paper, roofing paper, deadening felt, sheathing felt, roofing felt or felt roofing, whether or not saturated or coated, 10 per centum ad valorem.

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PAR. 407. Sheathing paper and roofing felt, ten per centum ad valorem.

PAR. 415. * * * cardboard and bristol board, thirty-five per centum ad valorem; * * *

PAR. 564. Felt, adhesive, for sheathing vessels [Free].

[No corresponding provision for paper board, pulpboard, and leather board.]

ACT OF 1913.

PAR. 320. Sheathing paper, pulpboard in rolls, not laminated, roofing felt, common paper-box board, not coated, lined, embossed, printed or decorated in any manner, nor cut into shapes for boxes or other articles, 5 per centum ad valorem.

PAR. 328. * * * cardboard and bristol board, * * * 25 per centum ad valorem.

PAR. 481. Felt, adhesive, for sheathing vessels [Free].

PAR. 530. * * * leather board or compressed leather; * * * [Free].

[No corresponding provision for paper board.]

PAPER BOARD AND BUILDING PAPERS AND FELTS.

(See Survey M-1.)

Description and uses.—Paper board and pulpboard, which may be regarded as synonymous terms, consist of paper $\frac{1}{1000}$ of an inch or more in thickness. They are made in the main on a cylinder machine from a cheap grade of pulp, the strength and condition of the fibers not being an important element of consideration except in the best grades. About 80 per cent of the United States paper board output is made of waste paper. The principal use of paper board is in making paper boxes and other containers. It is used also in sheathing the interior of buildings; in bookbinding; in printing; in making trunks, suitcases, shoes, tags, cartridges, cards for street railway advertising, etc., placards of various sorts; and other articles; and for various other purposes. The principal kinds of paper board are box board, wall board, binders' board, bristol board, tag board, pressboard (see par. 1313 for pressboard), leatherboard, trunk board, and cartridge board. The above terms overlap to a certain extent. The term cardboard is often used to cover a number or all of the varieties of paper board.

Building papers and felts are heavy, coarse papers made usually on a cylinder machine out of coarse, low-grade stock, such as woolen, cotton, and jute waste; old gunny sacks; paper-board cuttings; sulphite screenings; waste paper of all sorts; old coarse, dirty rags; cornstalks; straw—in fact, almost any fibrous material. They are used for roofing buildings, as a liner for the walls of buildings, for deadening sounds by being placed under carpets or floors, and for manufacturing shoe soles.

Production.—The production of paper boards in 1914 was 1,208,795 short tons, valued at \$39,493,174, and in 1919, 1,885,000 short tons, valued at \$124,090,000. The production of building paper in 1914 was 243,908 short tons, valued at \$9,475,733, and in 1919, 195,000 short tons, valued at \$17,737,000.

Imports of pulpboard in 1914 were valued at \$203,862; in 1918, at \$1,377,291. Imports of paper box boards in 1914 were valued at \$43,137; in 1918, at \$16,619. Imports of cardboard and bristol board (including bristol board made on a Fourdrinier machine) in 1914, were valued at \$81,229; in 1918, at \$10,081. Imports of sheathing paper in 1914 were valued at \$4,236; in 1918, at \$9,235, exclusively from Canada. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

CARD, BRISTOL, AND STRAW BOARD.

| | Pounds. | | | | Per cent. |
|----------------------|---------|----------|--------|---------|-----------|
| 1918..... | | \$10,104 | | \$2,541 | 25 |
| 1919..... | 13,823 | 8,428 | \$0.06 | 2,107 | 25 |
| 1920..... | 603,555 | 48,992 | .08 | 12,248 | 25 |
| 1921 (9 months)..... | 690,499 | 33,867 | | | |

BOXBOARD, COMMON PAPER, NOT COATED, LINED, EMBOSSED, PRINTED, OR DECORATED IN ANY MANNER, NOT CUT INTO SHAPE FOR BOXES OR OTHER ARTICLES.

| | | | | | |
|----------------------|-----------|---------|--------|--------|---|
| 1918..... | | \$9,743 | | \$487 | 5 |
| 1919..... | 856,132 | 27,305 | \$0.03 | 1,365 | 5 |
| 1920..... | 5,527,205 | 208,699 | .04 | 10,435 | 5 |
| 1921 (9 months)..... | 4,043,746 | 151,473 | | | |

PULPBOARDS, IN ROLLS, NOT LAMINATED.

| | | | | | |
|----------------------|------------|-------------|--------|----------|---|
| 1918..... | 68,119,271 | \$1,566,779 | \$0.02 | \$78,339 | 5 |
| 1919..... | 88,922,149 | 2,270,353 | .02 | 113,518 | 5 |
| 1920..... | 85,809,013 | 2,659,993 | .03 | 133,000 | 5 |
| 1921 (9 months)..... | 29,857,406 | 867,211 | | | |

SHEATHING PAPERS.

| | | | | | |
|----------------------|--|----------|--|-------|---|
| 1918..... | | \$11,247 | | \$562 | 5 |
| 1919..... | | 7,884 | | 394 | 5 |
| 1920..... | | 35,898 | | 1,795 | 5 |
| 1921 (9 months)..... | | 3,794 | | | |

Exports of paper board and strawboard in 1915 were valued at \$663,230. Exports of sheathing paper in 1914 were valued at \$1,029,127. Later export values for calendar years of paper board and strawboard follow: 1918, \$3,055,255; 1919, \$4,604,048; 1920, \$5,553,094; 1921 (9 months), \$1,901,530.

Important changes in classification.—See General Notes on Paragraph below.

LEATHER BOARD OR COMPRESSED LEATHER.

Description and uses.—Leather board or compressed leather is a composition made of leather scrap and paper. It is used principally for insoles and heels of shoes.

Production.—No data available.

Imports, 1918–1921, are shown in following table:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$119,577 | |
| 1919..... | 795,256 | 82,661 | \$0.10 |
| 1920..... | 213,740 | 21,352 | .10 |
| 1921 (9 months)..... | 86,455 | 9,917 | |

Important changes in classification.—Leather board and compressed leather (par. 530) and adhesive felt for sheathing vessels (par. 481) have been transferred from the free list of the act of 1913.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—All varieties of paper board which have been advanced no further than the original manufacture on the paper machine have been grouped together in this paragraph. The aim has been to throw together all kinds of paper board which were separately named in the act of 1913, such as cardboard and cylinder-machine bristol board in paragraph 328, leather board in paragraph 530 and box board and pulpboard in paragraph 320. It appears to be desirable for the purpose of avoiding confusion and inconsistencies to place all paper board which has not undergone special processes of manufacture on the same tariff basis. Some manufacturers define paper board as paper nine one-thousandths of an inch or more in thickness. As this seems to be the more generally accepted dividing line between paper and paper board, it is used in the present classification. The phrasing "sheathing paper and roofing felt" is amplified to include in general all papers and felts used for building purposes whether or not they had their origin on a paper machine. It is anticipated that felt now admitted free under paragraph 481 as "adhesive felt for sheathing vessels" will be dutiable under this paragraph. Apparently the greater part of the imports of this adhesive felt has been used in the manufacture of soles for shoes and as a substitute for roofing felt. Adhesive felt would appear to have practically the same use for building purposes as tar-saturated roofing felt or paper. Thus the need of two items for this general grade of paper does not appear to be evident and the two are combined.

PARAGRAPH 1303.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1303. Filter masse or filter stock, composed wholly or in part of wood pulp, wood flour, cotton or other vegetable fiber, 1½ cents per pound and 15 per centum ad valorem; indurated fiber ware, masks composed of paper, pulp or papier-mâché, manufactures of pulp, and manufactures of papier-mâché, not specially provided for, 23 per centum ad valorem.

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PAR. 408. Filter masse or filter stock, composed wholly or in part of wood pulp, wood flour, cotton or other vegetable fiber, one and one-half cents per pound and fifteen per centum ad valorem.

PAR. 321. Filter masse or filter stock, composed wholly or in part of wood pulp, wood flour, cotton or other vegetable fiber, 20 per centum ad valorem.

PAR. 447. Indurated fiber ware and manufactures of pulp, not specifically provided for in this section, printed or unprinted, thirty-five per centum ad valorem.

PAR. 355. Indurated fiber ware and manufactures of pulp, not specially provided for in this section, 25 per centum ad valorem.

PAR. 464. Manufactures of * * * papier-mâché, * * * or of which these substances or any of them is the component material of chief value, not specially provided for in this section, * * * thirty-five per centum ad valorem.

PAR. 369. * * * manufactures of * * * papier-mâché, * * * or of which these substances or any of them is the component material of chief value, not specially provided for in this section, 25 per centum ad valorem; * * *

PAR. 465. Masks, composed of paper or pulp, thirty-five per centum ad valorem.

PAR. 370. Masks, of whatever material composed, 25 per centum ad valorem.

FILTER MASSE, INDURATED FIBER WARE, PAPIER-MÂCHÉ, ETC.

(See Surveys M-1, M-4, and N-11.)

Description and uses.—Filter masse (M-1) is a mass of cellulose or fiber, usually pressed into the form of cakes, varying in dimension from 12 by 12 by 1 inch to 20 by 20 by 2 inches, with embossed top and bottom. Although made of the same material as many kinds of paper, it is put up in entirely different form. It is used for clarifying beer, wine, soft drinks, glue, gelatine, vinegar, cider, soups, fruit beverages, chemicals, etc. The best quality of filter masse, like the best quality of paper, is made of fiber from selected white linen and cotton rags, and also of cotton linters. The greater part of the American production is of this type. Sulphite wood pulp and to a smaller degree jute fiber are used mainly for the cheaper grades; some asbestos fiber is sometimes also mixed in, particularly in the better grades. The chemicals used are lime, chloride of lime, and sulphuric acid.

Indurated fiber ware (N-11) is wood pulp chemically treated and molded into pails, kegs, tubs, boxes, cuspidors, coolers, trunks, cases, etc. Other manufactures of pulp include composite board for car ceilings, bulkheads, and door panels for steamboats, vulcanized fiber and fiber specialties for motors and dynamos, insulators, skate wheels, washers, disks and bushings, railway signals, electric rail joints, noiseless rollers and gears, fiber sheets, and fiber rods and tubing.

Papier-mâché (M-4) is a hard, tough, and plastic substance generally made from pulped waste paper, mixed with mineral matter, such as china clay, rosin, etc., or made from sheets of paper glued and pressed together. It is molded when moist by steel dies into architectural ornaments, lacquered boxes, trays, durable utensils, dress forms, window dummies, signs, figures, toy animals, other kinds of toys, and other articles.

Production.—The annual production of filter masse in the United States is about 750,000 pounds per year. Owing to the decrease in the demand for filter masse on account of the decrease in the production of alcoholic beverages, the establishments now existing in this country have no difficulty in producing enough filter masse for domestic requirements; nevertheless, manufacturers say that the use of filter masse for filtering soft drinks and other liquors has increased to such an extent as largely to make up for the decrease in its use for filtering wine and beer.

In 1914 the production in the United States of pulp goods, which include indurated fiber ware, was valued at \$4,483,000. There were 24 establishments, located chiefly in Delaware and New York. The total capital was \$6,862,000, and the number of wage earners, 1,654. In 1919 the value of production had increased to \$24,257,000, and the number of establishments to 42. A very rough estimate places the average annual output of papier-mâché in the United States at 5,000 tons, valued at \$250,000.

Imports in 1914 of filter masse were 486,476 pounds, valued at \$53,974; of indurated fiber ware and manufactures of pulp at \$4,559. Imports of manufactures of papier-mâché in 1914 were valued at \$25,679. (Imports of papier-mâché unmanufactured not segregated.) Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|----------|-------------|---------|------------------|
| FILTER MASSE OR FILTER STOCK, COMPOSED WHOLLY OR IN PART OF WOOD PULP, WOOD FLOUR, COTTON, OR OTHER VEGETABLE FIBER. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 13,290 | \$2,743 | \$0.21 | \$549 | 20 |
| 1919..... | 8,628 | 1,768 | .20 | 354 | 20 |
| 1920..... | 171,498 | 31,960 | .19 | 6,392 | 20 |
| 1921 (9 months)..... | 73,424 | 8,550 | | | |
| INDURATED FIBER WARE AND MANUFACTURES OF PULP. | | | | | |
| 1918..... | | \$3,124 | | \$781 | 25 |
| 1919..... | | 894 | | 223 | 25 |
| 1920..... | | 2,871 | | 701 | |
| 1921 (9 months)..... | | 3,213 | | | |
| PAPIER-MÂCHÉ, MANUFACTURES OF. | | | | | |
| 1918..... | | \$18,978 | | \$4,744 | 25 |
| 1919..... | | 8,737 | | 2,184 | 25 |
| 1920..... | | 33,024 | | 8,256 | 25 |
| 1921 (9 months)..... | | 29,900 | | | |

Exports not segregated.

Important changes in classification.—To filter masse have been added indurated fiber ware and manufactures of papier-mâché from the sundries schedule because these goods are akin to filter masse in being made of pulp. Masks have also been transferred from the sundries schedule. The act of 1913 includes all masks, whatever the material, and the act of 1909 masks of paper or pulp only. The present act retains the 1909 phraseology with the addition of papier-mâché as a material, leaving all other masks dutiable under other schedules according to the material.

Suggested changes.—Page 139, line 6, of H. R. 7456: Change comma to a semicolon after "ware."

PARAGRAPH 1304.
H. R. 7456.**SENATE AMENDMENTS.**

PAR. 1304. Papers commonly known as tissue paper, stereotype paper, and copying paper and all papers not specially provided for in this section, weighing not over eight pounds to the ream of four hundred and eighty sheets on the basis of twenty by thirty inches, and whether in reams or any other form, 6 cents per pound and 15 per centum ad valorem; if weighing over eight pounds and less than twelve and one-half pounds to the ream, 5 cents per pound and 15 per centum ad valorem; crêpe paper, 6 cents per pound and 15 per centum ad valorem: *Provided*, That no article composed wholly or in chief value of one or more of the papers specified in this paragraph shall pay a less rate of duty than that imposed upon the component paper of chief value of which such article is made.

ACT OF 1909.

PAR. 410. Papers commonly known as copying paper, stereotype paper, bibulous paper, tissue paper, pottery paper, and all papers not specially provided for in this section, colored or uncolored, white or printed, weighing not over six pounds to the ream of four hundred and eighty sheets, on the basis of twenty by thirty inches, and whether in reams or any other form, six cents per pound and fifteen per centum ad valorem; if weighing over six pounds and less than ten pounds to the ream, and letter copying books, whether wholly or partly manufactured, five cents per pound and fifteen per centum ad valorem; crêpe paper * * * five cents per pound and fifteen per centum ad valorem: *Provided*, That no article composed wholly or in chief value of one or more of the papers speci-

ACT OF 1913.

PAR. 323. Papers commonly known as copying paper, stereotype paper, bibulous paper, tissue paper, pottery paper, * * * crêpe paper * * * and articles manufactured from any of the foregoing papers or of which such paper is the component material of chief value, 30 per centum ad valorem.

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fied in this paragraph shall pay a less rate of duty than that imposed upon the component paper of chief value of which such article is made.

TISSUE PAPER, ETC.

(See Survey M-3.)

Description and uses.—Tissue paper: The predominant characteristic distinguishing tissue paper from other kinds of paper is its thinness. Tissue paper is a thin paper of fine, soft texture, silky to the touch, translucent, and to a limited extent transparent. The better qualities are made from rag and the cheaper from wood pulp. Its principal uses are for toilet purposes, for napkins, and for wrapping articles, especially those which the manufacturer does not wish to tarnish. The antitarnishing quality results from special processes pursued in its manufacture, which makes it free from sulphur or other chemicals that would tarnish a metal article.

Tissue paper is treated in H. R. 7456 as paper weighing less than 12½ lbs. per ream of 480 sheets on the basis of 20 x 30 in. Stereotype and copying papers are merely subdivisions of tissue paper. Stereotype paper is an extra strong, pliable tissue used in the manufacture of stereos (molds or matrices), from which printing plates are made. It is often an absorbent, unsized, so-called waterleaf paper. The sheets of paper, a considerable number together and backed by matrix paper, which is absorbent paper similar to high-grade blotting paper, and by ordinary brown paper, are pressed against the type to form the mold, the metal for the plate being then cast in the mold. Copying paper is a strong unsized, usually cheap tissue paper, used for the manufacture of letter books, in which copies of letters are kept, and also for the manufacture of carbon paper.

Crêpe paper is usually a very thin, strong tissue paper, variously colored, and passed through heavy embossed rollers which crinkle the paper into a form resembling crêpe. It is used for fancy and decorative purposes and also for paper towels. Some grades of crêpe paper are heavier than tissue paper.

Production.—The production of tissue paper in 1914 was 115,401 tons, valued at \$11,535,720. In 1919 it was 191,000 tons, valued at \$40,696,000. Nearly half the tissue paper produced in this country is made in New York. The other tissue-paper States of importance are New Jersey, Wisconsin, New Hampshire, Pennsylvania, and Massachusetts. There are no separate figures available for the production of crêpe paper.

Imports in 1914 of tissue, stereotype, letter-copying, and pottery papers were 1,996,751 pounds, valued at \$383,831. Imports of crêpe and filter paper and articles manufactured therefrom were 984,596 pounds, valued at \$144,538. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|---------------------------|-----------|-------------|-----------|------------------|
| COPYING, STEREO TYPE, BIBULOUS, TISSUE, AND POTTEBY PAPERS (SEGREGATED AFTER 1918). | | | | | |
| 1918..... | <i>Pounds.</i> 397,978 | \$149,712 | \$0.38 | \$44,914 | 30 |
| TISSUE PAPER. | | | | | |
| 1919..... | 489,584 | \$316,263 | \$0.65 | \$94,579 | 30 |
| 1920..... | 667,990 | 377,222 | .56 | 113,167 | 30 |
| 1921 (9 months)..... | 758,387 | 34,977 | | | |
| BIBULOUS PAPER. | | | | | |
| 1919..... | 2,885 | \$2,319 | \$0.80 | \$696 | 30 |
| 1920..... | 35,842 | 4,672 | .13 | 1,372 | 30 |
| 1921 (9 months)..... | 23,487 | 5,158 | | | |
| COPYING PAPER. | | | | | |
| 1919..... | 170,183 | \$68,313 | \$0.40 | \$20,494 | 30 |
| 1920..... | 139,493 | 69,784 | .50 | 20,929 | 30 |
| 1921 (9 months)..... | 66,801 | 37,074 | | | |
| POTTEBY PAPER. | | | | | |
| 1919..... | 15,963 | \$5,336 | \$0.33 | \$1,001 | 30 |
| 1920..... | 3,400 | 1,044 | .31 | 313 | 30 |
| STEREO TYPE PAPER. | | | | | |
| 1919..... | 4,496 | \$4,187 | \$0.93 | \$1,256 | 30 |
| 1920..... | 8,541 | 6,216 | .73 | 1,865 | 30 |
| 1921 (9 months)..... | 2,171 | 1,433 | | | |
| MANUFACTURES OF COPYING, STEREO TYPE, BIBULOUS, TISSUE, POTTEBY, CRÊPE, AND FILTERING PAPER. | | | | | |
| 1918..... | | \$731,734 | | \$219,520 | 30 |
| 1919..... | | 62,583 | | 18,775 | 30 |
| 1920..... | | 47,922 | | 14,377 | 30 |
| 1921 (9 months)..... | | 31,755 | | | |
| CRÊPE AND FILTERING¹ PAPER. | | | | | |
| 1918..... | 409,214 | \$215,696 | \$0.53 | \$64,709 | 30 |
| 1919..... | 288,890 | 196,066 | .68 | 58,820 | 30 |
| 1920..... | 474,059 | 169,623 | .36 | 30,887 | 30 |
| 1921 (9 months)..... | 396,490 | 100,192 | | | |

¹ Filtering paper classified in H. R. 7456 in paragraph 1309.

Exports.—In 1914 no exports of stereotype, letter copying, and tissue papers were listed. In 1918 tissue and toilet papers to a value of \$919,536 were exported. Later statistics (for calendar years) follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------------------------|-------------|-------------|-------------|-----------------|
| Tissue and toilet papers..... | \$1,443,578 | \$2,056,607 | \$2,654,520 | \$685,015 |
| Paper towels and napkins..... | 83,199 | 180,963 | 418,348 | 137,102 |
| Carbon paper..... | 579,306 | 964,288 | 1,029,888 | 394,027 |

Important changes in classification.—As the purpose of this paragraph has always been to include tissue paper in general, it has been reworded so as to be more consistent. The classification in the act of 1913 and preceding acts grouped both bibulous and filtering paper along with tissue paper. Filtering paper is a different kind of paper from tissue paper; consequently it is now being removed from this paragraph and appears in paragraph 1309. As bibulous paper is the term for absorbent papers in general, such as blotting paper, it is undesirable to use it in this connection. Apparently it was placed here originally in order to include so-called bibulous tissue paper, the principal use of which seems to be for massage purposes in beauty parlors. The term is very little used in the trade to-day, and what bibulous tissue paper might be imported would easily fall under the general heading "tissue paper." Also, the paragraph has been rearranged somewhat so that the term "tissue paper" stands at the head. It was hardly logical, in the old phraseology, to name copying paper first, as copying paper is merely a relatively unimportant variety of tissue paper. The term "pottery paper" has been dropped as a term not used in the paper trade. Pottery paper is either a thin tissue of good quality, well glazed, used for wrapping pottery, or a special kind of paper by which designs are transferred to pottery. In the former sense it is sufficiently covered by the term "tissue paper," and in the latter case it would probably be covered by decalcomania paper. The item letter-copying books has been left out both because it is unimportant and because it is sufficiently covered by the provision in this paragraph for manufactures of tissue and similar papers. Also the weight qualifications have been revised so that papers weighing up to 12½ pounds per ream are classed in this paragraph as tissue paper, instead of those weighing up to 10 pounds per ream as in the act of 1909. (The act of 1913 has no weight qualification.) As in the act of 1909 crêpe paper is not included in the weight classification. The reason for this is that it is desired to extend the jurisdiction of this paragraph to crêpe paper even if its weight is above the maximum fixed for tissue paper in general. Crêpe paper is ordinarily a tissue paper, and so is properly included in this paragraph.

Paper (other than crêpe) above 12½ pounds per ream will fall under whatever other heading in the paper schedule it happens to come, such as the writing-paper paragraph.

Conflicting provisions.—The provision in this paragraph for "all papers not specially provided for in this section," is in conflict with the concluding provision of paragraph 1309 for "paper not specially provided for."

Suggested changes.—As the context of the provision for “all papers not specially provided for in this section” relates to papers of the tissue class, it is suggested that the word “all” in line 10, page 139 be changed to “similar.” The words “in this section” should in any event be stricken out of line 11, page 139, to agree with the practice elsewhere in the bill H. R. 7456. Page 139, line 15, of H. R. 7456: Strike out “if” before “weighing,” to agree with line 11 and practice elsewhere.

PARAGRAPH 1305.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1305. Papers with coated surface or surfaces, not specially provided for, 5 cents per pound; papers with coated surface or surfaces, embossed or printed otherwise than lithographically, and papers wholly or partly covered with metal or its solutions (except as herein provided), or with gelatin or flock, 5 cents per pound and 15 per centum ad valorem; papers, including wrapping paper, with the surface or surfaces wholly or partly decorated or covered with a design, fancy effect, pattern, or character, except designs, fancy effects, patterns, or characters produced on a paper machine without attachments, or produced by lithographic process, 4½ cents per pound, and in addition thereto, if embossed, or printed otherwise than lithographically, or wholly or partly covered with metal or its solutions, or with gelatin or flock, 17 per centum ad valorem: *Provided*, That paper wholly or partly covered with metal or its solutions, and weighing less than fifteen pounds per ream of four hundred and eighty sheets, on the basis of twenty by twenty-five inches, shall pay a duty of 5 cents per pound and 17 per centum ad valorem; gummed papers, including decalcomania paper not printed, 5 cents per pound; cloth-lined or reinforced paper, 5 cents per pound and 17 per centum ad valorem; papers with paraffin or wax-coated surface or surfaces, vegetable parchment paper, grease-proof and imitation parchment papers which have been supercalendered and rendered transparent or partially so, by whatever name known, all other grease-proof and imitation parchment paper, not specially provided for, by whatever name known, 3 cents per pound and 13 per centum ad valorem; bags, printed matter other than lithographic, and all other articles, composed wholly or in chief value of any of the foregoing papers, not specially provided for, and all boxes of paper or papier-mâché or wood covered or lined with any of the foregoing papers or

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lithographed paper, or covered or lined with cotton or other vegetable fiber, 5 cents per pound and 20 per centum ad valorem; plain basic paper for albumenizing, sensitizing, baryta coating, or for photographic or solar printing processes, 3 cents per pound and 15 per centum ad valorem; albumenized or sensitized paper or paper otherwise surface coated for photographic purposes, 3 cents per pound and 20 per centum ad valorem; wet transfer paper or paper prepared wholly with glycerin or glycerin combined with other materials, containing the imprints taken from lithographic plates, 30 per centum ad valorem.

ACT OF 1909.

PAR. 166. * * * wet transfer paper or paper prepared wholly with glycerin, or glycerin combined with other materials, containing the imprints taken from lithographic plates, fifty per centum ad valorem.

PAR. 411. Papers with coated surface or surfaces, not specially provided for in this section, five cents per pound; if wholly or partly covered with metal or its solutions (except as hereinafter provided), or with gelatin or flock, or if embossed or printed, five cents per pound and twenty per centum ad valorem; papers, including wrapping paper, with the surface decorated or covered with a design, fancy effect, pattern or character, whether produced in the pulp or otherwise, but not by lithographic process, four and one-half cents per pound; if embossed, or wholly or partly covered with metal or its solutions, or with gelatin or flock, 5 cents per pound and twenty per centum ad valorem: *Provided*, That paper wholly or partly covered with metal or its solutions, and weighing less than fifteen pounds per ream of four hundred and eighty sheets, on a basis of twenty by twenty-five inches, shall pay a duty of five cents per pound and twenty-five per centum ad valorem; parchment papers, and grease-proof and imitation parchment papers which have been supercalendered and rendered transparent, or partially so, by whatever name known, 2 cents per pound and 10 per centum ad valorem; all other grease-proof and imitation parchment papers, not specially provided for in this section, by whatever name known, two cents per pound and ten per centum ad valorem; bags, * * * printed matter other than lithographic, and all other articles composed wholly or in chief value of any of the foregoing papers, not specially provided for in this section, and all boxes of paper or wood covered with any of the foregoing paper, five cents a pound and thirty per centum ad valorem; albu-

SENATE AMENDMENTS.

ACT OF 1913.

PAR. 137. * * * wet transfer paper or paper prepared wholly with glycerin, or glycerin combined with other materials, containing the imprints taken from lithographic plates, 25 per centum ad valorem

PAR. 324. Papers wholly or partly covered with metal leaf or with gelatin or flock, papers with white coated surface or surfaces, calendar plate finished, hand dipped marbled paper, parchment paper, and lithographic transfer paper not printed, 25 per centum ad valorem; papers with coated surface or surfaces suitable for covering boxes, not specially provided for, whether or not embossed or printed except by lithographic process, 40 per centum ad valorem; all other paper with coated surface or surfaces not specially provided for in this section; uncoated papers, gummed, or with the surface or surfaces wholly or partly decorated or covered with a design, fancy effect, pattern, or character, whether produced in the pulp or otherwise except by lithographic process, cloth-lined or reinforced papers, and grease-proof and imitation parchment papers which have been supercalendered and rendered transparent or partially so, by whatever name known, all other grease-proof and imitation parchment papers, not specially provided for in this section, by whatever name known, bags, * * * and all other articles composed wholly or in chief value of any of the foregoing papers, not specially provided for in this section, and all boxes of paper or papier-mâché or wood covered with any of the foregoing papers or covered or lined with cotton or other vegetable fiber, 35 per centum ad valorem; albuminized or sensitized paper or paper otherwise surface-coated for photographic purposes, 25 per centum ad valorem; plain basic papers for albumenizing, sensitizing, baryta coating, or for photographic or solar printing processes, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

menized or sensitized paper or paper otherwise surface coated for photographic purposes, thirty per centum ad valorem; plain basic papers for albumenizing, sensitizing, baryta coating, or for photographic or solar printing processes, three cents per pound and ten per centum ad valorem.

PAR. 418. All boxes made wholly or in chief value of paper or papier-maché, if covered with surface-coated paper, forty-five per centum ad valorem.

[No corresponding provision for papers with paraffin or wax-coated surface or surfaces.]

PAR. 567. * * * decalcomania paper, not printed [Free].

[No corresponding provision for papers with paraffin or wax-coated surface or surfaces.]

SURFACE-COATED, WAXED, GUMMED, DECALCOMANIA, AND DECORATED PAPER, ETC.

(See Surveys M-3, M-4, and C-15.)

Description and uses.—Surface-coated paper, as the name implies, is paper one or both surfaces of which may be coated. The larger part of the surface-coated paper made in the United States is coated with clay. There are also some coatings with a metal base and others made of gelatin and other products. An important grade is coated book paper, which is used for printing half-tones and for other printing purposes. It is usually coated on both sides, its base generally being a good grade of book paper. Other kinds of coated paper are used mainly for covering boxes and for various other fancy or decorative purposes. They are usually known as supercalendered, flint-glazed, friction glazed, plated, embossed, waterproof, and fancy papers. Flock, referred to in one of the tariff items on surface-coated paper, is finely ground wool, felt, or vegetable fiber. It is a coating substance.

Gummed paper is a kind of coated paper one surface of which is covered with gum or glue. It is used in making stickers, labels, stamps, seals, etc.

Waxed paper is also a kind of coated paper with one or both surfaces covered with wax. It is used for wrapping and preserving bread, cake, pie, and various bakery products, confectionery, other food products, drugs, flowers, etc.

Decalcomania paper is a kind of gummed paper. It is used for transferring colored designs to glassware, porcelain, marble, and the like. It is covered with a vegetable gum or alumina coating, on which the design in colors is placed and which allows the complete removal of the design and its adherence to the surface of the glassware or other article when the paper is pressed against the latter after being soaked in water.

Cloth-lined or reinforced paper is paper lined with cloth or reinforced by string or some other substance. This paper is used sometimes where an especially strong, nontearable variety of packing paper is needed, but there are also cheaper grades, which are not very durable. It is much used in merchandise shipments, particularly for lining cases or covering machinery shipped in crates and for outside coverings of cases shipped on flat cars. An important use

for the better grades is as a durable drawing paper for draughtsmen and as a tough, durable paper for children's books.

Vegetable parchment paper (M-3) is an unsized or waterleaf paper made preferably of cotton rags, vegetable fiber, or sulphite wood pulp treated with dilute sulphuric acid. It is dull in finish, dense, hard, and hornlike; it is grease proof, waterproof, translucent, and to a limited extent transparent. It is used for drawing, bookbinding, as covers for corks in medicine bottles, for filtering in sugar manufacture, in refining gutta-percha, as wrapping paper for greasy substances and for various food products, as casing for sausages, and in many other ways.

Vulcanized paper (M-3), produced in a manner similar to the production of vegetable parchment paper, ordinarily so called, but treated with zinc chloride instead of sulphuric acid, is a type of vegetable parchment paper. This paper is much used, a number of sheets being pressed together, in the manufacture of trunks, tubs, waste baskets, trucks, etc. Willesden paper is a variety of vegetable parchment paper, made by passing paper through an ammoniacal solution of copper oxide.

Grease-proof or imitation parchment paper (M-3) is made of sulphite wood pulp, preferably that produced by the Mitscherlich or slow-cook process. In the course of manufacture the stock is subjected to an unusually extended process of beating, which reduces it to a gelatinous condition. The first finished product of this process is a paper with a dull finish, dense and hard, resembling parchment paper in various ways, especially in the characteristic hornlike appearance above noted. The paper is not waterproof and is but partially grease proof; that is, it is not entirely impervious to grease, but nevertheless it has the quality of resisting grease to a limited extent. The paper is more tenacious than sulphite paper not so treated. It is translucent and imperfectly transparent. A part of the paper thus produced is afterwards moistened and run through supercalender rollers under heat and pressure. It loses thus its dull finish and becomes very glossy and more perfectly transparent.

The dull, uncalendered kind is known variously in the trade as imitation parchment, grease proof, and pergamyn. The calendered, transparent kind is usually called glassine, parchmyn, or japanin paper, although sometimes, as in the tariff act of 1913, also called grease proof. Both kinds are used as a wrapping for cakes and similar articles which do not require a perfectly grease-proof covering. The supercalendered variety is more useful, however, for the manufacture of an outer wrapping for bottles and boxes, through which labels may be read, as the transparent material for "window envelopes," and for making sanitary protectors for telephone receivers.

Photographic and blue-print paper (M-4): Two groups of paper are included in the tariff items which cover photographic and blue-print paper, namely, (1) photographic paper and platinum paper, and (2) blue-print paper and brown-print paper. Each of these in turn is divided into two kinds: (1) "Raw" paper, which is practically the same as high-grade writing paper, and (2) the finished paper, which is the "raw" paper after it has been sensitized for printing by photographic, blue-print, or brown-print processes. As the names imply, these are the kinds of light-sensitive paper on which photo-

graphs, photostats, blue prints, and other similar forms of prints are made.

Wet transfer paper (C-15) is a kind of coated paper used in lithography for transferring designs to lithographic plates. As indicated in the tariff phraseology, this paper contains the imprints taken from lithographic plates. The same sort of paper coated but not yet imprinted with the design is included under the provisions for surface-coated paper in the first part of paragraph 1305.

Production.—Surface-coated, waxed, gummed, decalcomania, and decorated paper: In 1914, 117,342 tons of coated book paper, valued at \$11,605,584, were produced in the United States. The 1919 production was 132,000 tons, with a value of \$24,010,000. No figures are available for production of other kinds of coated paper. In the 12 months ended January, 1921, the 22 members of the Waxed Paper Manufacturers' Association, representing approximately 85 per cent of the waxed-paper production of the United States, produced 46,880 tons of waxed paper. The annual output of decalcomania paper is estimated at 100 tons, valued at \$80,000. The decalcomania paper industry is a new one in the United States, having been carried on only since 1916. Decalcomania paper manufacturers estimate domestic consumption at 600 tons annually. No figures for the production of gummed paper and decorated paper are available.

Cloth-lined or reinforced paper production in the United States is estimated at 1,000 to 1,500 tons annually.

Vegetable parchment-paper production in the United States is about 12,000 tons per year. In January, 1921, six mills were engaged in parchmentizing. The 1915 production was 13,500 tons and the 1920 production 10,800 tons.

Imitation parchment-paper production figures are not available.

Bags, boxes, etc.: See par. 1313, p. 1088.

Photographic and blue-print paper: The annual production of "raw" photographic paper is roughly estimated at 5,000 tons.

Figures for sensitized photographic paper production and raw blue-print paper production are not available. The annual output of sensitized blue-print paper is variously estimated by sensitizers at from 2,000 to 10,000 tons.

Wet transfer paper: No figures available.

Imports for 1914 and 1918 (fiscal years) of the paper mentioned in paragraph 1305 are shown in the following table:

| | 1914 | | 1918 | |
|---|-----------|-----------|-----------|----------|
| | Pounds. | Value. | Pounds. | Value. |
| Grease-proof and imitation parchment papers (act of 1909) supercalendered and rendered transparent..... | 6,184,511 | \$300,725 | 287,234 | \$27,469 |
| Parchment paper (act of 1913 only)..... | | 51,483 | | 27,104 |
| Plain basic for albuminizing, sensitizing, etc..... | | 1,371,346 | 1,410,513 | 430,252 |
| Reinforced or cloth-lined paper..... | 14,145 | 2,281 | 13,318 | 9,775 |
| Lithographic transfer..... | 125,329 | 25,564 | 26,061 | 7,899 |
| Marbleized hand-dipped paper..... | 224,777 | 25,335 | 28,775 | 6,767 |
| Suitable for covering boxes..... | 5,252,891 | 339,953 | 184,650 | 23,815 |
| White-coated surface calender plate finished..... | 57,878 | 7,752 | 3,513 | 287 |
| Wholly or partly covered with metal leaf, etc..... | 391,174 | 123,287 | 22,242 | 10,683 |
| All other surface-coated paper..... | | 175,672 | 110,301 | 34,161 |
| Boxes of paper, papier-mâché or wood..... | | 117,724 | | 178,052 |
| Papers, uncoated, gummed (decorated)..... | 298,996 | 27,647 | 345,630 | 32,688 |
| Bags, envelopes, composed of surface-coated..... | | | | 5,161 |
| Decalcomania..... | 178,956 | 224,235 | 40,053 | 63,506 |

Imports during the calendar years 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

WHITE COATED SURFACE PAPER, CALENDER PLATE FINISH.

| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
|----------------------|----------------|--------|--------|-------|------------------|
| 1918..... | 831 | \$134 | \$0.16 | \$33 | 25 |
| 1919..... | 7,092 | 3,741 | .53 | 935 | 25 |
| 1920..... | 41,867 | 19,064 | .47 | 4,916 | 25 |
| 1921 (9 months)..... | 142,813 | 26,586 | | | |

SURFACE COATED PAPER SUITABLE FOR COVERING BOXES.

| | | | | | |
|----------------------|---------|---------|--------|---------|----|
| 1918..... | 28,522 | \$6,226 | \$0.22 | \$2,490 | 40 |
| 1919..... | 54,285 | 8,556 | .16 | 3,422 | 40 |
| 1920..... | 165,641 | 28,745 | .17 | 11,498 | 40 |
| 1921 (9 months)..... | 54,189 | 12,496 | | | |

PARAFFIN PAPER (NOT INCLUDING OIL) AND PARAFFIN WAX.

| | | | | | |
|----------------------|-----------|-----------|--------|--|--|
| 1918..... | 5,531,118 | \$546,342 | \$0.10 | | |
| 1919..... | 9,883,180 | 973,521 | .10 | | |
| 1920..... | 7,629,395 | 820,885 | .11 | | |
| 1921 (9 months)..... | 3,526,670 | 290,230 | | | |

MARBLEIZED PAPER, HAND DIPPED.

| | | | | | |
|----------------------|--------|---------|--------|-------|----|
| 1918..... | | | | | |
| 1919..... | 14,365 | \$3,341 | \$0.23 | \$835 | 25 |
| 1920..... | 3,524 | 1,419 | .40 | 355 | 25 |
| 1921 (9 months)..... | 18,212 | 6,309 | | | |

DECALCOMANIA PAPER, NOT PRINTED.

| | | | | | |
|----------------------|--|-----------|--|--|--|
| 1918..... | | \$144,378 | | | |
| 1919..... | | 121,115 | | | |
| 1920..... | | 185,579 | | | |
| 1921 (9 months)..... | | 165,963 | | | |

PAPER WHOLLY OR PARTLY COATED WITH METAL LEAF, GELATIN, OR FLOCK.

| | | | | | |
|----------------------|--------|---------|--------|---------|----|
| 1918..... | 6,495 | \$4,209 | \$0.65 | \$1,052 | 25 |
| 1919..... | 5,418 | 4,147 | .76 | 1,037 | 25 |
| 1920..... | 37,238 | 38,460 | 1.03 | 9,615 | 25 |
| 1921 (9 months)..... | 49,703 | 24,348 | | | |

PAPER, UNCOATED, GUMMED, OR WITH SURFACE OR SURFACES DECORATED OR COVERED WITH A DESIGN, FANCY EFFECT, PATTERN, OR CHARACTER.

| | | | | | |
|----------------------|---------|----------|--------|----------|----|
| 1918..... | 346,438 | \$32,876 | \$0.95 | \$11,507 | 25 |
| 1919..... | 7,847 | 6,732 | .86 | 2,356 | 25 |
| 1920..... | 29,641 | 14,019 | .47 | 4,907 | 25 |
| 1921 (9 months)..... | 20,926 | 5,698 | | | |

LITHOGRAPHIC TRANSFER PAPER, NOT PRINTED.

| | | | | | |
|----------------------|--------|---------|--------|---------|----|
| 1918..... | 19,318 | \$6,811 | \$0.35 | \$1,703 | 25 |
| 1919..... | 12,463 | 5,120 | .41 | 1,280 | 25 |
| 1920..... | 69,573 | 16,720 | .24 | 4,180 | 25 |
| 1921 (9 months)..... | 59,493 | 13,555 | | | |

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|-------------|----------|------------------|
| PLAIN BASIC PHOTOGRAPHIC PAPER, FOR ALBUMINIZING, SENSITIZING, OR BARYTA COATING FOR PHOTOGRAPHIC PROCESS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 647,645 | \$188,566 | \$0.29 | \$28,285 | 15 |
| 1919..... | 251,588 | 100,226 | .40 | 15,034 | 15 |
| 1920..... | 641,663 | 124,280 | .19 | 18,642 | 15 |
| 1921 (9 months)..... | 749,177 | 128,374 | | | |

PHOTOGRAPHIC PAPER, ALBUMINIZED OR SENSITIZED OR OTHERWISE COATED

| | | | | | |
|----------------------|---------|----------|--------|---------|----|
| 1918..... | | \$26,460 | | \$6,615 | 25 |
| 1919..... | 58,004 | 46,632 | \$0.80 | 11,658 | 25 |
| 1920..... | 465,211 | 191,943 | .41 | 47,986 | 25 |
| 1921 (9 months)..... | 574,408 | 150,627 | | | |

ALL OTHER SURFACE COATED PAPERS.

| | | | | | |
|----------------------|---------|----------|--------|---------|----|
| 1918..... | 55,345 | \$24,801 | \$0.45 | \$8,680 | 35 |
| 1919..... | 93,273 | 36,883 | .39 | 12,909 | 35 |
| 1920..... | 473,869 | 168,332 | .35 | 58,216 | 35 |
| 1921 (9 months)..... | 279,560 | 77,306 | | | |

REINFORCED OR CLOTH-LINED PAPER.

| | | | | | |
|----------------------|--------|---------|--------|---------|----|
| 1918..... | 8,836 | \$5,700 | \$0.64 | \$1,995 | 35 |
| 1919..... | 3,463 | 4,607 | 1.33 | 1,612 | 35 |
| 1920..... | 15,129 | 5,798 | .58 | 3,079 | 35 |
| 1921 (9 months)..... | 18,942 | 10,746 | | | |

PARCHMENT PAPER.

| | | | | | |
|----------------------|---------|----------|--------|----------|----|
| 1918..... | | \$35,214 | | \$13,803 | 25 |
| 1919..... | | 28,213 | | 7,053 | 25 |
| 1920..... | 193,447 | 67,595 | \$0.35 | 16,899 | 25 |
| 1921 (9 months)..... | 118,690 | 36,531 | | | |

GREASE PROOF AND IMITATION PARCHMENT PAPERS BY WHATEVER NAME KNOWN, SUPERCALENDERED AND RENDERED TRANSPARENT OR PARTIALLY SO.

| | | | | | |
|----------------------|--------|-------|---------|-------|----|
| 1918..... | 40 | \$729 | \$18.22 | \$255 | 35 |
| 1919..... | 465 | 484 | 1.04 | 169 | 35 |
| 1920..... | 23,977 | 2,967 | .12 | 1,038 | 35 |
| 1921 (9 months)..... | 15,986 | 5,052 | | | |

ALL OTHER GREASE PROOF AND IMITATION PARCHMENT PAPERS.

| | | | | | |
|----------------------|---------|---------|--------|---------|----|
| 1918..... | 34,741 | \$8,231 | \$0.24 | \$2,881 | 35 |
| 1919..... | 155,910 | 32,459 | .21 | 11,360 | 35 |
| 1920..... | 168,510 | 18,912 | .17 | 6,619 | 35 |
| 1921 (9 months)..... | 536,661 | 53,980 | | | |

BAGS, ENVELOPES, AND ARTICLES COMPOSED OF SURFACE-COATED PARCHMENT, OR SIMILAR PAPERS.

| | | | | | |
|----------------------|--|---------|--|---------|----|
| 1918..... | | \$6,560 | | \$2,298 | 35 |
| 1919..... | | 11,582 | | 4,054 | 35 |
| 1920..... | | 37,877 | | 13,257 | 35 |
| 1921 (9 months)..... | | 32,319 | | | |

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|--|-----------|-----------|-------------|----------|------------------|
| BOXES OF PAPER, PAPIER-MÂCHÉ, OR WOOD COVERED WITH SURFACE-COATED PARCHMENT, OR SIMILAR PAPERS, OR COVERED OR LINED WITH COTTON OR OTHER VEGETABLE FIBERS. | | | | | |
| 1918..... | | \$121,510 | | \$42,528 | Per cent. 35 |
| 1919..... | | 72,677 | | 25,430 | 35 |
| 1920..... | | 129,813 | | 45,435 | 35 |
| 1921 (9 months)..... | | 19,771 | | | |

Exports since 1917 by calendar years are shown in the following tables:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------------|-----------|-----------|------------|-----------------|
| Wax paper..... | \$228,137 | \$552,167 | \$403,810 | \$106,228 |
| Paper bags..... | 884,415 | 1,666,373 | 2,593,459 | 670,882 |
| Paper boxes and cartons..... | 1,079,413 | 1,351,930 | 2,237,596 | 988,436 |
| All other paper..... | 6,170,601 | 8,799,550 | 11,091,952 | 4,879,930 |

Important changes in classification.—This paragraph has been remodeled substantially on the lines of the act of 1909 with certain additions.

Surface-coated paper: Changes in wording have been made for the sake of clearness, but little change in application. The items paper with white-coated surface or surfaces, calender plate finished, hand dipped, marbled paper, surface-coated papers suitable for covering boxes, and lithographic transfer paper not printed, which appeared for the first time in the act of 1913, did not need to be enumerated *eo nomine* in H. R. 7456 because sufficiently covered otherwise.

Decorated paper: To the item "papers, including wrapping paper," etc., which appeared in the act of 1909, has been added a qualifying phrase, "except designs, fancy effects, patterns, or characters produced on a paper machine without attachments," and the phrase "whether produced in the pulp or otherwise" has been omitted. The purpose of the change is to exclude from the application of this paragraph papers, particularly wrapping paper, which have been decorated to no greater extent than receiving lines or designs as a watermark while they are on the ordinary paper machine.

Gummed paper: Gummed paper is different from the paper with which it is classified in the act of 1913, and hence is given a separate provision. Decalcomania paper not printed exempt from duty under the act of 1913 (par. 567) has been included with gummed paper, where it appears logically to belong.

Wax-coated paper: This is a new item. The trade has suggested its inclusion and it appears that they are justified in doing so for wax-coated paper is an important item of production in the United States.

Vegetable parchment paper: In the acts of 1909 and 1913 this was called parchment paper. The new wording is used to distinguish it from certain fine writing papers which are sometimes called parchment papers, and because it is the ordinarily used trade designation. It is a chemically treated paper different in process of making from any other paper in the paper schedule, but has been grouped with imitation parchment paper because of the similarity of use.

Photographic paper: The plain basic paper is now being placed ahead of the sensitized paper, as being a more logical order than the reverse which occurs in the acts of 1909 and 1913.

Wet transfer paper or glycerine-prepared paper contains imprints from lithographic plates. This paper is a coated paper used in the lithographic process for transferring lithographic designs. In the acts of 1909 and 1913 it appeared in the metal schedule in paragraphs 166 and 137, respectively. Being coated paper, its logical location is in this paragraph.

Suggested changes.—Photographic and blue-print paper: Inasmuch as the albumenizing process went out of use some years ago, the words "albumenized" and "albumenizing" might be omitted.

It is suggested that cigarette paper be moved from paragraph 1452 either to this paragraph or to paragraph 1309.

PARAGRAPH 1306.

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SENATE AMENDMENTS.

PAR. 1306. Pictures, calendars, cards, labels, flaps, cigar bands, placards, and other articles, composed wholly or in chief value of paper lithographically printed in whole or in part from stone, gelatin, metal, or other material (except boxes, views of American scenery or objects, and music, and illustrations when forming part of a periodical or newspaper, or of bound or unbound books, accompanying the same), not specially provided for, shall pay duty at the following rates: Labels and flaps, printed in less than eight colors (bronze printing to be counted as two colors), but not printed in whole or in part in metal leaf, 20 cents per pound; cigar bands of the same number of colors and printings, 30 cents per pound; labels and flaps printed in eight or more colors (bronze printing to be counted as two colors), but not printed in whole or in part in metal leaf, 30 cents per pound; cigar bands of the same number of colors and printings, 40 cents per pound; labels and flaps, printed in whole or in part in metal leaf, 50 cents per pound; cigar bands, printed in whole or in part in metal leaf, 55 cents per pound; all labels, flaps, and bands, not exceeding ten square inches cutting size in dimensions, if embossed or die-cut, shall pay the same rate of duty as hereinbefore provided for cigar bands of the same number of colors and printings (but no extra duty shall be assessed on labels, flaps, and bands for embossing or die-cutting); fashion magazines or periodicals, printed in whole or in part by lithographic process, or decorated by hand, 8 cents per pound; decalcomanias in ceramic colors, weighing not over one hundred pounds per one thousand sheets on the basis of twenty by thirty inches in dimensions, 70 cents per pound and 15 per centum ad valorem; weighing over one hundred pounds per one thousand sheets on the basis of

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twenty by thirty inches in dimensions. 22 cents per pound and 15 per centum ad valorem; if backed with metal leaf, 65 cents per pound; all other decalcomanias, except toy decalcomanias, 40 cents per pound; all other articles than those hereinbefore specifically provided for in this paragraph, not exceeding eight one-thousandths of an inch in thickness, 20 cents per pound; exceeding eight and not exceeding twenty one-thousandths of an inch in thickness, and less than thirty-five square inches cutting size in dimensions, 8½ cents per pound; exceeding thirty-five square inches cutting size in dimensions, 8 cents per pound, and in addition thereto on all of said articles exceeding eight and not exceeding twenty one-thousandths of an inch in thickness, if either die-cut or embossed, one-half of 1 cent per pound; if both die-cut and embossed, 1 cent per pound; exceeding twenty one-thousandths of an inch in thickness, 6 cents per pound: *Provided*, That in the case of articles hereinbefore specified the thickness which shall determine the rate of duty to be imposed shall be that of the thinnest material found in the article, but for the purposes of this paragraph the thickness of lithographs mounted or pasted upon paper, cardboard, or other material shall be the combined thickness of the lithograph and the foundation on which it is mounted or pasted, and the cutting size shall be the area which is the product of the greatest dimensions of length and breadth of the article, and if the article is made up of more than one piece, the cutting size shall be the combined cutting sizes of all of the lithographically printed parts in the article.

ACT OF 1909.

PAR. 412. Pictures, calendars, cards, labels, flaps, cigar bands, placards, and other articles, composed wholly or in chief value of paper, lithographically printed in whole or in part from stone, metal, or material other than gelatin (except boxes, views of American scenery or objects, and music, and illustrations when forming part of a periodical or newspaper, or of bound or unbound books, accompanying the same, not specially provided for in this section), shall pay duty at the following rates: Labels and flaps, printed in less than eight colors (bronze printing to be counted as two colors), but not printed in whole or in part in metal leaf, twenty cents per pound; cigar bands of the same number of colors and printings, thirty cents per pound; labels and flaps printed in eight or more colors, but not printed in whole or in part in metal leaf, thirty cents per pound; cigar bands

ACT OF 1913.

PAR. 325. Pictures, calendars, cards, * * * labels, flaps, cigar bands, placards, and other articles composed wholly or in chief value of paper lithographically printed in whole or in part from stone, gelatin, metal, or other material (except boxes, views of American scenery or objects, and music, and illustrations when forming a part of a periodical or newspaper or of bound or unbound books, accompanying the same, not specially provided for in this section) shall pay duty at the following rates: Labels and flaps printed in less than eight colors (bronze printing to be counted as two colors), but not printed in whole or in part of metal leaf, 15 cents per pound; cigar bands of the same number of colors and printings, 20 cents per pound; labels and flaps printed in eight or more colors (bronze printing to be counted as two colors), but not printed in whole or in part

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of the same number of colors and printings, forty cents per pound; labels and flaps, printed in whole or in part in metal leaf, fifty cents per pound; cigar bands, printed in whole or in part in metal leaf, fifty-five cents per pound; all labels, flaps, and bands not exceeding ten square inches cutting size in dimensions, if embossed or die-cut, shall pay the same rate of duty as hereinbefore provided for cigar bands of the same number of colors and printings (but no extra duty shall be assessed on labels, flaps, and bands for embossing or die-cutting); * * * fashion magazines or periodicals, printed in whole or in part by lithographic process, or decorated by hand, eight cents per pound; * * * decalcomanias in ceramic colors, weighing not over one hundred pounds per thousand sheets on the basis of twenty by thirty inches in dimensions, seventy cents per pound and 15 per centum ad valorem; weighing over one hundred pounds per thousand sheets on the basis of twenty by thirty inches in dimensions, twenty-two cents per pound and fifteen per centum ad valorem; if backed with metal leaf, sixty-five cents per pound; all other decalcomanias, except toy decalcomanias, forty cents per pound; all other articles than those hereinbefore specifically provided for in this paragraph, not exceeding eight one-thousandths of one inch in thickness, twenty cents per pound; exceeding eight and not exceeding twenty one-thousandths of one inch in thickness, and less than thirty-five square inches cutting size in dimensions, eight and one-half cents per pound; exceeding thirty-five square inches cutting size in dimensions, eight cents per pound, and in addition thereto on all of said articles exceeding eight and not exceeding twenty one-thousandths of one inch in thickness, if either die cut or embossed, one-half of one cent per pound; if both die cut and embossed, one cent per pound; exceeding twenty one-thousandths of one inch in thickness, six cents per pound; *Provided*, That in the case of articles hereinbefore specified the thickness which shall determine the rate of duty to be imposed shall be that of the thinnest material found in the article, but for the purposes of this paragraph the thickness of lithographs mounted or pasted upon paper, cardboard, or other material, shall be the combined thickness of the lithograph and the foundation on which it is mounted or pasted.

PAR. 415. * * * articles composed wholly or in chief value of paper printed by the photogelatin process and not specially provided for in this Act, three cents per pound and twenty-five per centum ad valorem.

ACT OF 1913.

of metal leaf, 20 cents per pound; cigar bands of the same number of colors and printings, 25 cents per pound; labels and flaps printed in whole or in part of metal leaf, 35 cents per pound; cigar bands printed in whole or in part of metal leaf, 40 cents per pound; * * * all other articles not exceeding eight one-thousandths of an inch in thickness, 15 cents per pound; exceeding eight one-thousandths of an inch and not exceeding twenty one-thousandths of an inch in thickness and less than thirty-five square inches cutting size in dimension, 5 cents per pound; exceeding eight and not exceeding twenty one-thousandths of an inch in thickness and thirty-five square inches and over cutting size in dimension, 7 cents per pound; exceeding twenty one-thousandths of an inch in thickness, 5 cents per pound, providing that in the case of articles hereinbefore specified the thickness which shall determine the rate of duty to be imposed shall be that of the thinnest lithographed material found in the article, but for the purpose of this paragraph the thickness of lithographs mounted or pasted upon paper, cardboard, or other material shall be the combined thickness of the lithograph and the foundation upon which it is mounted or pasted; * * * fashion magazines or periodicals printed in whole or in part by lithographic process or decorated by hand, 6 cents per pound; * * * decalcomanias in ceramic colors, weighing not over one hundred pounds per thousand sheets, on a basis of twenty by thirty inches in dimensions, 60 cents per pound; all other decalcomanias, except toy decalcomanias, 15 cents per pound.

PAR. 425. * * * lithographic prints, bound or unbound. * * * [Free].

PICTURES, CALENDARS, CARDS, ETC.

Description and uses.—Pictures, calendars, cards, etc. may be lithographically or otherwise printed. They are used principally for advertising, display purposes, and for presents, souvenirs, etc.

Production.—No data available.

Imports, including pictures, calendars, cards, booklets, labels, flaps, cigar bands, placards, decalcomanias, and other similar articles composed wholly or in chief value of paper lithographically printed, were 4,895,643 pounds, valued at \$1,780,548 in 1914. Post cards imported in 1914 were valued at \$527,932. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

LABELS AND FLAPS PRINTED IN LESS THAN 8 COLORS.

| | Pounds. | | | | Per cent |
|----------------------|---------|----------|--------|---------|----------|
| 1918..... | 9,625 | \$16,271 | \$1.69 | \$1,300 | |
| 1919..... | 9,464 | 25,841 | 2.73 | 1,374 | |
| 1920..... | 15,503 | 19,365 | 1.25 | 2,274 | |
| 1921 (9 months)..... | 38,090 | 24,760 | | | |

LABELS AND FLAPS PRINTED IN 8 OR MORE COLORS.

| | | | | | |
|----------------------|--------|----------|--------|---------|--|
| 1918..... | 10,738 | \$16,645 | \$1.55 | \$1,741 | |
| 1919..... | 10,726 | 13,499 | 1.26 | 1,738 | |
| 1920..... | 10,423 | 12,532 | 1.20 | 1,815 | |
| 1921 (9 months)..... | 17,380 | 21,620 | | | |

LABELS AND FLAPS PRINTED IN WHOLE OR IN PART IN METAL LEAF.

| | | | | | |
|----------------------|-------|---------|---------|---------|--|
| 1918..... | 7,220 | \$4,733 | \$0.656 | \$2,420 | |
| 1919..... | 1,503 | 1,894 | 1.260 | 477 | |
| 1920..... | 3,951 | 6,497 | 1.644 | 1,383 | |
| 1921 (9 months)..... | 1,848 | 2,085 | | | |

CIGAR BANDS PRINTED IN LESS THAN 8 COLORS.

| | | | | | |
|----------------------|--------|----------|---------|---------|--|
| 1918..... | 7,017 | \$12,043 | \$1.716 | \$1,137 | |
| 1919..... | 3,564 | 4,733 | 1.328 | 619 | |
| 1920..... | 11,951 | 14,137 | 1.183 | 2,240 | |
| 1921 (9 months)..... | 21,578 | 21,832 | | | |

CIGAR BANDS PRINTED IN 8 OR MORE COLORS.

| | | | | | |
|----------------------|-------|-------|--------|-----|-------|
| 1918..... | 44 | \$85 | \$1.93 | \$9 | 10.00 |
| 1919..... | 1,070 | 1,275 | 1.19 | 214 | 18.78 |
| 1920..... | 1,500 | 1,399 | .91 | 376 | 27.90 |
| 1921 (9 months)..... | 615 | 1,200 | | | |

CIGAR BANDS PRINTED IN WHOLE OR IN PART IN METAL LEAF.

| | | | | | |
|----------------------|-------|-------|--------|------|-------|
| 1918..... | 142 | \$313 | \$2.20 | \$45 | 14.32 |
| 1919..... | 1,253 | 2,617 | 2.09 | 430 | 16.43 |
| 1920..... | 1,462 | 2,264 | 1.55 | 585 | 25.99 |
| 1921 (9 months)..... | 297 | 804 | | | |

FASHION MAGAZINES OR PERIODICALS PRINTED IN WHOLE OR IN PART BY THE LITHOGRAPH PROCESS OR DECORATED BY HAND.

| | | | | | |
|----------------------|--------|-------|--------|-------|-------|
| 1918..... | 579 | \$617 | \$1.07 | \$35 | 10.00 |
| 1919..... | 3,473 | 2,083 | .60 | 208 | 18.78 |
| 1920..... | 17,594 | 7,007 | .40 | 1,056 | 27.90 |
| 1921 (9 months)..... | 0,007 | 7,523 | | | |

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent advalorem. |
|----------------|-----------|--------|-------------|-------|-----------------------|
|----------------|-----------|--------|-------------|-------|-----------------------|

DECALCOMANIAS IN CERAMIC COLORS, WEIGHING NOT OVER 100 POUNDS PER 1,000 SHEETS.

| | Pounds. | | | | Per cent. |
|----------------------|---------|----------|--------|---------|-----------|
| 1918..... | 5,030 | \$22,810 | \$4.53 | \$3,018 | 13.23 |
| 1919..... | 2,769 | 13,151 | 4.75 | 1,661 | 12.63 |
| 1920..... | 6,130 | 26,635 | 4.34 | 3,678 | 13.81 |
| 1921 (9 months)..... | 4,273 | 21,027 | | | |

DECALCOMANIAS, ALL OTHER.

| | | | | | |
|----------------------|---------|----------|--------|---------|-------|
| 1918..... | 49,955 | \$85,728 | \$1.72 | \$7,406 | |
| 1919..... | 42,805 | 49,932 | 1.17 | 6,421 | 12.86 |
| 1920..... | 118,817 | 140,117 | 1.18 | 17,823 | 12.72 |
| 1921 (9 months)..... | 101,108 | 122,862 | | | |

PICTURES, CALENDARS, ETC., N. S. P. F.

NOT EXCEEDING $\frac{1}{1000}$ OF AN INCH IN THICKNESS.

| | | | | | |
|----------------------|--------|----------|--------|---------|-------|
| 1918..... | 26,680 | \$25,737 | \$0.96 | \$4,002 | 15.55 |
| 1919..... | 28,172 | 43,341 | 1.54 | 4,226 | 9.75 |
| 1920..... | 71,734 | 108,955 | 1.52 | 10,760 | 9.88 |
| 1921 (9 months)..... | 78,184 | 117,805 | | | |

EXCEEDING $\frac{1}{1000}$ OF AN INCH AND NOT EXCEEDING $\frac{1}{100}$ OF AN INCH IN THICKNESS, LESS THAN 35 SQUARE INCHES.

| | | | | | |
|----------------------|---------|---------|--------|--------|-------|
| 1918..... | 8,857 | \$9,711 | \$1.10 | \$443 | 4.56 |
| 1919..... | 75,270 | 43,832 | .58 | 3,763 | 8.59 |
| 1920..... | 354,796 | 145,213 | .41 | 17,738 | 12.22 |
| 1921 (9 months)..... | 373,140 | 143,057 | | | |

EXCEEDING $\frac{1}{1000}$ OF AN INCH AND NOT EXCEEDING $\frac{1}{100}$ OF AN INCH IN THICKNESS, 35 SQUARE INCHES AND OVER.

| | | | | | |
|----------------------|---------|---------|--------|-------|-------|
| 1918..... | 12,343 | \$9,756 | \$0.80 | \$857 | 8.78 |
| 1919..... | 31,044 | 15,027 | .48 | 2,173 | 14.46 |
| 1920..... | 106,463 | 59,575 | .56 | 7,452 | 12.51 |
| 1921 (9 months)..... | 159,719 | 60,373 | | | |

EXCEEDING $\frac{1}{100}$ OF AN INCH IN THICKNESS.

| | | | | | |
|----------------------|--------|---------|--------|-------|-------|
| 1918..... | 2,712 | \$4,451 | \$1.64 | \$136 | 3.05 |
| 1919..... | 10,282 | 3,915 | .38 | 514 | 13.13 |
| 1920..... | 43,623 | 20,116 | .46 | 2,181 | 10.84 |
| 1921 (9 months)..... | 86,565 | 30,468 | | | |

Exports not segregated.

Important changes in classification.—The provision for determining the cutting size which shall govern the rate of duty is new.

Suggested changes.—This paragraph provides that pictures, calendars, cards, and placards, as well as labels, flaps, and cigar bands, "shall pay duty at the following rates" without, however, separately imposing duties thereon as in the case of labels, flaps, and cigar bands. It is therefore suggested that the words "pictures, calendars, cards * * * placards, and other articles," together with the phrase in parentheses "(except boxes, views of American scenery or objects, and music, and illustrations when forming part of a periodical or newspaper, or of bound or unbound books, accompanying the same)," and

the words "not specially provided for," be stricken out of the first part of the paragraph, which would thereby be confined, from line 17, page 141, to line 15, page 142, to labels, flaps, and cigar bands, with the respective rates of duty thereon set forth in proper order.

If this should be done, a period should be substituted for the semicolon in line 15, page 142, and the word "fashion" ending line 15, be made the beginning of a new sentence to end with the word "pound" in line 18, page 142, with the words "from stone, gelatin, metal, or other material" inserted after the word "process" in line 17.

The provisions concerning decalcomanias in line 18, page 142, to line 1, page 143, should be inserted as another sentence after the word "pound" in line 13, page 143, and the words "pictures, calendars, cards, placards, and all other articles, composed wholly or in chief value of paper lithographically printed in whole or in part from stone, gelatin, metal, or other material (except boxes, views of American scenery or objects, and music, and illustrations when forming part of a periodical or newspaper, or of bound or unbound books, accompanying the same), not specially provided for" should be inserted after the word "pound" in line 18, page 142, and the words "all other articles than those hereinbefore specifically provided for in this paragraph," should be omitted from lines 1 to 3, page 143.

If it should be desired to have lithographically printed envelopes, used as containers of hair nets or seeds, come within this paragraph rather than paragraph 1308, which provides for paper envelopes without qualification or limitation, specific provision therefor should be made in this paragraph. With these changes, paragraph 1306 would read as follows:

Labels, flaps, cigar bands, composed wholly or in chief value of paper lithographically printed in whole or in part from stone, gelatin, metal, or other material, shall pay duty at the following rates: Labels and flaps, printed in less than eight colors (bronze printing to be counted as two colors), but not printed in whole or in part in metal leaf, [rate] per pound; cigar bands of the same number of colors and printings, [rate] per pound; labels and flaps printed in eight or more colors (bronze printing to be counted as two colors), but not printed in whole or in part in metal leaf, [rate] per pound; cigar bands of the same number of colors and printings, [rate] per pound; labels and flaps, printed in whole or in part in metal leaf, [rate] per pound; cigar bands printed in whole or in part in metal leaf, [rate] per pound; all labels, flaps, and bands not exceeding 10 square inches cutting size in dimensions, if embossed or die-cut, shall pay the same rate of duty as hereinbefore provided for cigar bands of the same number of colors and printings (but no extra duty shall be assessed on labels, flaps, and bands for embossing or die-cutting). Fashion magazines or periodicals, printed in whole or in part by lithographic process from stone, gelatin, metal, or other material, or decorated by hand, [rate] per pound. Pictures, calendars, cards, envelopes, placards and all other articles, composed wholly or in chief value of paper lithographically printed in whole or in part from stone, gelatin, metal, or other material (except boxes, views of American scenery or objects, and music, and illustrations when forming part of a periodical or newspaper, or of bound or unbound books, accompanying the same), not specially provided for, not exceeding eight one-thousandths of an inch in thickness, [rate] per pound; exceeding eight and not exceeding twenty one-thousandths of an inch in thickness, and less than 35 square inches cutting size in dimensions, [rate] per pound; exceeding 35 square inches cutting size in dimensions, [rate] per pound, and in addition thereto on all of said articles exceeding eight and not exceeding twenty one-thousandths of an inch in thickness, if either die-cut or embossed, [rate] per pound; if both die-cut and embossed, [rate] per pound; exceeding twenty one-thousandths of an inch in thickness, [rate] per pound. Decalcomanias in ceramic colors, weighing not over 100 pounds per 1,000 sheets on the basis of 20 by 30 inches in dimensions, [rate] per pound and [rate] per centum ad valorem; weighing over 100 pounds per 1,000 sheets on the basis of 20 by 30 inches in dimensions, [rate] per pound and [rate] per centum ad valorem; if backed with metal leaf, [rate] per pound; all other decalcomanias, except toy decalcomanias, [rate] per pound: *Provisos*. That in the case of articles, etc.

PARAGRAPH 1307.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1307. Writing, letter, note, drawing, handmade paper and paper commercially known as handmade paper and machine handmade paper, japan paper and imitation japan paper by whatever name known, and ledger, bond, record, tablet, typewriter, manifold, and onionskin and imitation onionskin paper, Bristol board of the kinds made on a Fourdrinier machine, calendered or uncalendered, 3 cents per pound and 15 per centum ad valorem; but if any of the foregoing is ruled, bordered, embossed, printed, lined, or decorated in any manner, other than by lithographic process, it shall pay 10 per centum ad valorem in addition to the foregoing rates.

ACT OF 1909.

PAR. 413. Writing, letter, note, handmade paper and paper commercially known as handmade paper and machine handmade paper, japan paper and imitation japan paper by whatever name known, and ledger, bond, record, tablet, typewriter, manifold, and onionskin and imitation onionskin papers calendered or uncalendered, weighing six and one-fourth pounds or over per ream, three cents per pound and fifteen per centum ad valorem; but if any such paper is ruled, bordered, embossed, printed, lined, or decorated in any manner, other than by lithographic process, it shall pay ten per centum ad valorem in addition to the foregoing rates: *Provided*, That in computing the duty on such paper every one hundred and eighty thousand square inches shall be taken to be a ream.

PAR. 415. * * * bristol board, thirty-five per centum ad valorem; * * *.

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PAR. 326. Writing, letter, note, drawing, handmade paper and paper commercially known as handmade paper and machine handmade paper, japan paper and imitation japan paper by whatever name known, and ledger, bond, record, tablet, typewriter, and onionskin and imitation onionskin papers calendered or uncalendered, whether or not any such paper is ruled, bordered, embossed, printed, lined, or decorated in any manner, 25 per centum ad valorem.

Par. 328. * * * bristol board, * * * 25 per centum ad valorem.

FINE PAPER.

(See Survey M-6.)

Description and uses.—Fine paper, as is evident from its classification in the above paragraph, has a great many subdivisions. It consists of paper made from a high grade of raw material, principally cotton and linen rags, also cotton linters, esparto, and special fibers. Sulphite wood pulp, however, is being used increasingly in making writing paper. It is impossible to exclude such medium-grade writing papers as those containing wood pulp from the general heading of fine paper, because it is desirable to treat all classes of writing paper together.

Writing paper and other fine papers are very similar in the raw material from which they are manufactured and in texture to certain high grades of book paper, except that watermarks and special finishes are much more used in the former.

It is impossible to differentiate satisfactorily the manifold varieties of fine paper. This is particularly true of the principal group of fine papers, namely, writing papers. Writings, bonds, and ledgers are classified separately; yet bonds and ledgers are actually writing paper. There is no uniform system of classifying bonds, ledgers, papeteries, linens, etc., by raw-material content, by size, or by the use to which they are to be put. Every variety overlaps one or more varieties to some extent. Some varieties bear two names, such as "linen bond." In actual practice, in the mill, the product will often be named according to the dimensions of the finished sheet turned out by the mill, because the mill ordinarily sells sheets of certain standard sizes to makers of papeterie, other standard sizes to makers of bond, and yet others to makers of ledgers, etc. In general, however, the distinctions in terminology are as follows: Bond paper (which derives its name from the fact that it was first used as paper for engraved bonds) is usually of medium weight, is not highly calendered, and hence has not a highly polished surface, and tends to be translucent. It often rattles when handled. The cheapest bond paper is made of pure sulphite wood pulp and the best of 100 per cent new linen rags. Intermediate grades are made of various proportions of sulphite and old and new cotton and linen rags.

Ledger paper is usually harder, tougher, and has a more polished surface than bond paper. Oftentimes it is heavier also. There are no bond papers of as great a weight as the heaviest ledger papers. A smooth polished surface on which frequent erasures can be made is necessary, for ledger paper is most frequently used for bookkeeping, public records, and similar purposes. Strength and durability are also naturally requisities of this sort of paper. It is usually made entirely or in greater part of rags.

Papeterie is the term applied to writing papers to be packed in boxes as stationery. It differs usually from bond and ledger in having a rather soft coarse texture. It has a dull, rough finish, for, like bond paper, it often is not calendered. It is usually rather heavy.

Letter, note, record, tablet, and typewriter papers, as specified in the tariff, are merely subdivisions of the kinds discussed above, classified according to use. Often it is merely the size or the form in which the paper is cut for a particular purpose that determines its tariff classification. Tablet paper is often of material inferior to that used in the other grades named. Drawing paper is a high-grade product made chiefly of rags. In England esparto grass is much used for drawing paper. Handmade papers, when imported, are usually extra fine and fancy papeteries or special stationery. Japan paper is a paper of a pronounced silky texture, formerly made exclusively from the bark of the mulberry tree, beat out by the Japanese with mallets. Now, however, it is made also of other vegetable fibers. It is used principally for writing, printing, tapestry, imitation Japanese wall hangings, and to some extent in art-craft books. It is almost transparent, and has a highly glazed surface and a texture almost like the skin of an onion.

Bristol board made on a Fourdrinier machine is also a kind of fine paper. Its classification is discussed in detail below in the section on "Changes in classification."

Production.—The production of fine paper increased from 248,000 tons, valued at \$34,055,000, in 1914 to 325,000 tons, valued at \$87,741,000, in 1919. Massachusetts is the principal seat of the fine-paper industry; the other States of importance are New York, Pennsylvania, Wisconsin, and Ohio. The domestic production is sufficient to supply practically the whole of the demand for domestic consumption and to export a surplus.

Imports of writing paper in 1914 were 2,163,432 pounds, valued at \$203,171. Later statistics follow:

Writing, drawing, and similar papers.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------------------|----------------|---------|-------------|-------|------------------|
| LEDGER, BOND, AND RECORD. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 9,083 | \$3,796 | \$0.42 | \$949 | 25 |
| 1920..... | 6,697 | 3,733 | .56 | 933 | 25 |
| 1921 (9 months)..... | 4,599 | 2,205 | | | |

DRAWING.

| | | | | | |
|----------------------|---------|----------|--------|----------|----|
| 1919..... | 133,182 | \$45,130 | \$0.34 | \$11,282 | 25 |
| 1920..... | 268,154 | 66,481 | .25 | 16,620 | 25 |
| 1921 (9 months)..... | 412,086 | 92,177 | | | |

TABLET.

| | | | | | |
|----------------------|-----|------|--------|-----|----|
| 1919..... | 25 | \$10 | \$0.40 | \$2 | 25 |
| 1920..... | 638 | 409 | .64 | 102 | 25 |
| 1921 (9 months)..... | 354 | 205 | | | |

TYPEWRITER.

| | | | | | |
|----------------------|-------|-------|--------|-------|----|
| 1919..... | 939 | \$616 | \$0.66 | \$154 | 25 |
| 1920..... | 1,077 | 446 | .41 | 111 | 25 |
| 1921 (9 months)..... | 380 | 213 | | | |

Writing, letter, note, handmade, and paper commercially known as handmade and machine handmade, Japan and imitation Japan paper, and onionskin and imitation papers, calendered or uncalendered.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|-------------|----------|------------------|
| RULED, BORDERED, EMBOSSED, PRINTED, LINED, OR DECORATED. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1919..... | 405,939 | \$182,487 | \$0.45 | \$45,622 | 25 |
| 1919..... | 25,152 | 21,788 | .87 | 5,447 | 25 |
| 1920..... | 43,163 | 20,370 | .48 | 5,092 | 25 |
| 1921 (9 months)..... | 24,495 | 11,445 | | | |

ALL OTHER.

| | | | | | |
|----------------------|---------|-----------|--------|----------|----|
| 1919..... | 363,945 | \$268,697 | \$0.74 | \$67,174 | 25 |
| 1920..... | 607,479 | 428,624 | .70 | 107,156 | 25 |
| 1921 (9 months)..... | 754,372 | 437,449 | | | |

¹ Includes both the "ruled, bordered, embossed," etc., and "all other."

Exports in 1914 of writing paper and envelopes combined were valued at \$1,179,232; later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|---|---------------|----------------|---------------|-----------------|
| Writing paper and envelopes..... | \$6, 113, 498 | \$13, 188, 165 | \$8, 908, 230 | \$3, 841, 127 |
| Cash-register and adding-machine paper..... | 109, 207 | 132, 515 | 211, 167 | 135, 600 |

Important changes in classification.—The minimum weight provision is omitted because practically all the papers included are papers heavier than what is ordinarily called and sold as tissue paper. Manifold paper, which did not appear in the act of 1913 but did appear in 1909, is restored. Manifold and typewriter paper are practically always heavier than tissue paper. Bristol board of the kinds made on a Fourdrinier machine is a new item. Bristol board appears in connection with cardboard in paragraph 328 of the act of 1913. However, there are two entirely different kinds of bristol board. The kind included in this paragraph is made on the Fourdrinier machine in the same way as writing paper, and is used as a fine writing paper and for cards in index files. A Fourdrinier machine may be defined as a paper machine on which the sheet of paper is first formed by placing pulp much diluted with water onto a horizontal moving wire screen from which part of the water is removed through drainage and through suction. Bristol board of this type is sometimes made as a single-ply sheet and is calendered and finished in practically the same way as a heavy ledger paper. Sometimes two or three thicknesses are placed together after they have come off the Fourdrinier machine, after which the calendering and other finishing processes take place. This kind is usually called solid bristol board. The other kind of bristol board is included under paper board or pulpboard in paragraphs 1302 and 1313; it is not specifically named.

PARAGRAPH 1308.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1308. Paper envelopes not specially provided for, folded or flat, if plain, shall pay the same rate of duty as the paper from which made and 5 per centum ad valorem; if bordered, embossed, printed, tinted, decorated, or lined, 10 per centum ad valorem in addition to the foregoing rates.

ACT OF 1909.

PAR. 411. * * * envelopes, * * * composed wholly or in chief value of the foregoing papers, not specially provided for in this section, * * * five cents a pound and thirty per centum ad valorem, * * *

414. Paper envelopes not specially provided for in this section, folded or flat, if plain, twenty per centum ad valorem; if bordered, embossed, printed, tinted, decorated, or lined, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 324. * * * envelopes, * * * composed wholly or in chief value of any of the foregoing papers, not specially provided for in this section, * * * 35 per centum ad valorem; * * *

PAR. 327. Paper envelopes, folded or flat, not specially provided for in this section, 15 per centum ad valorem.

ENVELOPES.

(See Survey M-6.)

Description and uses.—Kraft paper (made of sulphate wood pulp) forms the basis for a considerable class of envelopes. These are ordinarily large, strong coverings and are used mainly for mailing circulars, photographs, pamphlets, and catalogues. Manila envelopes constitute an important class. They are much used for filing-cabinets and, like kraft envelopes, for mailing circulars, etc. A great many manila and kraft envelopes are made in all sizes with metal clasps for wrapping and for mailing a variety of small articles. A very large number of envelopes are made to carry business correspondence and light weight advertising matter. Of these the great preponderance is made of wood pulp, principally sulphite. The stamped envelopes sold at post offices are of this type. Oftentimes the envelopes used by business concerns are of material inferior to the correspondence sheets they contain. The best grades of envelopes (other than ornamental specialties) are those designed to be used with fine stationery or so-called social writing paper. In this class both envelopes and writing sheets are ordinarily manufactured from the same kind of paper and thus may range in content from all sulphite to all new rag.

Production.—The production of envelopes in the United States increased from \$18,481,000 in 1914 to \$39,664,000 in 1919 and the number of establishments making envelopes from 90 in 1914 to 106 in 1919. Domestic production supplies practically the whole of the demand for domestic consumption. The capitalization of the 90 envelope establishments in the United States in 1914 was \$15,830,000.

Imports in 1914 were valued at \$29,350. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|-------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$5,122 | \$768 | 15 |
| 1919..... | 14,291 | 2,144 | 15 |
| 1920..... | 148,742 | 7,288 | 15 |
| 1921 (9 months)..... | 31,387 | | |

¹ In addition to the figure given (\$48,742) envelopes to the value of \$152 were imported free of duty from the Philippine Islands.

Exports not segregated.

Important changes in classification.—The wording of this paragraph is slightly changed so that all paper envelopes instead of bearing a uniform rate of duty shall bear duty according to the paper from which they are made. This change is made because of the great variety in quality of the paper from which envelopes are made.

PARAGRAPH 1309.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1309. Jacquard designs on ruled paper, or cut on Jacquard cards, and parts of such designs, 23 per centum ad valorem; hanging paper, not printed, lithographed, dyed, or colored, 10 per centum ad valorem; paper hangings with paper back or composed wholly or in chief value of paper, not printed, lithographed, dyed, or colored, 5 cents per pound; printed, lithographed, dyed, or colored, 20 per centum ad valorem; wrapping paper not specially provided for, 23 per centum ad valorem; blotting paper, 2 cents per pound and 10 per centum ad valorem; filtering paper, 5 cents per pound and 15 per centum ad valorem; paper not specially provided for, 23 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 410. * * * filtering paper, five cents per pound and fifteen per centum ad valorem: *Provided*, That no article composed wholly or in chief value of one or more of the papers specified in this paragraph shall pay a less rate of duty than that imposed upon the component paper of chief value of which such article is made.

PAR. 415. Jacquard designs on ruled paper, or cut on Jacquard cards, and parts of such designs, * * * thirty-five per centum ad valorem; * * * paper hangings with paper back or composed wholly or in chief value of paper, twenty-five per centum ad valorem; wrapping paper not specially provided for in this section, thirty-five per centum ad valorem; paper not specially provided for in this section, thirty per centum ad valorem: * * *

[No corresponding provision for hanging paper and blotting paper.]

PAR. 332. * * * all papers * * * not specially provided for in this section, 25 per centum ad valorem.

PAR. 328. Jacquard designs on ruled paper, or cut on Jacquard cards, and parts of such designs, * * * paper hangings with paper back or composed wholly or in chief value of paper, and wrapping paper not specially provided for in this section, 25 per centum ad valorem.

PAR. 323. * * * filtering paper, and articles manufactured from any of the foregoing papers, or of which such paper is the component material of chief value, 30 per centum ad valorem.

[No corresponding provision for hanging paper and blotting paper.]

JACQUARD DESIGNS, HANGING PAPER, PAPER HANGINGS, WRAPPING,
BLOTTING AND FILTERING PAPER.

(See Surveys M 7, M 3, and M 4.)

Description and uses.—Jacquard designs or Jacquard cards are used with the Jacquard loom, a machine for fancy weaving, having a chain of perforated cards passing over a rotary prism, the perforations permitting the passage of wires that determine the raising of warp threads, causing the figure to be woven in accordance with the prearrangement of the perforated cards.

Wall paper, or paper hangings, is paper ready for use as a covering for the interior walls of buildings. Hanging paper is the paper used for making wall paper, i. e., it is wall paper not yet ready for use as wall covering. The distinction between them is discussed in detail below in the section on changes in classification.

Wrapping paper, as its name indicates, is used for wrapping and packing purposes of all sorts. This is practically its sole use. There are, however, three principal varieties according to material used: (1) Kraft, a very tough brown paper made wholly or in part of sulphate wood pulp, introduced within the last 15 years; (2) manila, a strong paper of lighter color, formerly made principally of old and waste manila rope and rope ends, hemp, jute, and flax waste, old gunny cloth and old gunny bags, but now made chiefly of sulphite wood pulp, and frequently called bogus manila; and (3) fiber paper, a cheap, more or less brittle and tearable variety made of waste paper, cuttings from paper-board factories, mechanically ground wood pulp, wood-pulp refuse, or almost any fibrous material of inferior quality. (Of these three sorts, genuine manila made of old rope, bagging, etc., is the strongest per unit of weight. Next comes kraft paper, followed by the best grades of wood pulp or bogus manila. Last, of course, are the fiber papers of common stock. In addition to these varieties, there are a number of cheap wood-pulp papers made of ground wood with varying proportions of chemical pulp.

Bag paper is made of all the different substances above listed. Paper to be made into sacks for flour, cement, charcoal, sugar, nails, etc., is necessarily heavy and tough and often is reinforced by cloth.

There are a great many special kinds of wrapping paper, all of which may be classified under the varieties already named. Mill wrapper is a thick, coarse paper used to a great degree in paper mills, where it is made to pack the staple products of those mills. It is made often out of paper-mill sweepings. So-called news wrapping paper comes under the head of fiber paper, the raw material being repulped newsprint. Straw wrapping paper, screenings (paper made from pulp screened out as unfit for use in the paper for which it was originally intended), express paper (primarily for wrapping express shipments), fruit wrappers, and silk wrappers are other varieties. Certain kinds of tissue paper are used for wrapping purposes, but are treated separately in the tariff and bear a higher rate of duty. (See Survey M-3, on tissue paper.) Grease-proof paper and imitation parchment are also mainly used for wrapping. A special survey treats of these grades.

Blotting paper, as its name indicates, is used for soaking up liquids for one purpose or another. It is unsized, porous, and absorbent.

Filtering paper is a white, unsized, porous paper. The domestic product in the main is a very ordinary grade, differing little from blotting paper and used principally for clarifying liquids. It is used by soap, paint, sugar, color, and pharmaceutical manufacturers. It is also used by electrical companies to filter oil for transformers. Another use is for chemical qualitative analyses. The best grades for qualitative analysis are not made in this country and must be imported mainly from England, Sweden, Germany, and France. Recently, however, a beginning has been made in the United States in manufacturing the better grades.

Production.—Jacquard designs used here are almost exclusively domestically produced. They are made by punching holes in pieces of cardboard with a plate (or a piano) punching machine. There is little need to import designs. Our imports compared with domestic

production are of no importance. They are accounted for in part by the fact that one American company weaving with Jacquard looms has a mill in France which sends for reference to the American mill copies of the designs it produces.

The production of hanging paper in the United States decreased from 97,000 tons valued at \$4,489,000 in 1914 to 69,000 tons valued at \$6,043,000 in 1919. The output of hanging paper fluctuates considerably from month to month and from year to year. One of the reasons for this fluctuation is the fact that many of the machines making hanging paper can be operated at will either in the manufacture of newsprint or of hanging paper.

The production of wall paper not made in paper mills increased from \$15,887,000 in 1914 to \$23,895,000 in 1919. The number of establishments increased from 48 in 1914 to 49 in 1919. Production of wall paper in the United States supplies practically the whole of the demand for domestic consumption.

The production of blotting paper decreased from 14,000 tons valued at \$1,458,000 in 1914 to 13,000 tons valued at \$2,309,000 in 1919.

A rough estimate places the annual production of filter paper in the United States at 500 tons.

Imports in the fiscal year 1914 are shown by the following table:

| Article. | Quantity. | Value |
|------------------------------|------------|-----------|
| Jacquard designs..... | | \$10,763 |
| Paper hangings..... | | 936,339 |
| Wrapping paper (pounds)..... | 36,515,554 | 1,028,500 |

Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

JACQUARD DESIGNS ON RULED PAPER OR CUT ON JACQUARD CARDS.

| | Pounds. | Value. | Duty. | Per cent. |
|----------------------|---------|--------|-------|-----------|
| 1918..... | | \$877 | \$219 | 25 |
| 1919..... | | 452 | 113 | 25 |
| 1920..... | | 7,059 | 1,765 | 25 |
| 1921 (9 months)..... | | 10,411 | | |

PAPER HANGINGS, WITH PAPER BACK OR COMPOSED WHOLLY OR IN CHIEF VALUE OF PAPER.

| | Value. | Duty. | Per cent. |
|----------------------|-----------|----------|-----------|
| 1918..... | \$135,697 | \$33,924 | 25 |
| 1919..... | 99,674 | 24,918 | 25 |
| 1920..... | 361,363 | 90,341 | 25 |
| 1921 (9 months)..... | 270,026 | | |

WRAPPING PAPER.

| | Quantity. | Value. | Unit value. | Duty. | Per cent. |
|----------------------|-----------|-----------|-------------|-----------|-----------|
| 1918..... | 7,795,466 | \$530,278 | \$0.07 | \$132,569 | 25 |
| 1919..... | 4,653,484 | 368,450 | .08 | 96,362 | 25 |
| 1920..... | 4,542,156 | 423,365 | .09 | 105,687 | |
| 1921 (9 months)..... | 6,606,317 | 326,580 | | | |

PAPERS NOT SPECIALLY PROVIDED FOR.

| | Quantity. | Value. | Unit value. | Duty. | Per cent. |
|----------------------|-----------|----------|-------------|---------|-----------|
| 1918..... | | \$31,115 | | \$7,779 | 25 |
| 1919..... | 23,373 | 14,916 | \$0.64 | 5,729 | 25 |
| 1920..... | 431,444 | 86,915 | .20 | 21,729 | 25 |
| 1921 (9 months)..... | 512,555 | 59,547 | | | |

Exports in 1914 of paper hangings were valued at \$453,412. Exports of wrapping paper were 14,133,097 pounds, valued at \$532,657. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-------------|-------------|-------------|---------------------|
| Paper hangings (value)..... | \$529,539 | \$899,457 | \$1,251,743 | \$503,058 |
| Wrapping paper: | | | | |
| Quantity (pounds)..... | 59,899,043 | 74,916,830 | 61,264,501 | 20,208,163 |
| Value..... | \$4,828,856 | \$6,664,462 | \$6,994,381 | \$1,913,340 |

Important changes in classification.—Cardboard and bristol board are omitted from this paragraph. Cardboard is now taken care of in two paragraphs: paragraph 1302 provides for all paper board and pulpboard, including cardboard which has not had a special treatment after leaving the paper machine, and paragraph 1313 provides for cardboard when it has been subjected to some sort of special treatment. There is apparently no good reason why cardboard should appear in the tariff act widely differentiated from paper board and pulpboard in general, especially as it has been held that cardboard is the generic term for paper board. Bristol board of the kinds made on a Fourdrinier machine is provided for *eo nomine* in paragraph 1307. The other kind of bristol board is produced on a cylinder machine out of layers of pulp pressed together when wet. As the inside layer or layers are usually of inferior material, this kind is ordinarily called filled bristol board. The principal variety of it is called bogus bristol. Bristol board of this kind comes under the general heading for paper board and so does not need an *eo nomine* provision.

The provision for hanging paper is new. Hanging paper is the raw material for paper hangings or wall paper, i. e., it is wall paper not yet printed or decorated. The principal variety of hanging paper is No. 2 hanging paper. This is an uncolored, untreated paper. There are also certain kinds which are specially treated, some of which do not have to be subsequently printed in a wall-paper mill in order to be used for interior decoration. Among these are oatmeal and tile paper. These special papers, such as oatmeal and tile, although often called hanging paper in the trade, are in reality finished wall paper or paper hangings.

Blotting paper has been introduced *eo nomine* for the first time. A great deal of blotting paper is produced in this country, and, although the imports are negligible, separate classification seems desirable.

Suggested changes.—It is suggested that cigarette paper be moved from paragraph 1452 either to this paragraph or to paragraph 1305.

PARAGRAPH 1310.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1310. Books of all kinds, bound or unbound, including blank books, slate books and pamphlets, drawings, engravings, photographs, etchings, maps, charts, music in books or sheets, and printed matter, all the foregoing not specially provided for, 20 per centum ad valorem; books bound wholly or in part in leather, the chief value of which is in the binding, not specially provided for, 33½ per centum ad valorem; books of paper or other material for children's use, printed lithographically or otherwise, not exceeding in weight twenty-four ounces each, with more reading matter than letters, numerals, or descriptive words, 20 per centum ad valorem; booklets, printed lithographically or otherwise, not specially provided for, 7 cents per pound; booklets, wholly or in chief value of paper, decorated in whole or in part by hand or by spraying, whether or not printed, 15 cents per pound; all post cards (not including American views), plain, decorated, embossed, or printed except by lithographic process, 26 per centum ad valorem; views of any landscape, scene, building, place or locality in the United States, on cardboard or paper, not thinner than eight one-thousandths of one inch, by whatever process printed or produced, including those wholly or in part produced by either lithographic or photogelatin process (except show cards), occupying thirty-five square inches or less of surface per view, bound or unbound, or in any other form, 15 cents per pound and 20 per centum ad valorem; thinner than eight one-thousandths of one inch, \$2 per thousand; Christmas and other greeting cards, printed lithographically or otherwise, or decorated in whole or in part by hand or by spraying, 30 per centum ad valorem.

ACT OF 1909.

PAR. 410. * * * letter copying books, whether wholly or partly manufactured, five cents per pound and fifteen per centum ad valorem; * * * *Provided*, That no article composed wholly or in chief value of one or more of the papers specified in this paragraph shall pay a less rate of duty than that imposed upon the component paper of chief value of which such article is made.

PAR. 412. * * * booklets, seven cents per pound; books of paper or other material for children's use, not exceeding in weight twenty-four ounces each, six cents per pound; * * * booklets, dec-

ACT OF 1913.

PAR. 323. * * * letter-copying books, wholly or partly manufactured, * * * 30 per centum ad valorem.

PAR. 325. * * * booklets, * * * composed wholly or in chief value of paper lithographically printed in whole or in part from stone, gelatin, metal, or other material * * * booklets, 7 cents per pound; * * * books of paper or other material for children's use, lithographically printed in whole or in part, not exceeding in weight twenty-four ounces each, 4 cents per pound; * * * booklets, wholly or in chief value of paper, decorated in whole or in part by hand or

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orate] in whole or in part by hand or by spraying, whether or not lithographed, fifteen cents per pound; * * *

PAR. 416. Books of all kinds, bound or unbound, including blank books, slate books and pamphlets, engravings, photographs, etchings, maps, charts, music in books or sheets, and printed matter, all the foregoing wholly or in chief value of paper, and not specially provided for in this section, twenty-five per centum ad valorem. Views of any landscape, scene, building, place or locality in the United States, on cardboard or paper, not thinner than eight one-thousandths of one inch, by whatever process printed or produced, including those wholly or in part produced by either lithographic or photogelatin process (except show cards), occupying thirty-five square inches or less of surface per view, bound or unbound, or in any other form, fifteen cents per pound and twenty-five per centum ad valorem; thinner than eight one-thousandths of one inch, two dollars per thousand; *Provided*, That the rate or rates of duty provided in the tariff Act approved July twenty-fourth, eighteen hundred and ninety-seven, shall remain in force until October first, nineteen hundred and nine, on all views of any landscape, scene, building, place, or locality, provided for in this paragraph, which shall have, prior to July first, nineteen hundred and nine, been ordered or contracted to be delivered to bona fide purchasers in the United States, and the Secretary of the Treasury shall make proper regulations for the enforcement of this provision.

PAR. 517. Books, maps, music, engravings, photographs, etchings, bound or unbound, and charts, which shall have been printed more than twenty years at the date of importation, * * * [Free].

PAR. 518. Books and pamphlets printed chiefly in languages other than English; * * * [Free].

[No corresponding provision for the other commodities.]

ACT OF 1913.

by spraying, whether or not lithographed, 10 cents per pound; * * *

PAR. 329. Books of all kinds, bound or unbound, including blank books, slate books and pamphlets, engravings, photographs, etchings, maps, charts, music in books or sheets, and printed matter, all the foregoing, and not specially provided for in this section, 15 per centum ad valorem. Views of any landscape, scene, building, place or locality in the United States, on cardboard or paper, not thinner than eight one-thousandths of one inch, by whatever process printed or produced, including those wholly or in part produced by either lithographic or photogelatin process (except show cards), bound or unbound, or in any other form, 20 cents per pound; thinner than eight one-thousandths of one inch, \$2 per thousand.

PAR. 332. * * * all post cards, not including American views, plain, decorated, embossed, or printed, except by lithographic process, * * * 25 per centum ad valorem.

PAR. 425. Books, maps, music, engravings, photographs, etchings, lithographic prints, bound or unbound, and charts, which shall have been printed more than twenty years at the date of importation, * * * [Free].

PAR. 426. Books and pamphlets printed wholly or chiefly in languages other than English; * * * and all textbooks used in schools and other educational institutions; * * * [Free].

PAR. 428. Books, libraries, * * * of persons or families from foreign countries, * * * if actually used abroad by them not less than one year, and not intended for any other person or persons, nor for sale.

PAR. 582. Professional books, * * * in the actual possession of persons emigrating to the United States owned and used by them abroad; * * *

[No corresponding provision for the other commodities.]

BOOKS, PAMPHLETS, POST CARDS, AND OTHER PRINTED MATTER.

Description and uses.—The items mentioned in paragraph 1310 are self-explanatory.

Production of books of all kinds in 1914 was 786,626 tons, valued at \$58,496,221.

Imports in 1914 were valued at \$6,644,265. Later imports have been as follows:

Books, pamphlets, and other printed matter.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate |
|--|----------------|-----------|-------------|-----------|-----------------|
| BOOKS AND PAMPHLETS, BOUND AND UNBOUND. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent</i> |
| 1918..... | | \$912,568 | | \$136,826 | |
| 1919..... | | 847,965 | | 127,176 | |
| 1920..... | | 1,545,999 | | 231,838 | |
| 1921 (9 months)..... | | 1,116,200 | | | |

¹Includes, besides books and pamphlets, maps and charts, and other printed matter segregated after 1918.

MAPS AND CHARTS.

| | | | | | |
|----------------------|--|----------|--|---------|--|
| 1919..... | | \$11,325 | | \$1,098 | |
| 1920..... | | 26,361 | | 3,954 | |
| 1921 (9 months)..... | | 15,142 | | | |

MUSIC IN BOOKS OR SHEETS.

| | | | | | |
|----------------------|--|----------|--|---------|--|
| 1919..... | | \$48,568 | | \$7,281 | |
| 1920..... | | 75,687 | | 11,353 | |
| 1921 (9 months)..... | | 52,730 | | | |

OTHER PRINTED MATTER (EXCEPT POST CARDS).

| | | | | | |
|----------------------|--|-----------|--|----------|--|
| 1919..... | | \$293,202 | | \$43,901 | |
| 1920..... | | 561,964 | | 83,883 | |
| 1921 (9 months)..... | | 391,800 | | | |

BOOKS AND PAMPHLETS PRINTED WHOLLY OR CHIEFLY IN LANGUAGES OTHER THAN ENGLISH.

| | | | | | |
|----------------------|--|-----------|--|--|--|
| 1918..... | | \$427,638 | | | |
| 1919..... | | 910,688 | | | |
| 1920..... | | 1,959,012 | | | |
| 1921 (9 months)..... | | 1,235,811 | | | |

BLANK AND SLATE BOOKS.

| | | | | | |
|----------------------|--|---------|--|---------|----|
| 1918..... | | \$9,835 | | \$1,475 | 15 |
| 1919..... | | 36,500 | | 5,475 | 15 |
| 1920..... | | 42,191 | | 6,322 | |
| 1921 (9 months)..... | | 43,325 | | | |

LETTER COPYING BOOKS.

| | | | | | |
|----------------------|-------|------|--------|-----|----|
| 1918..... | 38 | \$27 | \$0.71 | \$9 | 30 |
| 1919..... | 216 | 35 | .16 | 10 | 30 |
| 1920..... | 1,661 | 878 | .53 | 263 | 30 |
| 1921 (9 months)..... | 228 | 90 | | | |

TEXTBOOKS USED IN SCHOOLS AND OTHER EDUCATIONAL INSTITUTIONS.

| | | | | | |
|----------------------|--|-----------|--|--|--|
| 1918..... | | \$132,866 | | | |
| 1919..... | | 208,263 | | | |
| 1920..... | | 291,066 | | | |
| 1921 (9 months)..... | | 166,130 | | | |

Books, pamphlets, and other printed matter—Continued.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|--|----------------|----------|-------------|---------|------------------------|
| BOOKS OF PAPER OR OTHER MATERIAL FOR CHILDREN'S USE NOT EXCEEDING IN WEIGHT 24 OUNCES EACH. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 5,035 | \$2,694 | \$0.53 | \$201 | 7.48 |
| 1919..... | 7,302 | 6,146 | .84 | 292 | 4.75 |
| 1920..... | 52,410 | 25,013 | .48 | 2,096 | 8.38 |
| 1921 (9 months)..... | 30,975 | 11,935 | | | |
| ENGRAVINGS, BOUND OR UNBOUND, ETCHINGS, AND PHOTOGRAPHS (EXCEPT POST CARDS). | | | | | |
| 1918..... | | \$16,186 | | \$2,428 | |
| 1919..... | | 30,487 | | 4,569 | |
| 1920..... | | 49,473 | | 7,417 | |
| 1921 (9 months)..... | | 25,053 | | | |
| BOOKLETS DECORATED IN WHOLE OR IN PART BY HAND SPRAYING WHETHER OR NOT LITHOGRAPHED. | | | | | |
| 1918..... | 3,571 | \$5,082 | \$1.42 | \$355 | |
| 1919..... | 1,406 | 2,997 | 2.06 | 141 | |
| 1920..... | 17,885 | 7,161 | .41 | 1,738 | |
| 1921 (9 months)..... | 11,175 | 14,749 | | | |
| ALL OTHER BOOKLETS. | | | | | |
| 1918..... | 1,677 | \$733 | \$0.44 | \$117 | 16.02 |
| 1919..... | 3,181 | 2,857 | .90 | 223 | 7.79 |
| 1920..... | 15,906 | 8,034 | .50 | 1,113 | 13.86 |
| 1921 (9 months)..... | 22,829 | 7,408 | | | |
| <i>Souvenir post cards.</i> | | | | | |
| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
| LITHOGRAPHICALLY PRINTED, NOT EXCEEDING $\frac{1}{16}$ OF AN INCH IN THICKNESS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 4,255 | \$6,843 | \$1.61 | \$638 | 9.33 |
| 1919..... | 3,064 | 6,198 | 2.02 | 460 | 7.42 |
| 1920..... | 8,696 | 15,363 | 1.77 | 1,304 | 8.49 |
| 1921 (9 months)..... | 7,529 | 7,221 | | | |
| LITHOGRAPHICALLY PRINTED, EXCEEDING $\frac{1}{16}$ OF AN INCH AND NOT $\frac{1}{8}$ OF AN INCH IN THICKNESS, CUTTING SIZES IN DIMENSION LESS THAN 35 SQUARE INCHES. | | | | | |
| 1918..... | 11,099 | \$5,576 | \$0.50 | \$555 | 9.95 |
| 1919..... | 4,695 | 4,385 | .93 | 235 | 5.35 |
| 1920..... | 46,343 | 17,704 | .38 | 2,317 | 13.09 |
| 1921 (9 months)..... | 62,376 | 99,266 | | | |
| LITHOGRAPHICALLY PRINTED, EXCEEDING $\frac{1}{8}$ OF AN INCH, AND NOT $\frac{1}{4}$ OF AN INCH IN THICKNESS, CUTTING SIZES IN DIMENSION 35 SQUARE INCHES AND OVER. | | | | | |
| 1918..... | 1,977 | \$1,740 | \$0.88 | \$138 | 7.95 |
| 1919..... | 6,651 | 2,967 | .45 | 466 | 15.60 |
| 1920..... | 16,517 | 5,742 | .35 | 1,156 | 20.14 |
| 1921 (9 months)..... | 11,053 | 5,064 | | | |

Souvenir post cards—Continued.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|---|----------------|---------|-------------|-------|------------------------|
| LITHOGRAPHICALLY PRINTED, EXCEEDING $\frac{1}{16}$ OF AN INCH IN THICKNESS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,667 | \$1,165 | \$0.70 | 883 | 7.15 |
| 1919..... | 147 | 552 | 3.75 | 7 | 1.33 |
| 1920..... | 17,643 | 6,824 | .39 | 882 | 12.93 |
| 1921 (9 months)..... | 1,455 | 1,395 | | | |

VIEWS OF ANY LANDSCAPE, SCENE, BUILDING, PLACE, OR LOCALITY IN THE UNITED STATES, THINNER THAN $\frac{1}{32}$ OF AN INCH.

| | <i>Thousand.</i> | | | | |
|----------------------|------------------|-------|--------|------|-------|
| 1918..... | 48 | \$188 | \$3.92 | \$90 | 51.09 |
| 1919..... | 10 | 224 | 2.24 | 20 | 8.96 |
| 1920..... | 31 | 218 | 7.03 | 62 | 28.44 |
| 1921 (9 months)..... | 106 | 813 | | | |

VIEWS OF ANY LANDSCAPE, SCENE, BUILDING, PLACE, OR LOCALITY IN THE UNITED STATES, NOT THINNER THAN $\frac{1}{16}$ OF AN INCH.

| | <i>Pounds.</i> | | | | |
|----------------------|----------------|-------|--------|------|-------|
| 1918..... | 287 | \$355 | \$1.24 | \$57 | 16.17 |
| 1919..... | 2,309 | 2,654 | 1.15 | 462 | 17.40 |
| 1920..... | 2,748 | 2,753 | 1.00 | 550 | 19.96 |
| 1921 (9 months)..... | 8,635 | 4,221 | | | |

ALL OTHER POST CARDS, PLAIN, DECORATED, EMBOSSED, OR PRINTED, EXCEPT BY LITHOGRAPHIC PROCESS.

| | <i>Pounds.</i> | | | | |
|----------------------|----------------|---------|--------|---------|-------|
| 1918..... | | \$0,411 | | \$2,353 | 25.00 |
| 1919..... | 16,748 | 17,530 | \$1.05 | 4,382 | 25.00 |
| 1920..... | 41,726 | 31,537 | .76 | 7,883 | |
| 1921 (9 months)..... | 77,750 | 32,170 | | | |

VIEWS OF ANY LANDSCAPE, SCENE, BUILDING, PLACE OR LOCALITY IN THE UNITED STATES EXCEPT POST CARDS, ON CARDBOARD OR PAPER, NOT THINNER THAN $\frac{1}{16}$ OF AN INCH.

| | <i>Pounds.</i> | | | | |
|----------------------|----------------|---------|--------|----------|--------|
| 1918..... | 81,490 | \$9,651 | \$0.12 | \$16,296 | 168.83 |
| 1919..... | 58 | 87 | 1.50 | 12 | 13.33 |
| 1920..... | 66 | 81 | 1.23 | 13 | 19.30 |
| 1921 (9 months)..... | 1,118 | 556 | | | |

Exports in 1914 were valued at \$9,639,860. Later statistics (for calendar years) follow: 1918, \$11,493,524; 1919, \$18,239,016; 1920, \$24,803,932; 1921 (nine months), \$16,345,578.

Important changes in classification.—Drawings have been added to the list of printed matter in this paragraph to cover fashion plates and like drawings in water colors, mechanical drawings, etc., not works of art or original drawings, now classified as manufactures of paper. Leather-bound books, with chief value in the binding, are included for the first time. Children's books have been transferred from paragraph 1306 to this paragraph and the clause "with more reading matter than letters, numerals, or descriptive words" inserted. The reason for this qualification is that in paragraph 1414 a new item.

"toy books without reading matter other than letters, numerals, or descriptive words, bound or unbound, and parts thereof," has been inserted to be distinguished from books which do not involve such elaborate processes of printing, lithographing, and decoration. Booklets are transferred to this paragraph from paragraph 1306. The phrase "printed lithographically or otherwise," n. s. p. f., has been inserted in the general provision for booklets to show more definitely the inclusiveness of this item and to indicate explicitly that booklets more specifically provided for are not included here. The phrase "wholly or in chief value of paper" has been inserted in connection with booklets decorated in whole or in part by hand or by spraying, in order to limit the application of this item to paper booklets. At the end of this item the phrase "whether or not printed" is used in place of the phrase "whether or not lithographed" which appeared in the act of 1909 or the phrase "whether printed lithographically or otherwise" as in some other provisions of this paragraph so as to be more inclusive and cover all booklets decorated as described. Booklets fall in this paragraph for printed matter more logically than in paragraph 1306. Christmas and other greeting cards are separately named in this paragraph for the first time.

Several items included in the free list in the act of 1913 become dutiable under this paragraph in H. R. 7456: (1) Paragraph 425: "Books, maps, music, engravings, photographs, etchings, lithographic prints, bound or unbound, and charts, which shall have been printed more than twenty years at the date of importation"; (2) Paragraph 426: "Books and pamphlets printed wholly or chiefly in languages other than English," and "All textbooks used in schools and other educational institutions"; (3) Paragraph 428: Books and libraries of persons or families from foreign countries, exceeding \$250 in value; (4) Paragraph 582: Professional books, exceeding \$250 in value, of immigrants.

PARAGRAPH 1311.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1311. Photograph, autograph, scrap, post-card and postage-stamp albums, and albums for phonograph records, wholly or partly manufactured, 23 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 417. Photograph, autograph, scrap, post-card, and postage stamp albums, wholly or partly manufactured, thirty-five per centum ad valorem.

[No corresponding provision for albums for phonograph records.]

PAR. 330. Photograph, autograph, scrap, post-card, and postage-stamp albums, wholly or partly manufactured, 25 per centum ad valorem.

[No corresponding provision for albums for phonograph records.]

PHOTOGRAPHIC, AUTOGRAPHIC, POST-CARD, AND POSTAGE-STAMP ALBUMS, ETC.

Description and uses.—The albums enumerated above consist of bound volumes of unprinted paper, designed to contain post cards, stamps, paper clippings, or photographs, when such articles are pasted to the leaves of the album or inserted in cut or slotted perforations.

Production.—No data available.

Imports in 1914 were valued at \$26,094. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate |
|----------------------|---------|-------|-----------------|
| 1918..... | \$3,167 | \$92 | Per cent. 2 3/4 |
| 1919..... | 9,300 | 2,325 | 2 3/4 |
| 1920..... | 8,170 | 2,042 | 2 3/4 |
| 1921 (9 months)..... | 14,677 | | |

Important changes in classification.—Albums for phonograph records have been added to this paragraph because they have grown to be one of the important divisions of albums.

PARAGRAPH 1312.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1312. Playing cards, 60 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 419. Playing cards, in packs not exceeding fifty-four cards and at a like rate for any number in excess, ten cents per pack and twenty per centum ad valorem.

PAR. 331. Playing cards, 60 per centum ad valorem.

PLAYING CARDS.

Production.—The domestic playing-card industry shows annual sales amounting to about \$3,000,000 in 1913. In 1914 there were three manufacturers, with 1,402 employees, wages of \$685,000, a capital of \$4,634,000, and raw materials costing \$918,000; the value of the finished product was \$3,898,000, and value added by manufacture, \$2,980,000.

Imports of playing cards in 1914 were valued at \$7,664. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|---------|-------------|---------|------------------|
| | <i>Packs.</i> | | | | <i>Per cent.</i> |
| 1918..... | 37,221 | \$5,487 | \$0.15 | \$3,292 | 60 |
| 1919..... | 58,505 | 9,897 | .17 | 5,938 | 60 |
| 1920..... | 71,117 | 12,758 | .18 | 7,655 | 60 |
| 1921 (9 months)..... | 170,073 | 19,327 | | | |

Exports to China, India, and Oceania have greatly increased in the last five years, particularly to British India (\$58,909 in 1914, \$143,494 in 1918). Previous to 1914 exports to France were limited by its State monopoly and almost prohibitive tariff regulations, since removed. Exports to France rose from \$214 in 1914 to \$18,128 in 1918. Export values were \$330,194 in 1914. Later exports by calendar years have been as follows: 1918, \$882,370; 1919, \$1,522,516; 1920, \$1,173,559; 1921 (9 months), \$527,347.

PARAGRAPH 1818.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1313. Papers and paper board and pulpboard, including cardboard and leatherboard or compress leather, embossed, cut, die-cut, or stamped into designs or shapes, such as initials, monograms, lace, borders, bands, strips, or other forms, or cut or shaped for boxes or other articles, plain or printed, but not lithographed, and not specially provided for; paper board and pulpboard, including cardboard and leatherboard or compress leather, laminated, glazed, coated, lined, printed, decorated, or ornamented in any manner; press boards and press paper, 23 per centum ad valorem; test or container boards of a bursting strength above 60 pounds per square inch by the Mullen or the Webb test, 15 per centum ad valorem; stereotype-matrix mat or board, 28 per centum ad valorem; wall pockets, composed wholly or in chief part of paper, papier-mâché or paper board, whether or not die-cut, embossed, or printed lithographically or otherwise; boxes, composed wholly or in chief value of paper, papier-mâché or paper board, and not specially provided for; manufactures of paper, or of which paper is the component material of chief value, not specially provided for, 26 per centum ad valorem.

ACT OF 1909.

PAR. 415. * * * press boards or press paper, valued at ten cents per pound or over, thirty-five per centum ad valorem; * * * paper not specially provided for in this section, thirty per centum ad valorem: *Provided*, That paper embossed, or cut, die-cut, or stamped into designs or shapes, such as initials, monograms, lace, borders, bands, strips, or other forms, or cut or shaped for boxes, plain or printed but not lithographed, and not specially provided for in this section, shall be dutiable at thirty-five per centum ad valorem; articles composed wholly or in chief value of paper printed by the photogelatin process and not specially provided for in this Act, three cents per pound and twenty-five per centum ad valorem.

PAR. 420. Manufactures of paper, or of which paper is the component material of chief value, not specially provided for in this section, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 328. * * * press boards or press paper, * * * 25 per centum ad valorem.

PAR. 332. Papers or cardboard, cut, die cut, or stamped into designs or shapes, such as initials, monograms, lace, borders, or other forms, * * * and manufactures of paper or of which paper is the component material of chief value, not specially provided for in this section, 25 per centum ad valorem.

PAR. 530. * * * leatherboard or compressed leather; * * * [Free].

PAR. 650. * * * paper twine for binding any of the foregoing (wool) * * * [Free.]

MISCELLANEOUS MANUFACTURES OF PAPER.

(See Surveys M-4, and M-1.)

Description and uses.—In the main this paragraph is made up of miscellaneous manufactures of paper. The significance of the phraseology is explained below in the section on "Changes in classification."

Press boards are made of mechanical wood pulp and certain good grades of waste paper. They have a very close texture and a hard, smooth finish. They are used to form the backing for the bedplates of printing presses, and also in the compression of some kinds of cloth to impart a certain desired finish.

Test or container board is a type of box board of especially high quality. It is made into boxes for holding commodities such as canned goods, paint, grease, varnish, etc., when packed in smaller containers. The size and strength of boxes for which container board is used are usually specified by the railroads and shipping companies. Hence container board often has to meet a certain minimum specified bursting strength test and must be of superior quality. It is usually made out of sulphate wood pulp. Jute and hemp waste are also much used in making container board.

Mullen testers and Webb testers are instruments commonly used for testing the bursting strength of shipping containers.

Stereotype matrix board or mat is a specially prepared board used in making stereotypes for printing papers. The board is imprinted with type, thus becoming a matrix from which the stereotype is made. The ordinary way of making a matrix is by building it up from sheets of stereotype tissue paper. This matrix board, however, is prepared by the manufacturers in ready form to be used for imprinting with type. It is known in the trade as "flongs" or "dry mats."

Production.—The value of paper box production increased from \$74,711,000 in 1914 to \$213,384,000 in 1919. New York is the principal seat of the industry. Illinois, Massachusetts, and Pennsylvania rank next. Production of paper bags, not made in paper mills, increased from \$17,603,000 in 1914 to \$47,264,000 in 1919. New York is the principal paper bag manufacturing State.

Imports in 1914 of paper or cardboard, cut, die-cut, or stamped into designs or shapes, were valued at \$30,470; those of press boards or press paper were 93,633 pounds, valued at \$9,290. Imports of "all other" manufactures of paper or of which paper is the component material of chief value were valued at \$1,216,891. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|---------|-------------|---------|------------------|
| PAPERS OR CARDBOARD CUT, DIE CUT, OR STAMPED INTO DESIGNS OR SHAPES SUCH AS INITIALS, MONOGRAMS, LACES, BORDERS, OR OTHER FORMS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$1,608 | | \$1,152 | 25 |
| 1919..... | | 4,528 | | 1,132 | 25 |
| 1920..... | | 8,962 | | 2,240 | 25 |
| 1921 (9 months)..... | | 6,039 | | | |

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|-------------------------------------|----------------|---------|-------------|---------|------------------|
| PRESSBOARDS OR PRESS PAPERS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 47,662 | \$5,550 | \$0.12 | \$1,387 | 25 |
| 1919..... | 16,650 | 3,181 | .19 | 792 | 25 |
| 1920..... | 1,417 | 458 | .32 | 114 | 25 |
| 1921 (9 months)..... | 50,955 | 7,136 | | | |

MANUFACTURES OF PAPERS OR OF WHICH PAPER IS THE COMPONENT MATERIAL OF CHIEF VALUE.

| | | | | | |
|----------------------|--|-----------|--|----------|----|
| 1918..... | | \$127,799 | | \$31,945 | 25 |
| 1919..... | | 265,613 | | 66,327 | |
| 1920..... | | 553,318 | | 137,877 | |
| 1921 (9 months)..... | | 629,690 | | | |

Exports of the items enumerated in paragraph 1313 are not segregated. The total exports of papers and manufactures of paper for the calendar years 1918-1921 have been as follows: 1918, \$54,170,134; 1919, \$86,983,063; 1920, \$89,072,289; 1921 (9 months), \$40,310,856.

Important changes in classification.—This paragraph supplements paragraph 1302. The two paragraphs cover generally papers and paper board and pulpboard, including cardboard and leatherboard.

The provisions for test or container boards, stereotype-matrix mat or board, and wall pockets and boxes, composed wholly or in chief value of paper, papier-mâché or paper board, are new.

Suggested changes.—Page 147, line 5, of H. R. 7456: Change "part" to "value" after "chief" to agree with uniform practice elsewhere.

There is no separate provision for paper bags other than bags made of surface coated and certain other special kinds of paper. (See par. 1305.) As paper bags constitute an important staple article made of paper, it might be desirable to name them specifically in the tariff law. The following wording is suggested: "bags, composed wholly or in chief value of paper, n. s. p. f."

SCHEDULE 14.—SUNDRIES.

PARAGRAPH 1401.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1401. Asbestos, manufactures of: Paper and millboard, composed of long fiber asbestos, used for making gaskets or similar articles, and electrical papers not exceeding five one-hundredths of one inch in thickness, 8 cents per pound; composed of other asbestos fibers, 1½ cents per pound; sheets and plates, of asbestos and hydraulic cement, flat, not exceeding one-eighth of one inch in thickness, 1 cent per square foot; exceeding one-eighth but not exceeding one-fourth of one inch in thickness, 2 cents per square foot; exceeding one-fourth of one inch in thickness, 2½ cents per square foot; other than flat, 3½ cents per square foot; colored, stained, or mixed with other material, 3½ cents per square foot and 10 per centum ad valorem; wick and rope, 18 cents per pound; woven sheet packing, in rolls, 24 cents per pound; gaskets, folded or cut from the straight sheet, rubberized, graphited, or otherwise coated or treated, 56 cents per pound; yarn containing more than 10 per centum of foreign matter, 32 cents per pound; yarn and listings, containing less than 10 per centum of foreign matter, exceeding twenty-five one-thousandths of one inch in thickness, 84 cents per pound; not exceeding twenty-five one-thousandths of one inch in thickness, \$1.68 per pound; textile fabrics containing 10 per centum and not more than 20 per centum of foreign matter, 42 cents per pound; containing more than 20 per centum of foreign matter, 32 cents per pound; mantle threads, with or without wire, treated or untreated, \$1.40 per pound; all other manufactures of asbestos, or of which asbestos is the component material of chief value, not specially provided for, 20 per centum ad valorem: *Provided*, That no article manufactured from any of the foregoing shall pay a less rate of duty than herein imposed on the asbestos paper, millboard, electrical papers, sheets, plates, wick, rope, woven sheet packing, yarn, listings, or textile fabrics of which it is composed.

ACT OF 1909.

PAR. 462. Manufactures of * * * asbestos, * * * or of which these substances or any of them is the component material of chief value, not specially provided for in this section, twenty-five per centum ad valorem; woven fabrics composed wholly or in chief value of asbestos, forty per centum ad valorem.

ACT OF 1913.

PAR. 367. Manufactures of * * * asbestos, * * * or of which these substances or any of them is the component material of chief value, not specially provided for in this section, 10 per centum ad valorem; yarn and woven fabrics composed wholly or in chief value of asbestos, 20 per centum ad valorem.

ASBESTOS MANUFACTURES.

(See Survey N-20.)

Description and uses.—Manufactures of asbestos are used mostly for heat and acid resisting purposes. Asbestos paper varies in thickness from about one one-hundredth to one-eighth of 1 inch. Thicknesses up to and including one-sixteenth inch are known as asbestos paper, and three thirty-seconds and one-eighth inch thicknesses are spoken of as "rollboard." The width is generally 36 inches, and the paper is put up in rolls weighing approximately 100 pounds each.

Asbestos millboard is made of asbestos fiber with a small percentage of cementing or sizing material, built up in thin layers in a manner similar to paper, in sheets 42 by 48 inches, and usually from one-sixteenth to one-half of an inch in thickness.

The chief uses of asbestos paper and millboard are for high-pressure gaskets and packings, insulations, lining for stoves, air-cell pipe covering, roofing, building paper, and other purposes in the building trades.

Under the head "Sheets and plates" come asbestos shingles, slate, wood, or lumber. These articles are made from short asbestos fiber mixed with hydraulic cement, the asbestos forming about 15 per cent of the product by weight. Asbestos shingles and slate are suitable for use wherever roofing material is required or employed. Asbestos lumber is used largely in making fireproof walls, doors, and partitions.

Asbestos wick and rope are made from rovings produced by ordinary carding machinery, the rovings being twisted to the desired diameter and density on the wick and rope making machinery. They are used for emergency packings, for wiping tin plate, sheet steel, and other metals during the cooling period, and for general packing purposes in or near hot surfaces.

Asbestos woven sheet packings are made from asbestos cloth, rubber treated, cut to size in strips and laid or wound to desired finished size, either square, round, or oblong, and with or without rubber, wire, lead, or core. These are employed for general packing purposes, especially in service using high pressure and superheated steam.

Asbestos gaskets are of two kinds: (1) Gaskets made from rubber-treated asbestos cloth, cut in strips, folded, and formed to shape and size desired. They may be folded and tape jointed, or they may be made from asbestos tubings, the latter being known as seamless gaskets. These gaskets are used largely to seal joints on manhole or handhole openings of boilers, and at flanges in pipe lines, also at ports of gasoline motors. (2) Gaskets made from compressed sheet (made

by mixing short asbestos fiber with binding or filling materials). Compressed sheet gaskets are used principally for jointings in connection with internal-combustion motors. They are also employed for emergency uses, the engineer preferring to cut gaskets from a sheet of compressed packing rather than wait to secure gaskets of a given size from a supply house.

Asbestos yarn is made from asbestos crudes and fibers, often mixed with cotton to add strength and lessen expense. Frequently in twisting the yarn very fine brass or copper wire is used, which gives the material greater durability under certain conditions. The basis of all asbestos textiles is asbestos yarn.

Asbestos listings are narrow woven strips, ranging from about $\frac{3}{4}$ inch to $1\frac{1}{4}$ inches in width, used chiefly for winding armatures of motors.

(For unmanufactured asbestos, see par. 1515, p. 1245.)

Production.—In 1914 there were 32 establishments manufacturing asbestos products. The total value of the output, other than steam packings, for that year was \$2,814,000, of which \$1,813,000 represented building materials. In 1919 there were 43 establishments with an output valued at \$18,948,000.

Imports of asbestos yarn and woven fabrics for the fiscal years 1910 to 1913 averaged a little over \$90,000; in 1914, \$113,426. Imports of all other manufactures of asbestos in 1913 were valued at \$287,308; in 1914, at \$283,027. Later statistics, for calendar years, follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|---|----------|---------|------------------|
| ASBESTOS YARN. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$3,349 | \$470 | 20 |
| 1919..... | 49,265 | 9,853 | 20 |
| 1920..... | 248,649 | 49,730 | 20 |
| 1921 (9 months)..... | 57,023 | | |
| WOVEN FABRICS. | | | |
| 1918..... | \$783 | \$157 | 20 |
| 1919..... | 138,551 | 27,710 | 20 |
| 1920..... | 230,266 | 46,053 | 20 |
| 1921 (9 months)..... | 56,909 | | |
| ALL, OTHER MANUFACTURES OF ASBESTOS. | | | |
| 1918..... | \$23,154 | \$2,314 | 10 |
| 1919..... | 69,565 | 6,957 | 10 |
| 1920..... | 139,535 | 13,954 | 10 |
| 1921 (9 months)..... | 128,711 | | |

Imports are from England and Canada.

Exports increased in value from \$293,616 in the fiscal year 1910 to \$687,073 in 1914. In the calendar year 1918 the export value was \$2,493,320; in 1919, \$3,531,978; 1920, \$4,431,132; and in 1921 (nine months), \$2,167,324.

Important changes in classification.—H. R. 7456 divides manufactures of asbestos into nine classes with separate rates of duty for each class, whereas the act of 1913 has only three classes, two of which have the same rate of duty.

Suggested changes.—Page 147, lines 15 and 16: Should not "electrical papers" have a bracket of their own since the immediately following provisions in lines 17 and 18 apparently relate to paper and millboard to the exclusion of electrical papers?

Page 147, line 23, of H. R. 7456: Change "other than" to "not" before "flat" to agree with usual practice.

Page 148, line 1: Woven sheet packing not in rolls is not provided for.

Page 148, lines 4-7: As the two thicknesses apparently refer only to listings, it is suggested that in lines 5 and 6 a comma be inserted after "yarn" and the comma after "listings" be stricken out. No provision is made for textile fabrics, other than listings, containing less than 10 per centum of foreign matter. Insertion of the words "and other textile fabrics" after "listings" or substitution of "textile fabrics" for "listings" would accomplish the purpose.

PARAGRAPH 1402.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1402. Boxing gloves, ice and roller skates, and parts thereof, baseballs, footballs, tennis balls, golf balls, and all other balls, of whatever material composed, finished or unfinished, designed for use in physical exercise or in any indoor or outdoor game or sport, and all clubs, rackets, bats, or other equipment, such as is ordinarily used in conjunction therewith in exercise or play, all the foregoing, not specially provided for, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[Classable according to component material of chief value.]

[Classable according to component material of chief value.]

BOXING GLOVES, SKATES, BALLS, BATS, ETC.

Production.—Production data are not available for the various articles enumerated in this paragraph. In 1914 there were 162 establishments engaged in the manufacture of sporting and athletic goods with products valued at \$13,235,000; and in 1919, 187 establishments with products valued at \$22,806,000.

Imports and exports.—None recorded.

Important changes in classification.—The articles enumerated in paragraph 1402 were not provided for in the act of 1913 nor in previous tariff acts. They are dutiable according to material of chief value, principally under paragraphs 167, 176, 360, 368, and 369 of the 1913 act.

PARAGRAPH 1403.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1403. Spangles and beads, including bugles, but not including imitation pearl beads and beads in imitation of precious or semiprecious stones, 25 per centum ad valorem; fabrics and articles not embroidered, tamboured, appliqué, nor scalloped, composed wholly or in chief value of beads or spangles other than imitation pearl beads and beads in imitation of precious or semiprecious stones, 40 per centum ad valorem; imitation pearl beads of all kinds and shapes, of whatever material composed, pierced or unpierced, strung or loose, mounted or unmounted, 40 per centum ad valorem; all other beads in imitation of precious or semiprecious stones, of all kinds and shapes, of whatever material composed, pierced or unpierced, strung or loose, mounted or unmounted, 45 per centum ad valorem: *Provided*, That no article composed wholly or in chief value of any of the foregoing beads or spangles shall pay duty at a less rate than is imposed in any paragraph of this Act upon such articles without such beads or spangles.

ACT OF 1909.

PAR. 421. Beads and spangles of all kinds, including imitation pearl beads, not threaded or strung, or strung loosely on thread for facility in transportation only, thirty-five per centum ad valorem; fabrics, * * * and other articles not specially provided for in this section, composed wholly or in chief value of beads or spangles made of glass or paste, gelatin, metal, or other material, but not in part of wool, sixty per centum ad valorem: *Provided*, That no article composed wholly or in chief value of beads or spangles made of glass, paste, gelatin, metal, or other material shall pay duty at a less rate than is imposed in any paragraph of this section upon such articles without such beads or spangles.

ACT OF 1913.

PAR. 333. Beads and spangles of all kinds, including imitation pearl beads, not threaded or strung, or strung loosely on thread for facility in transportation only, 35 per centum ad valorem; curtains, and other articles not embroidered nor appliqué and not specially provided for in this section, composed wholly or in chief value of beads or spangles made of glass or paste, gelatin, metal, or other material, 50 per centum ad valorem.

BEADS AND SPANGLES.

(See Survey N-1.)

Description and uses.—A spangle is a small plate or bar of shiny metal or other material used as an ornament or trimming on wearing apparel. A bead is a small perforated sphere, ball, or cylinder made from a great variety of materials, principally glass, fusible enamel, paste, metal, bone, wood, etc., and is used in the manufacture of jewelry, rosaries, and as ornaments or trimming on wearing apparel. A bugle is an elongated glass bead used as a tassel, pendant or ornament on wearing apparel. Imitation pearl beads may be divided into three classes: (1) A cheap hollow glass bead with an inside coating of pearl essence; (2) a hollow glass bead coated on the inside and filled or partly filled with wax; (3) a solid glass or fusible enamel bead

coated on the outside. The last-named class is known as the indestructible bead.

Production.—Imitation pearl beads are perhaps the most important. The solid or indestructible imitation pearl bead is an American development, the hollow types not being produced to any extent in this country. The finer grades of beads of all sorts are usually made in Europe, principally in Italy, Czechoslovakia, France, and Germany, where the industry has long been established and where the operatives have become skilled in the work. Since 1914, owing to the war's effect on importation, there has been in the United States considerable increase in the output of some classes of beads. The production, however, is small compared to imports. Exact figures are not available, but the Census in 1914 reported 19 establishments engaged primarily in bead work with products valued at \$1,083,000. The Association of American Manufacturers of Imitation Pearls and Specialties in Fusible Enamels has stated that the industry has developed rapidly within the last five years and that their products have increased in value from \$500,000 in 1914 to \$6,000,000 in 1920, and cover imitation pearl beads, imitation pearls, beads, imitation precious stones, buttons, and pins.

Imports in 1914 were \$1,185,495, beads and spangles, and \$998,494 curtains and other articles not embroidered, etc., composed wholly or in chief value of beads or spangles; from Germany, a total of \$819,725; from Austria, \$735,056; and from France, \$555,595. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|-------------|-----------|------------------|
| BEADS AND SPANGLES OF ALL KINDS, INCLUDING IMITATION PEARL BEADS NOT THREADED OR STRUNG. | | | |
| 1918..... | \$1,005,822 | \$352,038 | Per cent. 35 |
| 1919..... | 4,181,737 | 1,445,368 | 35 |
| 1920..... | 7,248,370 | 2,521,230 | 35 |
| 1921 (9 months)..... | 3,841,394 | ..... | 35 |
| CURTAIN AND OTHER ARTICLES, NOT EMBROIDERED, ETC., N. S. P. F., COMPOSED WHOLLY OR IN CHIEF VALUE OF BEADS OR SPANGLES, ETC. | | | |
| 1918..... | \$506,512 | \$253,256 | 50 |
| 1919..... | 2,143,177 | 1,071,588 | 50 |
| 1920..... | 4,675,372 | 2,287,676 | 50 |
| 1921 (9 months)..... | 3,229,860 | ..... | 50 |

General imports of all beads and bead ornaments in 1920 were \$3,985,425 from France, \$2,236,400 from Japan, \$2,088,290 from Germany, \$2,704,941 from Czechoslovakia, and \$886,013 from Italy.

Exports.—None recorded.

Important changes in classification.—Rosaries dutiable in some cases under the bead paragraph of preceding tariff acts have been specially provided for in paragraph 1444, H. R. 7456. Bugles, which are elongated beads, are included within the ordinary designation of beads. Imitation pearl beads and beads in imitation of precious or semiprecious stones are excluded from the ordinary designation of beads, but are specifically provided for at higher rates of duties.

This paragraph also provides that no article composed wholly or in chief value of beads or spangles shall pay duty at a less rate than is imposed upon such articles without such beads or spangles.

Conflicting provisions.—See paragraphs 1429 and 1430, pages 1148 and 1153.

PARAGRAPH 1404.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1404. Ramie hat braids, 30 per centum ad valorem; manufactures of ramie hat braids, 40 per centum ad valorem.

ACT OF 1909.

PAR. 349. * * * braids * * * composed wholly or in chief value of cotton, flax, or other vegetable fiber, * * * and not elsewhere specially provided for in this section, sixty per centum ad valorem: *Provided*, That no article composed wholly or in chief value of one or more of the materials or goods specified in this paragraph, shall pay a less rate of duty than the highest rate imposed by this section upon any of the materials or goods of which the same is composed:
* * *

ACT OF 1913.

PAR. 334. Ramie hat braids, 40 per centum ad valorem; manufactures of ramie hat braids, 50 per centum ad valorem.

RAMIE HAT BRAIDS.

(See Survey N-2.)

Description and uses.—Ramie braid, used for making hats, resembles silk braid, and may be made either by hand or by machinery, as other hat braid.

(For hat braids made of straw, chip, grass, palm leaf, horsehair, etc., see paragraphs 1406 and 1430.)

Production of ramie hat braid is not very extensive. Importers state that the demand in this country has ceased entirely. Switzerland is the chief producer, but Italy, Germany, and France also make some braids. The raw material comes almost wholly from China and Formosa.

Imports.—In 1914 imports of ramie hat braids were valued at \$3,018; those of manufactures of ramie hat braids were valued at \$153. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

RAMIE HAT BRAIDS.

| | Yards. | Value. | Unit value. | Duty. | Per cent. |
|----------------------|--------|---------|-------------|-------|-----------|
| 1918..... | | \$2,255 | | \$902 | 40 |
| 1919..... | 7,000 | 150 | \$0.02 | 60 | 40 |
| 1920..... | 800 | 126 | .16 | 50 | 40 |
| 1921 (9 months)..... | 60 | 2 | .03 | | 40 |

MANUFACTURES OF RAMIE HAT BRAIDS (HATS).

| | Number. | Value. | Unit value. | Duty. | Per cent. |
|----------------------|---------|--------|-------------|-------|-----------|
| 1919..... | 912 | \$523 | \$0.58 | \$266 | 50 |
| 1920..... | 20 | 147 | 7.35 | 73 | 50 |
| 1921 (9 months)..... | 246 | 278 | 1.13 | 139 | 50 |

Suggested changes.—In view of the small quantity and value of ramie hat braid and manufactures of ramie hat braid imported and produced in the United States separate classification thereof appears unnecessary. Furthermore, the exception of this paragraph from the operation of paragraph 1430 would make such articles as embroidered ramie hats or ramie hats in part of lace dutiable at the same rate as ramie hats not embroidered, under this paragraph. If this paragraph should be retained the express exclusion of manufactures of ramie hat braids embroidered or appliquéd or in part of lace would apparently avoid such classification.

PARAGRAPH 1405.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1405. Boots, shoes, or other footwear, the uppers of which are composed wholly or in chief value of wool, cotton, ramie, animal hair, fiber, silk or substitutes therefor, whether or not the soles are composed of leather, wood, or other material, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]

FOOTWEAR, COMPOSED OF WOOL, COTTON, ETC.

Description and uses.—This line of footwear is distinct from leather footwear. It is not made in factories which are equipped to make leather shoes.

Production.—Official figures covering footwear of this description are not available for 1914, but for 1919 the Census reports the production of 19,896,000 pairs of canvas shoes with rubber soles, valued at \$25,177,000. The National Association of Felt Shoe Manufacturers state that 24 of their 27 members reported 17,328,895 pairs produced in the year ended July 1, 1920, and that sales amounted to nearly \$24,000,000. Felt used in the manufacture of this class of footwear is imported.

Imports.—Not shown in official statistics. Imports are principally from Germany, England, Austria, Japan, and Turkey, and consist almost entirely of low cuts or slippers. Felt boots are not imported to any extent.

Exports.—None recorded.

Important changes in classification.—Separate classification has been provided for boots, shoes, or other footwear the uppers of which are composed wholly or in chief value of wool, cotton, ramie, animal hair, fiber, or silk, regardless of the material in the sole. These articles come within various paragraphs of the existing law according to material, such as 256, 291, 308, 317, and 530.

Suggested changes.—If "substitutes" is not to be limited to silk, "or" should be inserted after "fiber," and a comma after "silk," and "therefor" changed to "for any of the foregoing."

The words "or not," page 150, line 4, H. R. 7456, should be omitted.

PARAGRAPH 1406.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1406. Braids, plaits, laces, and willow sheets or squares, composed wholly or in chief value of straw, chip, grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, or manila hemp, suitable for making or ornamenting hats, bonnets, or hoods, not bleached, dyed, colored, or stained, 13 per centum ad valorem; bleached, dyed, colored, or stained, 17 per centum ad valorem; hats, bonnets, and hoods composed wholly or in chief value of any of the foregoing materials, whether wholly or partly manufactured, but not blocked or trimmed, 25 per centum ad valorem; blocked or trimmed, 33½ per centum ad valorem; straw hats known as harvest hats, valued at less than \$3 per dozen, 20 per centum ad valorem; all other men's hats, composed wholly or in chief value of any of the foregoing materials, whether wholly or partly manufactured, not blocked or blocked, not trimmed or trimmed, if sewed, 40 per centum ad valorem. But the terms "grass" and "straw" shall be understood to mean these substances in their natural form and structure, and not the separated fiber thereof.

ACT OF 1909.

PAR. 422. Braids, plaits, laces, and willow sheets or squares, composed wholly or in chief value of straw, chip, grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, or manila hemp, suitable for making or ornamenting hats, bonnets, or hoods, not bleached, dyed, colored, or stained, fifteen per centum ad valorem; if bleached, dyed, colored, or stained, twenty per centum ad valorem; hats, bonnets, and hoods composed wholly or in chief value of straw, chip, grass, palm leaf, willow, osier, rattan, cuba bark, or manila hemp, whether wholly or partly manufactured, but not trimmed, thirty-five per centum ad valorem; if trimmed, fifty per centum ad valorem. But the terms "grass" and "straw" shall be understood to mean these substances in their natural form and structure, and not the separated fiber thereof.

ACT OF 1913.

PAR. 335. Braids, plaits, laces, and willow sheets or squares, composed wholly or in chief value of straw, chip, grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, or manila hemp, suitable for making or ornamenting hats, bonnets, or hoods, not bleached, dyed, colored, or stained, 15 per centum ad valorem; if bleached, dyed, colored, or stained, 20 per centum ad valorem; hats, bonnets, and hoods composed wholly or in chief value of straw, chip, grass, palm leaf, willow, osier, rattan, cuba bark, or manila hemp, whether wholly or partly manufactured, but not blocked or trimmed, 25 per centum ad valorem; if blocked or trimmed, and in chief value of such materials, 40 per centum ad valorem. But the terms "grass" and "straw" shall be understood to mean these substances in their natural form and structure, and not the separated fiber thereof.

STRAW BRAIDS AND STRAW HATS.

(See Survey N-2.)

Description and use.—Straw hats may be divided into two general classes according to process of manufacture: (1) Sewn-braid hats, (2) woven hat bodies, including Panamas, Leghorns, Javas, etc.

The principal business of straw-hat factories in the United States is the production of sewn-braid hats, i. e., hats made by sewing plaits or braids of straw or other vegetable fibers into the shape of hat bodies. Woven-body hats are shaped, finished, and trimmed in American factories. The manufacture of sewn-braid hats constitutes the bulk of the business in every large straw-hat factory.

Hat braids used in the manufacture of men's and women's straw hats are not produced to any extent in the United States.

Production.—In 1914 there were 149 manufacturers of straw hats, with 9,483 employees receiving wages of \$5,253,000; capital invested was \$12,589,000; cost of materials, \$14,086,000; and product was valued at \$25,444,000—an increase over 1904 of 70 per cent in employees and of more than 100 per cent in capital, wages paid, and value of product. The industry centers largely in New York, Massachusetts, and Maryland. About 45 per cent of the production was of men's hats. In 1919 there were 147 establishments with products valued at \$31,920,000. It is estimated that the entire output of men's straw hats in 1920 amounted to \$20,000,000, of which about \$12,000,000 was sewed hats.

The manufacture of hats of straw and similar material is well developed in Japan, Italy, England, France, and in Colombia, Ecuador, and Mexico.

Imports in 1914 of braids, plaits, laces, and willow sheets or squares composed of straw, etc., not bleached, dyed, etc., were: \$5,891,258 dutiable and \$13,845 (from the Philippines) free; bleached, dyed, etc., \$356,698. The values of hats, bonnets, and hoods of these materials were: Not trimmed, \$425,026; not blocked or trimmed \$3,919,218 dutiable and \$232,777 (from the Philippines) free; trimmed, \$21,355; blocked or trimmed, \$881,762 dutiable and \$62 (from the Philippines) free. In 1914 more than one-half the braids, etc., came from Japan, the rest mainly from France, England, Italy, and Germany. Of the hats, bonnets, and hoods of straw, etc., imported in 1914, more than one-half came from Japan and Colombia, the rest largely from Italy, England, Ecuador, Mexico, and France. Later statistics follow:

Braids, plaits, laces, and willow sheets or squares of straw, chip, etc.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---------------------------------|---------------|-------------|-------------|-------------|------------------|
| NOT BLEACHED, DYED, OR COLORED. | | | | | |
| | <i>Yards.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$8,014,395 | | \$1,195,236 | 15 |
| 1919..... | 2,351,608,722 | 9,277,712 | \$0.004 | 1,388,449 | 15 |
| 1920..... | 1,710,080,622 | 9,909,421 | .006 | 1,479,882 | 15 |
| 1921 (9 months)..... | 864,706,079 | 4,383,289 | .005 | | 15 |
| BLEACHED, DYED, OR COLORED. | | | | | |
| 1918..... | | \$395,951 | | \$79,190 | 20 |
| 1919..... | 22,138,899 | 355,661 | \$0.016 | 49,963 | 20 |
| 1920..... | 22,739,504 | 319,549 | .014 | 63,877 | 20 |
| 1921 (9 months)..... | 20,004,669 | 185,689 | .009 | | 20 |

Straw hats.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

NOT BLOCKED OR TRIMMED.

| | Number. | | | | Per cent. |
|----------------------|------------|-------------|---------|-----------|-----------|
| 1918..... | | \$2,711,943 | | \$529,948 | 20 |
| 1919..... | 15,260,794 | 3,844,888 | \$0.252 | 816,426 | 20 |
| 1920..... | 16,691,421 | 4,770,858 | .285 | 997,286 | 20 |
| 1921 (9 months)..... | 10,061,717 | 1,898,486 | .188 | | 20 |

BLOCKED OR TRIMMED.

| | | | | | |
|----------------------|---------|-----------|---------|----------|----|
| 1918..... | | \$198,097 | | \$70,135 | 40 |
| 1919..... | 106,854 | 169,820 | \$1.588 | 66,296 | 40 |
| 1920..... | 710,210 | 984,470 | 1.315 | 358,262 | 40 |
| 1921 (9 months)..... | 681,994 | 861,100 | 1.257 | | 40 |

In 1920 about one-half of the material for straw hats was imported from China, and over 35 per cent from Japan. The other countries from which braids were imported in their order of importance were Italy, England, Switzerland, and France. Of the straw hats not blocked imported in 1920, over 20 per cent came from Italy, about 19 per cent from Colombia, 12 per cent from Japan, and the rest principally from Mexico, Ecuador, and Dutch East Indies. Considerable quantities are imported from the Philippines free of duty. Straw hats not blocked are principally of the woven-body type. Of the straw hats blocked or trimmed about 45 per cent came from Japan and about 40 per cent from England and less than 10 per cent from Italy.

Important changes in classification.—The important changes made in H. R. 7456 with respect to straw hats are those relating to men's hats. Straw hats known as harvest hats, valued at less than \$3 per dozen, are specially provided for. This classification was inserted in order to provide a lower rate of duty on straw hats worn principally by farmers and other persons in rural districts. The other change provides for a higher rate of duty on men's hats, "if sewed," thus distinguishing them for tariff purposes from men's woven hats.

Suggested changes.—Imitation Panama hats made of tissue paper are being imported from Japan in considerable quantities. As manufactures of tissue paper they are dutiable at 30 per cent under paragraph 323 of the act of 1913.

The exception of this paragraph from the operation of paragraph 1430 would make such articles as embroidered hats or hats in part of lace dutiable at the same rate as such hats not embroidered, under this paragraph. Express exclusion of hats, etc., embroidered, appliquéd, or in part of lace would apparently prevent such result.

Women's hats, if sewed, are not included in the last bracket of paragraph 1406.

PARAGRAPH 1407.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1407. Brooms, made of broom corn, straw, wooden fiber, or twigs, 15 per centum ad valorem; tooth brushes and other toilet brushes, 35 per centum ad valorem; all other brushes not specially provided for, including feather dusters and hair pencils in quills or otherwise, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 423. Brushes, brooms, and feather dusters of all kinds, and hair pencils in quills or otherwise, forty per centum ad valorem.

PAR. 336. Brooms, made of broom corn, straw, wooden fiber, or twigs, 15 per centum ad valorem; brushes and feather dusters of all kinds, and hair pencils in quills or otherwise, 35 per centum ad valorem.

BROOMS.

(See Survey N-3.)

Description and uses.—Brooms for sweeping floors and streets, cleaning ceilings and hearths, and ordinary whisk brooms usually are made of the tops of broom corn. Brooms for brewers' use are made of bristles; street and push brooms, of brass and steel, rattan, basswood fiber, or split bamboo. Those made of broom corn, straw, and wooden fiber and twigs, included hereunder, compose the bulk of the brooms used.

Production of brooms in 1914 was valued at \$14,085,000, of which those made from broom corn were valued at \$13,800,000. The total production of brooms in 1919 amounted to \$30,094,000.

Imports.—The value of brooms imported in 1914 amounted to \$3,640. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | | 1 87,831 | | \$1,173 | 15 |
| 1919..... | 1 55,621 | 1 7,874 | \$0.14 | 1,173 | 15 |
| 1920..... | 1 147,144 | 1 21,902 | .15 | 3,261 | 15 |
| 1921 (9 months)..... | 1 80,433 | 1 8,176 | .10 | | 15 |

¹ Includes a small amount from the Philippines, free of duty.

Exports.—The value of brooms exported in 1914 amounted to \$135,207, of which one-half went to Panama, Mexico, and Canada. Later statistics for calendar years are as follows: 1918, \$157,885; 1919, \$292,729; 1920, \$330,267; 1921 (nine months), \$92,986.

The export trade in brooms with Mexico and Canada declined in 1919 and 1920 while that with Panama and Cuba increased. Exports to Ireland in the years 1919 and 1920 amounted respectively to \$113,900 and \$134,883, being almost as much as was exported to all other countries.

BRUSHES.

(See Survey N-4.)

Description and uses.—Brushes may be divided into three classes: (1) Toilet, tooth, hair, nail, hand brushes, etc.; (2) painters' and artists' brushes; and (3) all other brushes, including feather dusters. Hair pencils and artists' brushes are made of soft hairs and are used by artists, decorators, stripers, and letterers. Toilet brushes and painters' brushes are made of bristles.

Production.—The Bureau of the Census reports the value of the output in 1914 as \$17,894,000, divided as follows: Toilet brushes, \$2,675,000; paint and varnish brushes, \$7,303,000; and all other, \$7,916,000. The output of feather dusters and hair pencils is not reported separately. In 1919 the production of all brushes was valued at \$39,030,000.

Imports.—In 1914 the value of all brushes imported into the United States amounted to \$2,171,615, of which \$682,003 came from France, \$665,952 from Japan, \$514,240 from Germany, \$267,734 from England, and \$29,734 from Austria. The increase in imports from Japan during the war period more than offset the decline in imports from Europe. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

TOOTH BRUSHES AND OTHER TOILET BRUSHES.

| | Number. | Value. | Unit value. | Duty. | Per cent. |
|----------------------|------------|-------------|-------------|-----------|-----------|
| 1918..... | 1,523,244 | \$1,523,244 | | \$534,885 | 35 |
| 1919..... | 27,009,043 | 1,257,669 | \$0.05 | 440,184 | 35 |
| 1920..... | 36,476,920 | 2,215,446 | .06 | 775,406 | 35 |
| 1921..... | 41,437,232 | 3,594,100 | .09 | 1,257,935 | 35 |
| 1921 (9 months)..... | 23,348,062 | 1,787,552 | | | 35 |

FEATHER DUSTERS.

| | | | | | |
|----------------------|---------|--------|--------|-------|----|
| 1918..... | 21,801 | \$789 | \$0.04 | \$276 | 35 |
| 1919..... | 498,388 | 5,178 | .01 | 1,812 | 35 |
| 1920..... | 840,523 | 11,530 | .01 | 4,035 | 35 |
| 1921 (9 months)..... | 247,961 | 8,788 | | | 35 |

HAIR PENCILS.

| | | | | | |
|----------------------|-----------|---------|--------|---------|----|
| 1918..... | 311,125 | \$4,132 | \$0.01 | \$1,446 | 35 |
| 1919..... | 737,459 | 7,081 | .01 | 2,478 | 35 |
| 1920..... | 1,212,043 | 24,870 | .02 | 8,704 | 35 |
| 1921 (9 months)..... | 1,663,717 | 16,613 | | | 35 |

ALL OTHER BRUSHES N. S. P. F.

| | | | | | |
|----------------------|------------|-----------|--------|----------|----|
| 1918..... | 4,994,196 | \$104,661 | \$0.02 | \$36,631 | 35 |
| 1919..... | 6,228,647 | 175,372 | .03 | 61,377 | 35 |
| 1920..... | 10,775,716 | 464,522 | .04 | 162,513 | 35 |
| 1921 (9 months)..... | 8,437,551 | 114,530 | | | 35 |

¹ Brushes, Jan. 1 to June 30.

² Toilet brushes, July 1 to Dec. 31.

³ July 1 to Dec. 31.

In 1920 the general imports of toilet brushes from Japan amounted to 49,474,118, valued at \$3,831,886. England, France, and Germany were also exporting considerable quantities of these brushes in 1920.

Exports.—Official statistics do not show exports of brushes by classes or grades. Exports of brushes aggregated \$449,909 in 1914. With the exception of the years 1915 and 1916, Canada has been the chief country to which brushes have been exported. Later statistics for calendar years are as follows: 1918, \$1,099,016; 1919, \$1,470,555; 1920, \$2,085,821; 1921 (nine months), \$945,180.

Important changes in classification.—Specific provision is made for toilet and other brushes.

Conflicting provisions.—This paragraph and paragraph 29 are in conflict in respect to brushes having backs or handles of compounds of pyroxylin.

Suggested changes.—The phrase "in quills or otherwise" should modify hair pencils only. A comma inserted after dusters would more clearly restrict the phrase to hair pencils.

PARAGRAPH 1408.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1408. Bristles, sorted, bunched, or prepared, 7 cents per pound.

ACT OF 1909.

ACT OF 1913.

PAR. 424. Bristles, sorted, bunched, or prepared, seven and one-half cents per pound.

PAR. 337. Bristles, sorted, bunched, or prepared, 7 cents per pound.

BRISTLES.

(See Survey N-4.)

Description and uses.—Bristles are the strong hairs growing on the back (and to some extent on the sides) of the hog, wild boar, and certain other animals. They are extensively used in brushes and by shoemakers and saddlers. The best bristles come from the cold regions of the Temperate Zone. (For crude products, see par. 1536.)

Production.—The small and immature bristles obtained from slaughterhouses (as a by-product of the pork-packing industry) are short and inferior. Russia supplies the finest grade, the hairs being much longer and stiffer than those of American bristle-bearing animals. China, however, with a somewhat inferior product, supplies from 60 to 75 per cent of the bristles we require for paint brushes.

Imports.—In 1914 imports of sorted, bunched, or prepared bristles were 3,551,081 pounds, valued at \$3,255,554, of which 1,410,373 pounds, valued at \$934,211 came from China. The revenue aggregated \$253,753 in 1914. Bristles are also imported from England, France, and Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-------------|-------------|-----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 3,820,718 | \$5,055,898 | \$1.32 | \$267,450 | 5.29 |
| 1919..... | 2,971,083 | 5,567,462 | 1.87 | 207,976 | 3.74 |
| 1920..... | 4,897,868 | 10,097,679 | 2.06 | 342,851 | 3.40 |
| 1921 (9 months)..... | 2,456,681 | 4,330,591 | | | |

Imports from Germany were cut off during the war, but bristles are now being imported from that country, amounting, in the calendar year 1920, to 53,245 pounds, valued at \$208,470. Imports from Japan in 1920 amounted to 133,805 pounds, valued at \$694,433. Before the war imports from Japan were small.

Exports.—Bristles of the quality required in brush making are not produced in the United States and consequently there are no domestic exports.

PARAGRAPH 1409.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1409. Button forms of lastings, mohair or silk cloth, and manufactures of other material, in patterns of such size, shape, or form as to be fit for buttons exclusively, and not exceeding three inches in any one dimension, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 426. Button forms of lastings, mohair or silk cloth, or other manufactures of cloth, woven or made in patterns of such size, shape or form as to be fit for buttons exclusively, and not exceeding three inches in any one dimension, ten per centum ad valorem.

PAR. 338. Button forms of lastings, mohair or silk cloth, or other manufactures of cloth, woven or made in patterns of such size, shape, or form as to be fit for buttons exclusively, and not exceeding eight inches in any one dimension, 10 per centum ad valorem.

BUTTON FORMS, ETC.

(See Report T. I. S. — 4.)

Description and use.—Button forms included in this paragraph are pieces of cloth, of whatever composition, of a shape and size fit for use only as coverings for buttons. Lasting is usually a strong and durable worsted fabric woven with a double or three-ply warp and single filling into a twill or satin weave.

Production.—No information available.

Imports in 1914 were valued at \$19,183. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------|-------|---------------------|
| 1918..... | \$76 | \$3 | <i>Per cent.</i> 10 |
| 1919..... | 5 | ..... | 10 |
| 1920..... | 1,634 | 104 | 10 |
| 1921 (9 months)..... | 890 | 89 | 10 |

PARAGRAPH 1410.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1410. Buttons of vegetable ivory, finished or partly finished, 1½ cents per line per gross; vegetable ivory button blanks, not turned, faced, or drilled, three-fourths of 1 cent per line per gross; buttons of pearl or shell, finished or partly finished, 1½ cents per line per gross; pearl or shell button blanks, not turned, faced, or drilled, 1½ cents per line per gross; and, in addition thereto, on all the foregoing, 15 per centum ad valorem: *Provided*, That the term "line" as used in this paragraph shall mean the line button measure of one-fortieth of one inch.

ACT OF 1909.

ACT OF 1913.

PAR. 427. Buttons or parts of buttons and button molds or blanks, finished or unfinished, shall pay duty at the following rates, the line-button measure being one-fortieth of one inch, namely: * * * buttons of pearl or shell, one and one-half cents per line per gross; buttons of * * * vegetable ivory, * * * not specially provided for in this section, three-fourths of one cent per line per gross, and in addition thereto, on all the foregoing articles in this paragraph, fifteen per centum ad valorem; * * *

PAR. 339. Buttons of vegetable ivory in sizes thirty-six lines and larger, 35 per centum ad valorem; below thirty-six lines, 45 per centum ad valorem; buttons of shell and pearl in sizes twenty-six lines and larger, 25 per centum ad valorem; below twenty-six lines, 45 per centum ad valorem; * * * parts of buttons and button molds or blanks, finished or unfinished, * * * all the foregoing * * * 40 per centum ad valorem.

VEGETABLE IVORY BUTTONS.

(See Report T. I. S.—4.)

Description and uses.—Vegetable ivory buttons are made from tagua nuts which grow in northern South America and in Panama. A similar nut, the "palma dum," from Africa has been much used in Italy. (See par. 1664, p. 1450.)

The vegetable ivory button is the button generally used on men's and women's coats and suits.

Production increased from 2,470,000 gross, valued at \$1,300,000, in 1904, to 5,125,000 gross, valued at \$2,885,000, in 1914, and to 7,835,000 gross (not including trouser buttons), valued at \$7,676,000, in 1919. There were 22 factories in this country in 1921. Germany and Italy were important producers and exporters of vegetable ivory buttons before the war. At present (1921) Italy is the most important exporter, and Germany is again doing a large business in these buttons.

Imports into the United States of tagua nuts increased from over 23,000,000 pounds, valued at \$790,000, in 1912, to about 51,700,000 pounds, valued at over \$425,000, in 1917. In the calendar year 1920 almost 50,000,000 pounds, worth \$2,550,000, were imported, of which Ecuador sent 66.2 per cent, Colombia 23.4 per cent, and Panama 8.3 per cent.

Imports into the United States in 1918 (fiscal year) were 32,128 gross, valued at \$13,624. The import value ranges from \$10,000 to \$50,000 a year. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|---------------|---------|-------------|---------|------------------|
| VEGETABLE-IVORY BUTTONS—36 LINES AND LARGER. | | | | | |
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | 4,928 | \$5,006 | \$1.02 | \$1,752 | 35 |
| 1919..... | 1,631 | 736 | .45 | 258 | 35 |
| 1920..... | 1,285 | 2,238 | 1.74 | 783 | 35 |
| 1921 (9 months)..... | 3,036 | 7,292 | 2.40 | 2,549 | 35 |

| | | | | | |
|--|--------|---------|--------|---------|----|
| VEGETABLE-IVORY BUTTONS—BELOW 36 LINES. | | | | | |
| | | | | | |
| 1918..... | 14,177 | \$3,431 | \$0.24 | \$1,544 | 45 |
| 1919..... | 151 | 160 | 1.06 | 72 | 45 |
| 1920..... | 9,862 | 3,710 | .38 | 1,670 | 45 |
| 1921 (9 months)..... | 16,874 | 4,844 | .29 | 2,180 | 45 |

Exports are sent in small amounts to several countries of South America. Exports to Canada for the three years 1919 to 1921 averaged about \$35,000 per year.

Important changes in classification.—This paragraph eliminates the provision of the act of 1913 (par. 339), dividing these buttons into two classes, "36 lines and larger" and "below 36 lines." Specific rates per line per gross varying in amount depending upon the condition of the blank or button are added.

Suggested changes.—Horn buttons, being used for the identical purposes as vegetable-ivory buttons, mostly on men's and women's clothing and being very similar in price, could well be placed in the same provisions as vegetable ivory.

PEARL OR SHELL BUTTONS.

(See Report T. I. S.—4.)

Description and uses.—Ocean-pearl buttons are made of several varieties of salt-water mollusca, chiefly from the waters off the coasts of Oceania and Asia. The quality varies greatly with the shell. Wholesale prices for the same sized buttons range from 10 cents to \$1.20 per gross. The better grades are used on women's wear and men's shirts. Fresh-water pearl buttons are made from the shells of mussels obtained in rivers and lakes. They are, on the whole, a cheaper grade of buttons than those of ocean pearl.

Production of ocean-pearl buttons in the United States in 1918 was by 112 establishments. In 1914 the output of ocean-pearl buttons was over 4,500,000 gross, valued at \$2,489,000; in 1919 the output was 5,892,000 gross, valued at \$6,564,000. Our production of fresh-water pearl buttons in 1914 was over 21,000,000 gross, valued at about \$4,800,000. The output for 1916 was valued at \$7,450,000, and the production in 1919 (census) was 23,969,000 gross, valued at \$8,200,000. Imports of shells (unmanufactured) amounted to \$2,219,000 in 1912, to \$1,328,000 in 1915, to \$2,435,000 in 1917, to 10,071,565

pounds in 1920, and to 3,815,912 pounds, valued at \$1,177,024 in 1921, valued at \$3,144,786. Austria-Hungary long maintained a practical monopoly of the ocean-pearl button industry, but the development of a domestic fresh water pearl industry caused Austrian imports almost to disappear. Japan is an important producer and large exporter of both ocean and fresh water pearl buttons, sending very large quantities to the United States and other button-importing countries. Japan exported over 18,000,000 gross of all kinds of pearl buttons in 1918, valued at \$4,216,978. The volume has been less in later years.

Imports of pearl or shell buttons in 1918 amounted to 4,784,041 gross, valued at \$913,721, and in 1921 to 2,412,935 gross, valued at \$1,099,643, practically all of which came from Japan and the Philippines, about \$900,000 worth from Japan, and \$200,000 (free) from the Philippines. The estimated Japanese output of fresh-water pearl buttons for 1917 was about 600,000 gross of first-class buttons and over 1,000,000 gross of inferior grades.

Over 80 per cent of all the pearl buttons imported are below 26 lines. Prices on most imported pearl buttons are low compared with the domestic product, and the great quantities of these buttons in the domestic market have resulted in severe competition with domestic producers. The lower price is said to be less than the cost of cutting the blanks in the United States as reported in a brief submitted by the Button Manufacturers' Association to the United States Tariff Commission. Imports for 1918-1921 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

PEARL OR SHELL BUTTONS—BELOW 26 LINES.

| | Gross. | | | | Per cent. |
|----------------------|-----------|----------|--------|-----------|-----------|
| 1918..... | 70,367 | \$33,272 | \$0.47 | | (1) |
| | 4,692,796 | 736,080 | .16 | \$331,236 | 45 |
| 1919..... | 200,404 | 96,078 | .48 | | (1) |
| | 3,730,279 | 915,393 | .25 | 411,927 | 45 |
| 1920..... | 258,937 | 148,986 | .58 | | (1) |
| | 2,576,943 | 894,637 | .35 | 402,587 | 45 |
| 1921 (9 months)..... | 98,328 | 56,682 | .58 | | (1) |
| | 1,810,042 | 673,480 | .37 | 308,066 | 45 |

PEARL OR SHELL BUTTONS—26 LINES AND LARGER.

| | | | | | |
|----------------------|---------|----------|--------|----------|-----|
| 1918..... | 22,299 | \$14,579 | \$0.65 | | (1) |
| | 257,821 | 137,121 | .53 | \$34,280 | 25 |
| 1919..... | 43,488 | 16,441 | .38 | | (1) |
| | 293,111 | 228,844 | .78 | 67,211 | 25 |
| 1920..... | 116,608 | 84,126 | .72 | | (1) |
| | 230,954 | 170,468 | .74 | 42,617 | 25 |
| 1921 (9 months)..... | 17,950 | 11,680 | .65 | | (1) |
| | 85,148 | 69,762 | .82 | 17,441 | 25 |

¹ From the Philippines, free.

General imports of pearl buttons by principal countries are shown as follows:

| | Japan. | Philippine Islands (free). | England. |
|-----------|-----------|----------------------------|----------|
| 1918..... | \$471,596 | \$47,851 | \$326 |
| 1919..... | 1,175,509 | 112,519 | 49,431 |
| 1920..... | 1,947,404 | 226,112 | 10,748 |

Exports of pearl buttons in 1918 (fiscal year) amounted to \$600,866, of which \$303,019 went to Europe, \$222,017 to North America, and \$51,106 to South America. Previous statistics are not available. Statistics for later calendar years follow: 1918, \$631,948; 1919, \$710,727; 1920, \$712,714; 1921, \$142,884.

England and Canada are the principal countries to which the United States ships pearl buttons.

Important changes in classification.—This paragraph changes the act of 1913 (par. 339) by eliminating the classes, "26 lines and larger" and "below 26 lines," and substituting a specific duty per line per gross.

BUTTON BLANKS OF VEGETABLE IVORY, PEARL, OR SHELL.

(See pp. 1109, and 1113.)

PARAGRAPH 1411.

H. B. 7486.

SENATE AMENDMENTS.

PAR. 1411. Buttons commonly known as agate buttons, 15 per centum ad valorem; parts of buttons and button molds or blanks, finished or unfinished, not specially provided for, and all collar and cuff buttons and studs composed wholly of bone, mother-of-pearl, ivory, vegetable ivory, or agate, and buttons not specially provided for, 33 per centum ad valorem.

ACT OF 1909.

PAR. 427. Buttons or parts of buttons and button molds or blanks, finished or unfinished, shall pay duty at the following rates, the line-button measure being one-fortieth of one inch, namely: Buttons known commercially as agate buttons, * * * one-twelfth of one cent per line per gross; buttons of bone, * * * one-fourth of one cent per line per gross; * * * buttons of horn, * * * glass, * * * not specially provided for in this section, three-fourths of one cent per line per gross, and in addition thereto, on all the foregoing articles in this paragraph, fifteen per centum ad valorem; shoe buttons made of paper, board, papier-maché, pulp or other similar material, not specially provided for in this section, valued at not exceeding three cents per gross, one cent per gross; * * * buttons not specially provided for in this section, and all collar or cuff buttons and studs composed wholly of bone, mother-of-pearl, or ivory, fifty per centum ad valorem.

PAR. 383. * * * buttons or barrel buttons or buttons of other forms for tassels or ornaments * * * any of the foregoing made of wool or of which wool is a component material, whether containing india rubber or not, fifty cents per pound and sixty per centum ad valorem.

ACT OF 1913.

PAR. 339. * * * agate buttons and shoe buttons, 15 per centum ad valorem; parts of buttons and button molds or blanks, finished or unfinished, and all collar and cuff buttons and studs composed wholly of bone, mother-of-pearl, ivory, or agate, all the foregoing and buttons not specially provided for in this section, 40 per centum ad valorem.

AGATE BUTTONS.

(See Report T. I. S.—4.)

Description, uses, and production.—Agate buttons are made of feldspar and a clay similar to that manufactured into porcelain, and are used on cheap underwear, boys' waists, etc., and on shoes. Very few, if any, have ever been made in this country.

Imports in 1918 (fiscal year) were 2,857,167 gross, valued at \$188,669. During the war imports were chiefly from France and Japan, and averaged annually about 2,500,000 gross. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|------------|-------------|-----------|------------------|
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2, 163, 350 | \$132, 310 | \$0.06 | \$19, 847 | 15 |
| 1919..... | 1, 482, 552 | 110, 708 | .07 | 16, 606 | 15 |
| 1920..... | 2, 429, 270 | 163, 898 | .07 | 24, 585 | 15 |
| 1921 (9 months)..... | 1, 108, 341 | 71, 328 | .06 | 10, 699 | 15 |

BUTTON MOLDS OR BLANKS.

(See Report T. I. S.—4.)

Description.—Blanks or molds constitute material prepared especially to be manufactured into particular kinds of buttons.

Production in 1914 of button blanks for sale was 14,304,148 gross, valued at \$2,349,406, and was more than double the output of 1904; the production in 1919 (census) was 13,093,000 gross, valued at \$3,092,000.

Imports.—Only small quantities of blanks and parts are imported. Some pearl shell blanks have been imported from Japan in recent years. No statistics available.

Exports.—No separate statistics (United States) available. Canadian statistics report a few thousand dollars worth of "animal shell" blanks received from the United States.

Suggested changes.—See General Notes on Paragraph, page 1113.

COLLAR AND CUFF BUTTONS AND STUDS.

(See Report T. I. S.—4.)

(See Schedule 3, paragraph 349, for other metal buttons; trouser, collar, and cuff, etc.)

Production in 1914 was 1,771,053 gross, valued at \$56,251, including some metal buttons. Production in 1919 (Census) was 974,000 gross, valued at \$80,000.

Imports in 1918 (fiscal year) were valued at \$577; in 1914, at \$52,125. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|--------|-------------|--------|------------------|
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$23 | | \$9 | 40 |
| 1919..... | 14, 359 | 1, 236 | \$0.09 | 494 | 40 |
| 1920..... | 14, 669 | 6, 386 | .43 | 2, 554 | 40 |
| 1921 19 months)..... | 11, 902 | 4, 212 | .35 | 1, 685 | 40 |

COLLAR AND CUFF BUTTONS OF BONE, MOTHER-OF-PEARL, IVORY, OR AGATE.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|-------------------------------|--------|-------------|---------------------|------------------|
| METAL COLLAR, CUFF, AND DRESS BUTTONS, VALUED ABOVE 20 CENTS PER DOZEN PIECES. | | | | | |
| | <i>Dozen.</i> | | | | <i>Per cent.</i> |
| 1918..... | 111 | \$10 | \$0.91 | \$6 | 60 |
| | 11,764 | 6,140 | .52 | 3,684 | 60 |
| 1919..... | 29 | 6 | .21 | 4 | 60 |
| | 2,984 | 2,010 | .67 | 1,206 | 60 |
| 1920..... | 248 | 125 | .50 | 75 | 60 |
| | 3,058 | 1,198 | .39 | 719 | 60 |
| 1921 (9 months)..... | 102 | 112 | 1.10 | 61 | 60 |
| | 967 | 635 | .71 | 411 | 60 |
| | | | | | |
| | ¹ Collar and cuff. | | | ² Dress. | |

Exports.—None recorded. Statistics of some other countries report the import of small quantities of these buttons from the United States.

Important changes in classification.—See General Notes on Paragraph, page 1113.

BONE BUTTONS.

(See Report T. I. S.—4.)

Description and uses.—Bone buttons are made chiefly from the shin bones of cattle, and are used mostly on underwear, waists, and inside flaps of garments.

Production.—In 1919 (Census) 2,171,000 gross were produced, valued at \$509,000; the output in 1914 was 2,199,000 gross, valued at \$330,000. Small amounts are produced in Japan. Formerly Germany practically controlled the export trade.

Imports aggregated 30,289 gross, valued at \$11,318 in 1918; 35,572 gross, valued at \$4,241 in 1915; 2,279 gross, valued at \$492 in 1916; and 10,444 gross, valued at \$1,803 in 1917 (fiscal years). Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|----------|-------------|---------|------------------|
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | 28,622 | \$11,081 | \$0.39 | \$4,432 | 40 |
| 1919..... | 8,870 | 1,700 | .19 | 680 | 40 |
| 1920..... | 13,517 | 2,330 | .69 | 3,732 | 40 |
| 1921 (9 months)..... | 17,464 | 1,888 | .11 | 755 | 40 |

Exports.—None recorded, but small amounts are sent to various countries.

GLASS BUTTONS.

(See Report T. I. S.—4.)

Description and uses.—These buttons are made from glass rods, sometimes called "fusible enamel," in a great variety of sizes, shapes, and colors, and are described as "fancy buttons used largely for women's wear."

Production in 1919 (Census) was 571,000 gross, valued at \$261,000, as compared with 217,000 gross valued at \$100,000 in 1914. Most of our imports of glass buttons come from Czechoslovakia.

Imports were 142 gross, valued at \$448, in 1918, and 1,000,000 gross, valued at \$464,117, in 1914 (fiscal years). Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|---------|-------------|--------|------------------|
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | 429 | \$674 | \$1.57 | \$270 | 40 |
| 1919..... | 141,399 | 39,382 | .27 | 16,753 | 40 |
| 1920..... | 431,822 | 100,215 | .23 | 40,086 | 40 |
| 1921 (9 months)..... | 141,394 | 44,146 | .31 | 17,658 | 40 |

Exports.—Small quantities are now exported to Canada, South America, and other countries, but statistics are lacking.

HORN BUTTONS.

(See Report T. I. S.—4.)

Description and uses.—Horn buttons are in the main made from the horns and hoofs of domestic cattle. These buttons are often made in large sizes and are much used on suits, cloaks, and overcoats. England and Japan are large producers and exporters.

Production.—Eight factories employing about 600 persons were making these buttons in 1918. The census of 1914 reported a production of 537,000 gross, valued at \$299,487; the 1919 census reports an output of 2,575,000 gross, valued at \$1,111,000.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|----------|-------------|----------|------------------|
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | 226,157 | \$69,098 | \$0.31 | \$37,639 | 40 |
| 1919..... | 121,711 | 64,320 | .53 | 25,728 | 40 |
| 1920..... | 27,281 | 33,684 | 1.23 | 13,473 | 40 |
| 1921 (9 months)..... | 28,129 | 51,068 | 1.82 | 20,427 | 40 |

Exports.—Separate statistics are not available.

SHOE BUTTONS.

(See Report T. I. S.—4.)

Description and uses.—Shoe buttons are made from a number of materials, the most important being papier-mâché; composition and agate. Cheaper grades from Austria and Germany were agate. The domestic product is in the main made of papier-mâché.

Production.—Twelve factories, chiefly in New England, gave an output in 1914 of about 15,500,000 gross, valued at about \$610,000. The manufacture of papier-mâché buttons greatly increased with the

elimination of German and Austrian competition during the war. In 1919 (census) production was 5,295,000 gross, valued at \$632,000.

Imports in 1918 (fiscal year) were 46,684 gross, valued at \$3,134; in 1914, over 570,000 gross, valued at about \$21,500. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|---------|-------------|-------|------------------|
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | 44,152 | \$2,247 | \$0.05 | \$337 | 15 |
| 1919..... | 3,010 | 1,867 | .62 | 280 | 15 |
| 1920..... | 120,171 | 11,856 | .10 | 1,778 | 15 |
| 1921 (9 months)..... | 8,762 | 2,050 | .23 | 308 | 15 |

Exports.—Small quantities are exported but separate statistics are not given.

Important changes in classification.—See General Notes on Paragraph, page 1113.

SILK BUTTONS.

(See Report T. I. S.—4.)

Imports.—Statistics for silk and “all other,” are given below; statistics of other kinds not available.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

SILK BUTTONS.

| | <i>Gross.</i> | | | | <i>Per cent.</i> |
|----------------------|---------------|-------|--------|-------|------------------|
| 1918..... | | \$364 | | \$146 | 40 |
| 1919..... | 8 | 13 | \$4.53 | 5 | 40 |
| 1920..... | 178 | 173 | .97 | 69 | 40 |
| 1921 (9 months)..... | 7,042 | 1,783 | .25 | 713 | 40 |

ALL OTHER BUTTONS, N. S. P. F.

| | | | | | |
|----------------------|--|----------|--|----------|-----|
| 1918..... | | \$79,617 | | \$31,847 | 40 |
| 1919..... | | 10,182 | | | (1) |
| 1920..... | | 106,310 | | 42,524 | 40 |
| 1921 (9 months)..... | | 229,153 | | 91,661 | 40 |
| | | 202,564 | | 81,026 | 40 |

¹ From the Philippines, free of duty.

Exports.—The total domestic exports of all buttons for the calendar years 1918, 1919, 1920, and 1921 were as follows: \$2,438,822, \$3,296,687, \$3,846,830, and \$1,033,573, respectively. Canada, England, and Argentina were the principal markets. There were also exported for the same periods the following amounts of foreign buttons, viz: \$14,820, \$26,191, \$75,670, and \$73,747.

MISCELLANEOUS.

(See Report T. I. S. — 4.)

Description and uses.—There are numerous kinds of buttons coming under the "not specially provided for" clause of this paragraph. The celluloid, composition, wood, and covered buttons, are of great importance in domestic manufacture. Silk, crochet, galalith, and many other kinds are also included under this paragraph.

Production.—Celluloid (plastic) buttons to the amount of 623,000 gross, valued at \$724,000 were produced in 1914 (Census); for 1919 the same source gives a production of 2,210,000 gross, valued at \$3,323,000.

Covered buttons produced in 1914 (Census) amounted to 3,017,000 gross, valued at \$1,600,000; although the quantity decreased to 2,872,000 gross in 1919, the value increased to \$1,769,000.

Other buttons not specified in the 1914 census amounted to 2,001,000 gross, valued at \$696,000. In 1919 the production had increased to 4,364,000 gross, valued at only \$523,000.

Production of the many other kinds is not definitely known.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The provision for collar and cuff buttons and studs of vegetable ivory is new.

Shoe buttons specifically mentioned in paragraph 339 of the act of 1913 are relegated to the provision for buttons not specially provided for.

Suggested changes.—"Parts of buttons and button molds or blanks, finished or unfinished, not specially provided for," carry a duty of 38 per centum ad valorem, while a finished button under paragraph 349, carrying a duty of a fraction of a cent per line per gross and 10 per centum ad valorem, might be dutiable at a less rate than a part of the same or similar button.

The expression "button blanks, not turned, faced, or drilled," is said not to express the process of manufacture and to be meaningless in the vegetable ivory button business. It is suggested that "vegetable ivory button blanks, not drilled, dyed or finished" would be proper.

PARAGRAPH 1412.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1412. Cork bark, cut into squares, cubes, or quarters, 8 cents per pound; stoppers over three-fourths of one inch in diameter, measured at the larger end, and disks, wafers, and washers over three-sixteenths of one inch in thickness, made from natural cork bark, 20 cents per pound; made from artificial or composition cork, 10 cents per pound; stoppers, three-fourths of one inch or less in diameter, measured at the larger end, and disks, wafers, and washers, three-sixteenths of one inch or less in thickness, made from natural cork bark, 25 cents per pound;

H. R. 7456.

SENATE AMENDMENTS.

made from artificial or composition cork, 12½ cents per pound; cork, artificial, commonly known as composition or compressed cork, manufactured from cork waste or granulated cork, in the rough and not further advanced than in the form of slabs, blocks, or planks, suitable for cutting into stoppers, disks, liners, floats, or similar articles, 6 cents per pound; in rods or sticks suitable for the manufacture of disks, washers, or washers, 10 cents per pound; granulated or ground cork; cork insulation, wholly or in chief value of cork waste, granulated or ground cork, in slabs, boards, planks, or molded forms; cork tile; cork paper, and manufactures, wholly or in chief value of cork bark or artificial cork and not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

PAR. 429. Cork bark cut into squares, cubes, or quarters, eight cents per pound; manufactured corks over three-fourths of an inch in diameter, measured at larger end, fifteen cents per pound; three-fourths of an inch and less in diameter, measured at larger end, twenty-five cents per pound; cork, artificial, or cork substitutes, manufactured from cork waste or granulated cork, and not otherwise provided for in this section, six cents per pound; manufactures, wholly or in chief value of cork, or of cork bark, or of artificial cork or cork substitutes, granulated, or ground cork, not specially provided for in this section, thirty per centum ad valorem.

ACT OF 1918.

PAR. 340. Cork bark, cut into squares, cubes, or quarters, 4 cents per pound; manufactured cork stoppers, over three-fourths of an inch in diameter, measured at the larger end, and manufactured cork disks, washers, or washers, over three-sixteenths of an inch in thickness, 12 cents per pound; manufactured cork stoppers, three-fourths of an inch or less in diameter, measured at the larger end, and manufactured cork disks, washers, or washers, three-sixteenths of an inch or less in thickness, 15 cents per pound; cork, artificial, or cork substitutes, manufactured from cork waste, or granulated corks, and not otherwise provided for in this section, 8 cents per pound; cork insulation, wholly or in chief value of granulated cork, in slabs, boards, planks, or molded forms, ½ cent per pound; cork paper, 35 per centum ad valorem; manufactures wholly or in chief value of cork or of cork bark, or of artificial cork or bark substitutes, granulated or ground cork, not specially provided for in this section, 30 per centum ad valorem.

MANUFACTURES OF CORK.

(See Survey N-6.)

Description and uses.—Cork manufactures are of two classes, those cut from the natural cork bark, such as cork stoppers and disks used in metallic crown corks, and products of composition cork. The composition is made from the waste or residue from natural cork cutting, which is ground and baked in molds. The process of molding differs with the purpose for which the composition is intended; that for insulation board, for instance, is made entirely from natural cork granules, the natural resin or gum serving as a binder when baked under pressure, while in the composition from which disks for crown

corks are cut a separate glutinous binder is used. Cork paper, made by pasting very thin sheets of bark to paper, is used for cigarette tips. The uses of natural and composition cork are very numerous, a complete listing being almost impossible. Portugal and Spain supply nearly all the raw material. (See paragraph 1556.)

Production in 1914 was by 52 establishments (30 in New York and 10 in Pennsylvania), with a capital of \$7,602,000, over 3,400 employees, and wages of \$1,582,000. Materials used were valued at \$4,751,000, and the product at \$7,875,000. In 1919 the number of establishments reported had increased to 62, with production valued at \$16,282,000.

Imports in 1914 were valued at \$2,628,387; in 1916, at \$878,268; in 1917, at \$2,626,854. Imports are practically all from Portugal and Spain. Statistics of imports of various forms of cork follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

CORK DISKS, WAFERS, OR WASHERS, $\frac{1}{4}$ INCH OR LESS THICK.

| | Pounds. | | | Per cent. |
|----------------------|-----------|-------------|-----------|-----------|
| 1918..... | 2,010,408 | \$1,316,590 | \$301,561 | 22.90 |
| 1919..... | 791,051 | 470,948 | 117,935 | 25.04 |
| 1920..... | 1,382,697 | 905,429 | 207,405 | 22.91 |
| 1921 (9 months)..... | 454,010 | 344,288 | 68,101 | |

CORK DISKS, WAFERS, OR WASHERS, MORE THAN $\frac{1}{4}$ INCH THICK.

| | | | | |
|----------------------|--------|----------|---------|-------|
| 1918..... | 71,112 | \$46,495 | \$8,533 | 18.35 |
| 1919..... | 12,651 | 8,991 | 1,518 | 16.88 |
| 1920..... | 11,764 | 6,736 | 1,412 | 20.96 |
| 1921 (9 months)..... | 19,538 | 16,389 | 2,345 | |

CORK STOPPERS $\frac{1}{4}$ INCH OR LESS IN DIAMETER AT LARGE END.

| | | | | |
|----------------------|---------|----------|---------|-------|
| 1918..... | 64,556 | \$20,605 | \$9,683 | 47.00 |
| 1919..... | 76,397 | 65,150 | 11,460 | 17.59 |
| 1920..... | 103,961 | 88,509 | 15,594 | 17.62 |
| 1921 (9 months)..... | 56,909 | 49,678 | 8,536 | |

CORK STOPPERS OVER $\frac{1}{4}$ INCH IN DIAMETER AT LARGE END.

| | | | | |
|----------------------|---------|----------|----------|-------|
| 1918..... | 101,021 | \$72,426 | \$12,123 | 16.74 |
| 1919..... | 73,728 | 59,966 | 8,847 | 14.74 |
| 1920..... | 67,966 | 39,504 | 8,151 | 20.63 |
| 1921 (9 months)..... | 65,078 | 27,420 | 7,809 | |

CORK BARK CUT INTO SQUARES, CUBES, OR QUARTERS.

| | | | | |
|----------------------|-------|-------|-------|-------|
| 1918..... | 5 | \$1 | | |
| 1919..... | 6,135 | 3,129 | \$245 | 7.84 |
| 1920..... | 1,387 | 403 | 55 | 13.77 |
| 1921 (9 months)..... | 8 | 2 | | 16.00 |

CORK INSULATION WHOLLY OR OF CHIEF VALUE OF CORK WASTE, GRANULATED OR GROUND CORK, IN SLABS, BOARDS, PLANKS, OR MOLDED FORMS.

| | | | | |
|----------------------|-----------|----------|---------|------|
| 1918..... | 1,249,570 | \$33,704 | \$1,574 | 5.00 |
| 1919..... | 5,719,668 | 411,472 | 14,299 | 3.47 |
| 1920..... | 9,000,101 | 771,123 | 22,500 | 2.92 |
| 1921 (9 months)..... | 6,503,902 | 421,105 | 16,259 | 3.66 |

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--|--------------------|-----------|---------|------------------------|
| ARTIFICIAL OR COMPOSITION CORK, MANUFACTURED FROM CORK WASTE OR GRANULATED CORK AND NOT SPECIALLY PROVIDED FOR. | | | | |
| 1918..... | Pounds. 175,331 | \$116,506 | \$5,260 | 4.51 |
| 1919..... | 6 | 1 | | |
| 1920..... | 220 | 41 | 7 | 1.61 |
| 1921 (9 months)..... | | | | |

CORK PAPER.

| | | | | |
|----------------------|--|-----------|----------|-------|
| 1918..... | | \$116,695 | \$40,833 | 35.00 |
| 1919..... | | 101,589 | 35,549 | 35.00 |
| 1920..... | | 62,560 | 21,896 | 35.00 |
| 1921 (9 months)..... | | 17,193 | 6,017 | 35.00 |

MANUFACTURES WHOLLY OR IN CHIEF VALUE OF CORK OR ARTIFICIAL CORK AND NOT SPECIALLY PROVIDED FOR.

| | | | | |
|----------------------|--|----------|---------|-------|
| 1918..... | | \$32,546 | \$9,764 | 30.00 |
| 1919..... | | 51,286 | 13,586 | 30.00 |
| 1920..... | | 94,938 | 28,481 | 30.00 |
| 1921 (9 months)..... | | 39,989 | 11,996 | 30.00 |

Exports for the fiscal years 1914-1918 were valued at \$462,199, \$211,795, \$455,424, \$541,579, and \$847,377, respectively. Canada, Australia, and Brazil were the chief purchasers of domestic cork manufactures in 1914. Exports since 1917, by calendar years, have been as follows: 1918, \$996,821; 1919, \$1,081,537; 1920, \$2,002,174; 1921 (nine months), \$580,597. Canada, Mexico, Cuba, and Argentina were the chief purchasers during these years.

PARAGRAPH 1413.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1413. Dice, dominoes, draughts, chessmen, and billiard, pool, and bagatelle balls, and poker chips, of ivory, bone, or other material, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 430. Dice, dominoes, draughts, chessmen, chess balls, and billiard, pool, and bagatelle balls, of ivory, bone, or other materials, fifty per centum ad valorem.

PAR. 341. Dice, dominoes, draughts, chessmen, chess balls, and billiard, pool, bagatelle balls, and poker chips, of ivory, bone, or other materials, 50 per centum ad valorem.

DICE, CHESSMEN, ETC.

(See Survey N-7.)

Production and export data are not available. Establishments engaged in the manufacture of these articles are not given a separate classification by the census. France is the principal foreign manufacturer of articles within this paragraph.

Imports of dice, dominoes, draughts, chessmen, etc., in 1914 were valued at \$67,789, nearly all from Germany and France; in 1918 (fiscal year) three-fourths of importations came from France, the rest largely from Hongkong, Japan, and China. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|----------|------------------|
| 1918..... | \$21,061 | \$10,539 | Per cent. 50 |
| 1919..... | 57,789 | 28,893 | 50 |
| 1920..... | 55,470 | 27,734 | 50 |
| 1921 (9 months)..... | 93,519 | | |

PARAGRAPH 1414.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1414. Dolls, and parts of dolls, doll heads, toy marbles, of whatever materials composed, air rifles, toy balloons, toy books without reading matter other than letters, numerals, or descriptive words, bound or unbound, and parts thereof, and all other toys, and parts of toys, not composed of china, porcelain, parian, bisque, earthen or stone ware, and not specially provided for, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 412. * * * books of paper or other material for children's use, not exceeding in weight twenty-four ounces each, six cents per pound; * * *

PAR. 325. * * * books of paper or other material for children's use, lithographically printed in whole or in part, not exceeding in weight twenty-four ounces each, 4 cents per pound; * * *

PAR. 431. Dolls, and parts of dolls, doll heads, toy marbles of whatever materials composed, and all other toys, and parts of toys, not composed of china, porcelain, parian, bisque, earthen or stone ware, and not specially provided for in this section, thirty-five per centum ad valorem.

PAR. 342. Dolls, and parts of dolls, doll heads, toy marbles of whatever materials composed, and all other toys, and parts of toys, not composed of china, porcelain, parian, bisque, earthen or stone ware, and not specially provided for in this section, 35 per centum ad valorem.

PAR. 132. * * * air-rifles, * * * and parts thereof, 15 per centum ad valorem.

TOYS.

(See Survey N-7.)

Description and uses.—Toys, under the judicial decisions, are playthings intended and designed for the amusement of children only, and by their very nature and character reasonably unfit for other use. (*Illfelder v. United States*, 1 Ct. Cust. Appls., 109, of 1910; *Carson, etc., v. United States*, 2 Ct. Cust. Appls., 386, of 1911.)

Production.—Available figures cover toys and games in general. In 1914 there were 290 manufacturers of toys and games, with an output valued at \$13,757,000, a capital of \$10,484,000, and 7,887 employees. Before the war Germany supplied a large part of the world's demand

for toys. In 1919, there were 541 establishments engaged in the manufacture of toys and games, the product amounting to \$45,720,000. The Toy Manufacturers' Association reports that in 1914 there were 10 concerns in the United States manufacturing dolls, and that the product amounted to \$1,000,000, and in 1919, 48 concerns with a product valued at \$9,000,000.

Imports.—In 1914 imports amounted to over \$9,000,000, divided as follows: Dolls and parts of, \$1,816,937; all other toys and parts of, \$7,274,035. Of the dolls and parts of, \$1,791,913 came from Germany and of all other toys \$5,926,941 from Germany, \$434,006 from Japan, \$420,859 from England, and \$206,194 from France. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|------------|---------------|---------------|---------------------|
| Dolls and parts of: | | | | |
| Value..... | \$365, 473 | \$1, 205, 215 | \$2, 523, 108 | \$1, 215, 682 |
| Duty..... | 127, 916 | 421, 825 | 807, 588 | ..... |
| All other toys and parts of toys, n. s. p. f., including toy marbles: | | | | |
| Value..... | 848, 013 | 1, 630, 311 | 7, 094, 418 | 4, 784, 769 |
| Duty..... | 296, 805 | 570, 600 | 2, 483, 040 | ..... |

Japan began to ship considerable quantities of toys to the United States during the war. In 1920 imports from Japan amounted to 60 per cent of the dolls and to 50 per cent of all other toys. Germany in the same year supplied, respectively, 37 and 40 per cent.

Exports.—In 1914 exports amounted to \$809,120, chiefly to Canada, England, Australia, and Cuba. Later statistics for calendar years follow:

| Item. | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|-------------|-------------|---------------------|
| Dolls and parts of..... | \$292, 219 | \$454, 770 | \$530, 821 | \$98, 034 |
| Mechanical toys..... | 166, 970 | 224, 628 | 471, 369 | 122, 583 |
| All other toys..... | 1, 198, 923 | 2, 190, 131 | 3, 178, 132 | 1, 112, 182 |
| Total..... | 1, 658, 112 | 2, 869, 529 | 4, 180, 322 | 1, 332, 799 |

Important changes in classification.—Air rifles, toy balloons, and toy books are added.

Conflicting provisions.—Page 153, lines 6, 7, of H. R. 7456: There is conflict between the provision for "dolls, and parts of dolls, doll heads, toy marbles, of whatever materials composed," and the provision in paragraph 29 for articles of pyroxylin. A common material for dolls and parts of dolls and doll heads is pyroxylin. The proviso to paragraph 29 is intended to make all articles of pyroxylin dutiable thereunder by virtue of the words "whether or not more specifically provided for elsewhere."

Suggested changes.—If dolls, parts of dolls, doll heads, and toy marbles of pyroxylin are intended to be covered by paragraph 1414, an exception should be made thereof in the proviso to paragraph 29. If they are not intended to come within paragraph 1414, the exception of pyroxylin should be made in line 7 on page 153, making that read "of whatever materials composed, except those enumerated in paragraph 29."

Page 153, lines 10-12, of H. R. 7456: The same comments apply to toys provided for in lines 10 to 12. If toys of pyroxylin are not intended to be included in paragraph 1414, pyroxylin should be mentioned with china and the other materials therein named.

PARAGRAPH 1415.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1415. Emery, corundum and artificial abrasive grains and emery, corundum and artificial abrasives, ground, pulverized, refined, or manufactured, 1 cent per pound; emery wheels, emery files, emery paper, and manufactures of which emery, corundum or artificial abrasive is the component material of chief value, 20 per centum ad valorem; crude artificial abrasives, 5 per centum ad valorem.

ACT OF 1909.

PAR. 432. Emery grains and emery, manufactured, ground, pulverized, or refined, one cent per pound; emery wheels, emery files, and manufactures of which emery or corundum is the component material of chief value, twenty-five per centum ad valorem; crude artificial abrasives, ten per centum ad valorem.

ACT OF 1913.

PAR. 343. Emery grains and emery, manufactured, ground, pulverized, or refined, 1 cent per pound; emery wheels, emery files, emery paper, and manufactures of which emery or corundum is the component material of chief value, 20 per centum ad valorem.

PAR. 479. * * * and crude artificial abrasives, not specially provided for [Free].

EMERY AND CORUNDUM.

(See Survey B-3.)

Description and uses.—Corundum and emery, prior to the invention of artificial abrasives, were the most important abrasive materials. Corundum is a natural crystalline mineral composed of aluminum oxide. Emery is an impure form of corundum. They are used in making emery cloth and paper, and are manufactured into grinding wheels by mixing with suitable materials.

Production.—The chief commercial sources of emery are the Greek island of Naxos and the Province of Smyrna in Asia Minor. Emery is produced here chiefly in the Peekskill district of New York and recently has been obtained in Pittsylvania County, Va. Domestic production increased from 485 tons, valued at \$2,425, in 1914, to 16,315 tons, valued at \$173,589, in 1917, an increase due to restricted imports and increased war demand. Production of emery in 1919 amounted to 2,601 short tons, valued at \$23,203, and in 1920 to 2,327 short tons, valued at \$21,685.

Canada, formerly the chief source of corundum, has been practically unproductive since 1913. There are important deposits in India and the South African Transvaal, whence considerable quantities reached this country during 1917. Crude ore is usually shipped to Glasgow for refining and is reexported to this country. Domestic production in 1917 (all from North Carolina) was 820 tons, valued at \$67,461. No production of corundum was reported in 1919 and 1920.

Imports of emery grains in 1914 were 844,157 pounds, valued at \$33,874, with about 60 per cent from England and 25 per cent from France. In 1917 they fell to 136,969 pounds, valued at \$7,889, all from England and Canada.

Imports of corundum ore declined steadily from 840 long tons, valued at \$63,286, in 1911, to 17 tons, valued at \$633, in 1916.

Imports of corundum grains have varied considerably. In 1913 they were 1,937,803 pounds, valued at \$87,187, with over 90 per cent from Canada; in 1916, 657,826 pounds. Scotland has been the chief source since 1915.

Imports of manufactures of emery and corundum have been small, in 1913 valued at \$15,067. Later imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|-------------------------|----------------|-----------|-------------|---------|
| EMERY GRAINS. | | | | |
| | <i>Pounds.</i> | | | |
| 1918..... | 623,241 | \$32,499 | \$0.05 | \$6,232 |
| 1919..... | 392,789 | 22,482 | .06 | 3,928 |
| 1920..... | 543,514 | 22,462 | .04 | 5,435 |
| 1921 (9 months)..... | 7,684 | | | |
| CORUNDUM GRAINS. | | | | |
| | <i>Tons.</i> | | | |
| 1918..... | 1,569 | \$199,409 | \$127.13 | |
| 1919..... | 69 | 9,696 | 140.52 | |
| 1920..... | 546 | 63,504 | 116.32 | |
| 1921 (9 months)..... | 582 | 74,218 | 127.51 | |

Exports of abrasives, natural and artificial, for calendar years since 1917, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months), |
|-------------------------|-------------|-------------|-------------|------------------|
| Wheels, emery, etc..... | \$3,862,531 | \$3,032,067 | \$2,791,128 | \$2,040,639 |
| All other..... | 1,982,822 | 2,809,231 | 3,810,171 | 2,854,921 |

The principal countries of destination have been Canada and England.

ARTIFICIAL ABRASIVES.

(See Survey B-3.)

Description and uses.—Artificial abrasives are of two kinds (1) silicon carbides, sold under the trade names of carborundum, crystolon, and carbolon; and (2) aluminum oxides, sold as alundum, aloxite, exolon, and lionite. Artificial abrasives sold under other names are either the above products or are imported materials marketed under special trade names. Carbide of silicon is the best abrasive for use on cast iron, brass, bronze, and other metals of low tensile strength, and marble, granite, pearl, leather, and carbon. It is also used in the form of bricks as a refractory in furnace construction. Oxide of aluminum is the best abrasive for grinding steel and wrought iron. It also has found considerable use as a refractory and filtering medium. These artificial abrasives, by far the most important abrasive materials, have replaced emery and corundum to a large extent.

Production.—Carbide of silicon is made by heating coke, sand, sawdust, and salt to a very high temperature in an electric furnace. Oxide of aluminum is made by fusing the mineral bauxite and carbon in an electric furnace and allowing it to cool and crystallize. By variations in conditions of manufacture, several degrees of hardness and toughness can be secured. These crude products are crushed and separated into grains of uniform size; the grains are then mixed with suitable binding materials and shaped into the desired form. Production in the United States and Canada (including a small quantity of steel abrasives) has increased from 38,489,000 pounds, valued at \$2,017,458, in 1913, to 115,822,000 pounds, valued at \$8,137,242, in 1917. The 1917 production was divided as follows: Silicon carbide, 16,646,000 pounds, valued at \$1,074,152; aluminum oxide, 96,926,000 pounds, valued at \$6,969,387; and metallic abrasives, 2,250,000 pounds, valued at \$93,703. In 1919 production of all artificial abrasives was 56,562,000 pounds (not including entire production), valued at \$5,019,79, and in 1920, 64,034,000 pounds (not including entire production), valued at \$6,269,084. The industry was first established at Niagara Falls, N. Y., because of the electrical power. In recent years, power at Niagara failing to meet growing demands, branch factories, owned by American concerns, have been established in Canada, where water power is available; about 65 per cent of the 1917 production was from those plants. A large part of the Canadian output is exported to this country and manufactured into wheels, stones, and other finished products.

Imports and exports of artificial abrasives are included with those of natural abrasives.

GENERAL NOTES ON PARAGRAPH

Important changes in classification.—Crude artificial abrasives are transferred from the free list of the act of 1913 (par. 479).

Suggested changes.—The attention of the Tariff Commission has been called to the fact that there is no provision for and no uniform treatment of abrasive paper and cloths. Emery paper is the only one mentioned specifically in H. R. 7456 (par. 1415). This same paragraph contains a provision for "manufactures of which emery, corundum, or artificial abrasive is the component material of chief value." The abrasive material used in the manufacture of abrasive cloths and paper, in most cases, is not the item of chief value, and, moreover, materials other than emery, corundum, and artificial abrasives are used in making these products. It seems desirable that a specific provision covering abrasive cloths and paper be inserted in H. R. 7456. To accomplish this the provision for "emery paper" in paragraph 1415, page 153, line 16, should be stricken out and the words "not specially provided for" inserted after the word "value" in line 18. The following provision should be inserted as a separate paragraph to follow paragraph 1415:

All papers, cloths, and combinations of paper and cloth, wholly or partly coated with artificial or natural abrasives, or with a combination of natural and artificial abrasives [rate].

PARAGRAPH 1416,

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1416. Firecrackers of all kinds, 8 cents per pound; bombs, rockets, Roman candles, and fireworks of all descriptions; not specially provided for, 12 cents per pound; the weight on all the foregoing to include all coverings, wrappings, and packing material.

ACT OF 1909.

ACT OF 1913.

PAR. 433. Firecrackers of all kinds, eight cents per pound; bombs, rockets, Roman candles, and fireworks of all descriptions, not specially provided for in this section, twelve cents per pound; the weight on all the foregoing to include all coverings, wrappings, and packing material.

PAR. 844. Firecrackers of all kinds, 6 cents per pound; bombs, rockets, Roman candles, and fireworks of all descriptions, not specially provided for in this section, 10 cents per pound; the weight on all the foregoing to include all coverings, wrappings, and packing material.

FIREWORKS.

(See Survey N-8.)

Description and uses.—The materials most used in fireworks are gunpowder or its constituents, carbon, sulphur, and potassium nitrate. Fireworks are so varied in form that many substances may be employed in their manufacture. Metallic salts are used to produce different colors; several oxidizing materials may supplant potassium nitrate; and other explosives may replace gunpowder for certain purposes. Besides their use for scenic purposes, rockets, Roman candles, and Bengal lights, they are also employed for signaling at sea.

Production.—In 1914 there were 41 manufacturers of fireworks with a capital of \$2,162,449, and output valued at \$2,296,236. In 1919 there were 57 manufacturers with an output valued at \$6,532,000.

Imports of firecrackers for 1910-1915 averaged annually over 3,000,000 pounds, valued at about \$216,000, with revenue of \$250,000. In 1917 the imports were 2,999,503 pounds, valued at \$382,248. Imports of bombs, rockets, Roman candles, and fireworks, n. s. p. f., in 1914 amounted to 185,514 pounds, valued at \$20,237. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem |
|--|----------------|----------|-------------|----------|-----------------------|
| FIRECRACKERS. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 441,568 | \$94,597 | \$0.15 | \$26,494 | 41.01 |
| 1919..... | 1,693,244 | 250,237 | .17 | 100,995 | 36.04 |
| 1920..... | 4,109,224 | 740,965 | .18 | 250,153 | 33.76 |
| 1921 (9 months)..... | 4,036,239 | 894,255 | | | |
| BOMBS, ROCKETS, ROMAN CANDLES, AND FIREWORKS, N. S. P. F. | | | | | |
| 1919..... | 6,278 | \$1,251 | \$0.20 | \$528 | 42.19 |
| 1920..... | 14,987 | 4,071 | .27 | 1,499 | 36.81 |
| 1921 (9 months)..... | 17,439 | 3,366 | | | |

Exports.—None recorded.

PARAGRAPH 1417.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1417. Matches, friction or lucifer, of all descriptions, per gross of one hundred and forty-four boxes, containing not more than one hundred matches per box, 6 cents per gross; when imported otherwise than in boxes containing not more than one hundred matches each, three-fourths of 1 cent per one thousand matches; wax matches, wind matches, and all matches in books or folders or having a stained, dyed, or colored stick or stem, tapers consisting of a wick coated with an inflammable substance, night lights, fuses and time-burning chemical signals, by whatever name known, 30 per centum ad valorem: *Provided*, That in accordance with section 10 of "An Act to provide for a tax upon white phosphorus matches, and for other purposes," approved April 9, 1912, white phosphorus matches manufactured wholly or in part in any foreign country shall not be entitled to enter at any of the ports of the United States, and the importation thereof is hereby prohibited: *Provided further*, That nothing in this Act contained shall be held to repeal or modify said Act to provide for a tax upon white phosphorus matches, and for other purposes, approved April 9, 1912.

ACT OF 1909.

PAR. 436. Matches, friction or lucifer, of all descriptions, per gross of one hundred and forty-four boxes, containing not more than one hundred matches per box, six cents per gross; when imported otherwise than in boxes containing not more than one hundred matches each, three-fourths of one cent per one thousand matches; wax and fancy matches and tapers, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 345. Matches, friction or lucifer, of all descriptions, per gross of one hundred and forty-four boxes, containing not more than one hundred matches per box, 3 cents per gross; when imported otherwise than in boxes containing not more than one hundred matches each, $\frac{1}{4}$ of 1 cent per one thousand matches; wax matches, fuses, wind matches, and all matches in books or folders or having a stained, dyed, or colored stick or stem, and tapers consisting of a wick coated with an inflammable substance, and night lights, 25 per centum ad valorem: *Provided*, That in accordance with section ten of "An Act to provide for a tax upon white phosphorus matches, and for other purposes," approved April ninth, nineteen hundred and twelve, white phosphorus matches manufactured wholly or in part in any foreign country shall not be entitled to enter at any of the ports of the United States, and the importation thereof is hereby prohibited: *Provided further*, That nothing in this Act contained shall be held to repeal or modify said Act to provide for a tax upon white phosphorus matches, and for other purposes, approved April ninth, nineteen hundred and twelve.

MATCHES.

(See Survey N-8.)

Description and uses.—Since friction matches appeared, about 1830, the industry has grown rapidly. Many changes have been made in the ignition mixture, each company usually having its own special formulæ; but the principal substances used are phosphorus sesquisulphide, some oxidizing material (such as potassium chlorate), red lead, lead peroxide, or manganese dioxide, glue, ground flint or glass, and a filler, such as clay. White or yellow phosphorus was formerly extensively used, but owing to the dangerous character of these matches they are now practically prohibited by law. Pine wood is usually used for the stems. The manufacture is wholly by machinery, from the cutting of the stems from the block until finished, boxed, and ready for shipment.

Safety matches contain neither phosphorus nor phosphorus compounds, but the substance on which they are struck usually contains red phosphorus—sometimes antimony sulphide—and powdered glass made into a paste with glue.

Matches may be grouped into three classes: (1) Friction matches, single dip; (2) friction matches, double dip; and (3) safety matches.

Production.—In 1914 there were 20 establishments, employing 4,546 persons, with a capital of \$11,736,187, and product valued at \$12,556,279. In 1919, with one additional establishment, the value of products had increased to \$15,874,000.

Imports of matches in 1910 were valued at \$372,945, increasing to \$882,795 in 1914, of which \$473,628 were from Sweden, \$117,748 from Norway, \$91,118 from Austria-Hungary, \$49,651 from Germany, \$35,187 from Belgium, and \$22,797 from Japan. Imports have been chiefly of matches in boxes containing not more than 100 per box. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

MATCHES, FRICTION OR LUCIFER—IN BOXES CONTAINING NOT MORE THAN 100 MATCHES PER BOX.

| | Gross. | | | | Per cent. |
|----------------------|-----------|--------------|--------|-----------|-----------|
| 1918..... | 4,952,331 | \$3,044,714. | \$0.61 | \$148,570 | 4.88 |
| 1919..... | 1,611,618 | 897,314 | .56 | 48,349 | 5.39 |
| 1920..... | 1,644,738 | 937,090 | .57 | 49,340 | 5.26 |
| 1921 (9 months)..... | 1,707,920 | 998,186 | .59 | | |

OTHER THAN IN BOXES CONTAINING NOT MORE THAN 100 MATCHES EACH.

| | Thousands. | | | | |
|----------------------|------------|--------|--------|------|------|
| 1918..... | 12 | \$2 | \$0.17 | | 2.50 |
| 1919..... | 11,564 | 2,885 | .25 | \$43 | 1.50 |
| 1920..... | 204,142 | 29,515 | .14 | 766 | 2.59 |
| 1921 (9 months)..... | 106,529 | 9,365 | .09 | | |

WAX AND WIND MATCHES, AND ALL MATCHES IN BOOKS, OR FOLDERS, OR HAVING A STAINED, DYED, OR COLORED STICK OR STEM.

| | Packages. | | | | |
|----------------------|-----------|----------|---------|---------|-------|
| 1918..... | | \$15,060 | | \$3,765 | 25.00 |
| 1919..... | 4,927,882 | 13,555 | \$0.003 | 3,389 | 25.00 |
| 1920..... | 2,034,112 | 10,419 | .005 | 2,604 | 25.00 |
| 1921 (9 months)..... | 280,811 | 2,965 | .011 | | 25.00 |

TAPERS, FUSEES, AND NIGHT LIGHTS.

| 1918..... | | \$2,017 | | \$504 | 25.00 |
|----------------------|--|---------|--|-------|-------|
| 1919..... | | 4,076 | | 1,019 | 25.00 |
| 1920..... | | 6,007 | | 1,502 | 25.00 |
| 1921 (9 months)..... | | 4,473 | | | 25.00 |

The value of matches imported from Japan amounted to \$858,738 in 1918, \$730,338 in 1919, and \$111,510 in 1920. Imports from Sweden dropped in value from \$2,299,045 in 1918 to \$377,895 in 1919 and to \$640,817 in 1920, and those from Norway from \$402,005 in 1918 to \$46,302 in 1919, and to \$79,981 in 1920.

Exports increased in value from \$80,877 in 1910 to \$102,407 in 1913, but decreased to \$77,736 in 1914. In the calendar year 1918 the value of exports was \$481,130; in 1919, \$626,780; in 1920, \$514,592; and in 1921 (nine months), \$200,683.

Important changes in classification.—Time-burning chemical signals are added.

PARAGRAPH 1418.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1418. Percussion caps, cartridges, and cartridge shells empty, 25 per centum ad valorem; blasting caps, containing not more than one gram charge of explosive, \$2.25 per thousand; containing more than one gram charge of explosive, 75 cents per thousand additional for each additional one-half gram charge of explosive; mining, blasting, or safety fuses of all kinds, not composed in chief value of cotton, \$1 per thousand feet.

ACT OF 1909.

PAR. 437. Percussion caps, cartridges, and cartridge shells empty, thirty per centum ad valorem; blasting caps, two dollars and twenty-five cents per thousand; mining, blasting, or safety fuses of all kinds, not composed in chief value of cotton, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 346. Percussion caps, cartridges, and cartridge shells empty, 15 per centum ad valorem; blasting caps, one dollar per thousand; mining, blasting, or safety fuses of all kinds,¹ 15 per centum ad valorem.

PERCUSSION CAPS AND CARTRIDGES.

(See Survey N-8.)

Description and uses.—Percussion caps and primers are shallow cups of gilding metal filled with fulminate or other igniting mixture. The term percussion cap, as used in the trade, refers only to the detonators used with muzzle-loading firearms. The trade name for the inserted detonator of cartridge ammunition is "primer." Cartridges, and cartridge shells empty, in common use, are of three types: (1) Center-fire metallic; (2) rim-fire metallic; and (3) center-fire paper shot shells.

Production.—Under "ammunition" the Census covers establishments manufacturing small-arms ammunition, including metallic and paper cartridges, empty and loaded gun shells, explosive shells, gun wads, caps, primers, shot, and bullets; also blasting caps and electric blasting caps, fuses and electrical exploder fuses, miners' squibs, rail way torpedoes, etc. Ammunition for large guns is produced in steel works, rolling mills and Federal establishments. The value of the product is not reported separately. Data are shown separately for

¹ Safety fuses in chief value of cotton will come within par. 920.

cartridges and all other ammunition. In 1914, the value of the former was reported as \$25,573,000 and of the latter as \$5,267,000. In 1919 the total value of the products reported under "ammunition" was \$88,059,000.

Imports.—In 1914 imports of percussion caps were valued at \$622 and of cartridges and cartridge shells, empty, at \$84,622. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|-------------------|-------------|-------------|-----------|------------------|
| PERCUSSION CAPS. | | | | | |
| | <i>Thousands.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1 | \$991 | | \$149 | 15 |
| 1920..... | 1 | 50 | \$50.00 | 7 | 15 |
| 1921 (9 months)..... | 21 | 294 | | | 15 |
| CARTRIDGES AND CARTRIDGE SHELLS, EMPTY. | | | | | |
| 1918..... | | \$1,024,589 | | \$153,688 | 15 |
| 1919..... | | 170 | | 25 | 15 |
| 1920..... | 678 | 8,885 | \$13.10 | 1,333 | 15 |
| 1921 (9 months)..... | 2,079 | 15,853 | 7.62 | | 15 |

Imports of cartridge shells, empty, are negligible.

Exports.—In 1914 exports of cartridges, loaded, amounted to \$3,521,533, going principally to Mexico, Russia in Europe, the Philippines, Canada, Australia, and Latin America. Later exports during calendar years have been as follows: 1918, \$10,764,765; 1919, \$10,346,957; 1920, \$5,972,322; 1921 (9 months), \$1,119,229. In 1920 exports included \$1,773,049 to Brazil, \$798,340 to Argentina, \$763,038 to Australia, \$441,191 to Canada, and \$307,843 to Cuba.

BLASTING CAPS.

(See Survey N-8.)

Description and uses.—Blasting caps are used in connection with a fuse to detonate high explosives employed in the blasting of coal, ores, in quarrying, and in farming. They consist essentially of a measured charge of high explosive pressed into a thin copper shell. In addition to the blasting cap there is manufactured an electric blasting cap of similar construction. Ignition in the latter is obtained by the use of an electric current instead of a fuse.

Production.—Official statistics are not available. One manufacturer states that there are five establishments in the United States and that their combined product of blasting caps would range from 250,000,000 to 300,000,000 caps with sales value of \$3,200,000 to \$3,800,000. Germany, Belgium, and Japan are the chief foreign producers exporting to the United States.

Imports.—In 1914 imports were valued at \$4,890. Later statistics covering calendar years are as follows: 1919, \$5; 1920, \$191; and 1921 (9 months), \$15.

Exports.—Not shown in official statistics. Exports are principally to Mexico, Central and South America.

MINING, BLASTING, OR SAFETY FUSES.

(See Survey N-8.)

Description and uses.—Fuses are used in connection with blasting caps to detonate high explosives.

Production.—Official statistics are not available.

Imports.—In 1914 imports were valued at \$183,035 of which an amount valued at \$48,605 was dutiable under the act of 1909. Imports before the war were principally from Belgium and Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$195 | | \$29 | 15 |
| 1919..... | 4,878 | 1,564 | \$0.31 | 223 | 15 |
| 1920..... | 8,215 | 3,771 | .46 | 566 | 15 |
| 1921 (9 months)..... | 6,364 | 1,623 | .26 | | 15 |

Exports of fuses are principally to Mexico. Statistics cover calendar years and show values of exports as follows: 1918, \$3,050,257; 1919, \$600,718; 1920, \$736,225; 1921 (9 months), \$217,517.

Important changes in classification.—The rate of duty on blasting caps has been made dependent on the weight of the charge of the explosive. It is stated by a manufacturer² that the classification in this paragraph based on the 1-gram charge is in keeping with the weight and strength of caps used to-day.

Mining, blasting, or safety fuses of all kinds composed in chief value of cotton are excepted.

PARAGRAPH 1419.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1419. Feathers and downs, on the skin or otherwise, crude or not dressed, colored, or otherwise advanced or manufactured in any manner, not specially provided for, 20 per centum ad valorem; dressed, colored, or otherwise advanced or manufactured in any manner, including quilts of down and other manufactures of down, artificial or ornamental feathers suitable for use as millinery ornaments, artificial and ornamental fruits, vegetables, grains, leaves, flowers, and stems or parts thereof, of whatever material composed, not specially provided for, 45 per centum ad valorem; natural leaves, plants, shrubs, herbs, trees, and parts thereof, chemically treated, colored, dyed or painted, not specially provided for, 45 per centum ad valorem; boas,

² Tariff Information, 1921. Hearings, Committee on Ways and Means, Part V, pp. 3257-3259.

H. B. 7456.

SENATE AMENDMENTS

boutonnieres, wreaths, and all articles not specially provided for, composed wholly or in chief value of any of the feathers, flowers, leaves, or other material herein mentioned, 50 per centum ad valorem: *Provided*, That the importation of birds of paradise, aigrettes, egret plumes or so-called osprey plumes, and the feathers, quills, heads, wings, tails, skins, or parts of skins, of wild birds, either raw or manufactured, and not for scientific or educational purposes, is hereby prohibited; but this provision shall not apply to the feathers or plumes of ostriches or to the feathers or plumes of domestic fowls of any kind: *Provided further*, That birds of paradise, and the feathers, quills, heads, wings, tails, skins, or parts thereof, and all aigrettes, egret plumes, or so-called osprey plumes, and the feathers, quills, heads, wings, tails, skins, or parts of skins, of wild birds, either raw or manufactured, of like kind to those, the importation of which is prohibited by the foregoing provisions of this paragraph, which may be found in the United States, on and after the passage of this Act, except as to such plumage or parts of birds in actual use for personal adornment, and except such plumage, birds or parts thereof imported therein for scientific or educational purposes, shall be presumed for the purpose of seizure to have been imported unlawfully after October 3, 1913, and the collector of customs shall seize the same unless the possessor thereof shall establish, to the satisfaction of the collector that the same were imported into the United States prior to October 3, 1913, or as to such plumage or parts of birds that they were plucked or derived in the United States from birds lawfully therein; and in case of seizure by the collector, he shall proceed as in case of forfeiture for violation of the customs laws, and the same shall be forfeited, unless the claimant shall, in any legal proceeding to enforce such forfeiture, other than a criminal prosecution, overcome the presumption of illegal importation and establish that the birds or articles seized, of like kind to those mentioned the importation of which is prohibited as above, were imported into the United States prior to October 3, 1913, or were plucked in the United States from birds lawfully therein.

That whenever birds of plumage, the importation of which is prohibited by the foregoing provisions of this paragraph, are forfeited to the Government, the Secretary of the Treasury is hereby authorized to place the same with the departments or bureaus of the Federal or State Governments or societies or museums for exhibition or scientific or educational purposes;

H. R. 7456.

SENATE AMENDMENTS.

but not for sale or personal use; and in the event of such birds or plumage not being required or desired by either Federal or State Government or for educational purposes, they shall be destroyed.

That nothing in this Act shall be construed to repeal the provisions of the Act of March 4, 1913, chapter 145 (Thirty-seventh Statutes at Large, page 847), or the Act of July 3, 1918 (Fortieth Statutes at Large, page 755), or any other law of the United States, now in force, intended for the protection or preservation of birds within the United States. That if on investigation by the collector before seizure, or before trial for forfeiture, or if at such trial if such seizure has been made, it shall be made to appear to the collector, or the prosecuting officer of the Government, as the case may be, that no illegal importation of such feathers has been made, but that the possession, acquisition or purchase of such feathers is or has been made in violation of the provisions of the Act of March 4, 1913, chapter 145 (Thirty-seventh Statutes at Large, page 847), or the Act of July 3, 1918 (Fortieth Statutes at Large, page 755), or any other law of the United States, now of force, intended for the protection or preservation of birds within the United States, it shall be the duty of the collector, or such prosecuting officer, as the case may be, to report the facts to the proper officials of the United States, or State or Territory charged with the duty of enforcing such laws.

ACT OF 1909.

PAR. 438. Feathers and downs of all kinds, including bird skins or parts thereof with the feathers on, crude or not dressed, colored, or otherwise advanced, or manufactured in any manner, not specially provided for in this section, twenty per centum ad valorem; when dressed, colored, or otherwise advanced or manufactured in any manner, including quilts of down and other manufactures of down, and also dressed and finished birds suitable for millinery ornaments, and artificial or ornamental feathers, fruits, grains, leaves, flowers, and stems or parts thereof, of whatever material composed, not specially provided for in this section, sixty per centum ad valorem; boas, boutonnières, wreaths, and all articles not specially provided for in this section, composed wholly or in chief value of any of the feathers, flowers, leaves, or other materials or articles herein mentioned, sixty per centum ad valorem.

PAR. 509. Birds, stuffed, not suitable for millinery ornaments [Free].

ACT OF 1913.

PAR. 347. Feathers and downs, on the skin or otherwise, crude or not dressed, colored, or otherwise advanced or manufactured in any manner, not specially provided for in this section, 20 per centum ad valorem; when dressed, colored, or otherwise advanced or manufactured in any manner, and not suitable for use as millinery ornaments, including quilts of down and manufactures of down, 40 per centum ad valorem; artificial or ornamental feathers suitable for use as millinery ornaments, artificial and ornamental fruits, grains, leaves, flowers, and stems or parts thereof, of whatever material composed, not specially provided for in this section, 60 per centum ad valorem; boas, boutonnières, wreaths, and all articles not specially provided for in this section, composed wholly or in chief value of any of the feathers, flowers, leaves, or other material herein mentioned, 60 per centum ad valorem; *Provided*, That the importation of aigrettes, egret plumes or so-called osprey plumes,

ACT OF 1909.

ACT OF 1913.

and the feathers, quills, heads, wings, tails, skins, or parts of skins, of wild birds, either raw or manufactured, and not for scientific or educational purposes, is hereby prohibited; but this provision shall not apply to the feathers or plumes of ostriches, or to the feathers or plumes of domestic fowls of any kind.

FEATHERS, ARTIFICIAL FLOWERS, FRUITS, ETC.

(See Survey N-9.)

Description and uses.—Artificial flowers, fruits, etc., are made from various materials, chiefly textile fabrics, wax and metal. For millinery purposes textile fabrics varying from cheap calicos to expensive silks and satins are used. Fancy feathers, prior to 1914, came from both domestic fowls and wild birds, but as the act of 1913 prohibited imports of the skins, feathers, and plumage of wild birds, except of the ostrich, the feather trade now relies chiefly upon ostrich plumes and the feathers of domestic fowls. Raw feathers in their natural state are not suitable for millinery purposes until considerable labor has been expended upon them.

Production.—The domestic artificial flower, feather, and plume industries are centered in New York, over 85 per cent of the total value of products in 1914 being credited to that city. In that year there were devoted primarily to the feather and plume industry, 239 establishments with products valued at \$11,451,000, and 217 establishments with an output valued at \$7,614,000 engaged in the production of artificial flowers, leaves, fruits, etc. In 1919 the value of feathers and plumes produced was \$15,568,000 from 217 establishments, and that of artificial flowers, etc., \$15,978,000 from 225 establishments. In addition to this there was some production of these various articles by establishments interested primarily in other industries, such as those engaged in the manufacture of house furnishing goods (feather pillows and beds), and millinery and lace goods manufactures (trimmed hats and frames).

Imports in 1914 of crude ostrich feathers were valued at \$3,866,428; ostrich feathers suitable for millinery use, \$34,976; feathers for beds, \$45,357; other feathers, crude, \$1,028,152; other feathers suitable for millinery, \$1,459,900; other feathers, advanced, but not for millinery, \$19,482; quilts and manufactures of downs, \$13,237; fruits, grains, flowers, etc., \$2,415,521; and boas, boutonnières, etc., \$18,767. Ostrich feathers were chiefly from England and British South Africa. Other feathers and artificial flowers and millinery ornaments came chiefly from Germany and France. Cheap flowers from Germany and Austria were cut off entirely and imports of more expensive grades from France greatly reduced during the war. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|--|----------------|-----------|-------------|-----------|------------------|
| OSTRICH FEATHERS, CRUDE. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$610,036 | | \$122,007 | 20 |
| 1919..... | 291,078 | 2,041,222 | \$7.01 | 408,244 | 20 |
| 1920..... | 182,409 | 1,336,916 | 8.76 | 267,353 | 20 |
| 1921 (9 months)..... | 124,966 | 1,156,744 | 9.25 | | |
| OSTRICH FEATHERS, SUITABLE FOR MILLINERY. | | | | | |
| 1918..... | | \$18,493 | | \$11,096 | 60 |
| 1919..... | | 20,945 | | 12,557 | 60 |
| 1920..... | | 16,355 | | 9,813 | 60 |
| 1921 (9 months)..... | | 7,942 | | 4,765 | 60 |
| FEATHERS FOR BEDS. | | | | | |
| 1918..... | 3,238,094 | \$448,063 | \$0.01 | \$99,613 | 20 |
| 1919..... | 710,852 | 189,199 | .08 | 37,840 | 20 |
| 1920..... | 165,293 | 463,963 | 2.81 | 92,991 | 20 |
| 1921 (9 months)..... | 904,457 | 223,410 | .02 | 44,682 | 20 |
| OTHER FEATHERS, CRUDE. | | | | | |
| 1918..... | | \$414,540 | | \$82,908 | 20 |
| 1919..... | 755 | 1,000 | \$1.32 | (1) | (1) 20 |
| 1920..... | 671,306 | 604,796 | .90 | 120,969 | 20 |
| 1921 (9 months)..... | 1,414,694 | 878,711 | .62 | 175,742 | 20 |
| | 854,554 | 464,174 | .55 | 92,835 | 20 |
| OTHER FEATHERS, SUITABLE FOR MILLINERY. | | | | | |
| 1918..... | | \$504,618 | | \$302,771 | 60 |
| 1919..... | | 693,249 | | 415,949 | 60 |
| 1920..... | | 498,090 | | 298,854 | 60 |
| 1921 (9 months)..... | | 214,542 | | 128,726 | 60 |
| OTHER FEATHERS, ADVANCED, BUT NOT SUITABLE FOR MILLINERY. | | | | | |
| 1918..... | | \$32,563 | | \$13,025 | 40 |
| 1919..... | 28,133 | 24,618 | \$0.87 | 9,847 | 40 |
| 1920..... | 78,232 | 42,078 | .54 | 20,830 | 40 |
| 1921 (9 months)..... | 12,241 | 20,356 | .17 | 8,142 | 40 |
| QUILTS AND MANUFACTURES OF DOWN. | | | | | |
| 1918..... | | \$5,361 | | \$2,144 | 40 |
| 1919..... | | 9,723 | | 3,899 | 40 |
| 1920..... | | 13,974 | | 5,590 | 40 |
| 1921 (9 months)..... | | 7,400 | | 2,960 | 40 |
| ARTIFICIAL FRUITS, FLOWERS, GRAINS, ETC. | | | | | |
| 1918..... | | \$414,893 | | \$248,908 | 60 |
| 1919..... | | 1,115,043 | | 669,026 | 60 |
| 1920..... | | 1,442 | | | |
| | | 2,333,323 | | 1,399,997 | 60 |
| 1921 (9 months)..... | | 1,601,590 | | 984,918 | 60 |
| BOAS, BOUTONNIERES, WREATHS, ETC. | | | | | |
| 1918..... | | \$28,235 | | \$16,953 | 60 |
| 1919..... | | 33,562 | | 20,137 | 60 |
| 1920..... | | 26,883 | | 15,830 | 60 |
| 1921 (9 months)..... | | 38,228 | | 22,935 | 60 |

¹ From Philippine Islands, free.

British South Africa and England continue to be the chief sources of ostrich feathers, with large amounts also coming from Argentina. China has taken the lead as the chief source of other crude feathers, and France and Hongkong are also important sources. Artificial fruits, flowers, grains, etc., came chiefly from France in 1919, but in 1920 Germany was the leading country of origin, with France second.

Exports are shown only for feathers not for millinery purposes, and millinery trimmings including artificial flowers. The former in 1914 were valued at \$640,020. The latter were not separately shown until 1918. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|--|-----------|-----------|-----------|-----------------|
| Feathers..... | \$252,903 | \$863,250 | \$678,644 | \$238,850 |
| Millinery trimmings, including artificial flowers..... | 773,910 | 1,024,036 | 1,240,681 | 726,797 |

Feathers were exported chiefly to Canada, Denmark, France, and Cuba; millinery trimmings to Canada, Cuba, and Argentina.

Important changes in classification.—The provisions for artificial vegetables, and for natural leaves, plants, shrubs, trees and parts thereof, chemically treated, colored, dyed or painted, n. s. p. f., are new.

The specific inclusion of birds of paradise in the provision prohibiting the importation of plumes, feathers, quills, skins, etc., of wild birds, is new. The second proviso is also new.

Suggested changes.—Change comma after “manufactures of down” to a semicolon to set off the provision immediately following for “feathers suitable for use as millinery ornaments” to agree with paragraph 347 of the act of 1913.

The act of 1913 (par. 347) requires the flowers, etc., to be both artificial and ornamental (*Bayersdorfer v. United States*, 7 Ct. Cust. Appls., 66, of 1916), whereas the act of 1909 (par. 438) required merely that the flowers, etc., be either artificial or ornamental. If restoration of the provision of the act of 1909 should be desired, “and” in line 12, page 155, should be changed to “or.”

PARAGRAPH 1420.

H. R. 7456,

SENATE AMENDMENTS.

PAR. 1420. Furs dressed on the skin, excepting silver or black fox furs, not advanced further than dyeing, 20 per centum ad valorem; plates and mats of dog and goat skins, 10 per centum ad valorem; manufactures of furs, excepting silver or black fox, further advanced than dressing and dyeing, prepared for use as material, joined or sewed together, including plates, linings, and crosses, except plates and mats of dog and goat skins, and articles manufactured from fur, not specially provided for, 35 per centum ad valorem; silver or black fox skins,

H. R. 7456.

SENATE AMENDMENTS.

dressed or undressed, and manufactures thereof, not specially provided for, 40 per centum ad valorem; articles of wearing apparel of every description partly or wholly manufactured, composed wholly or in chief value of hides or skins of cattle of the bovine species, or of dog or goat skins, 15 per centum ad valorem; articles of wearing apparel of every description, wholly or in part manufactured, composed wholly or in chief value of fur, not specially provided for, 50 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 439. Furs dressed on the skin, not advanced further than dyeing, but not repaired, twenty per centum ad valorem; manufactures of furs, further advanced than dressing and dyeing, when prepared for use as material, including plates, linings, and crosses, thirty-five per centum ad valorem; articles of wearing apparel of every description, partly or wholly manufactured, composed of or of which fur is the component material of chief value, fifty per centum ad valorem.
* * *

PAR. 573. Furs, undressed [Free].

PAR. 574. Fur skin of all kinds not dressed in any manner and not specially provided for in this section [Free].

[No provision for articles manufactured from fur not specially provided for.]

PAR. 348. Furs dressed on the skin, not advanced further than dyeing, 30 per centum ad valorem; plates and mats of dog and goat skins, 10 per centum ad valorem; manufactures of furs, further advanced than dressing and dyeing, when prepared for use as material, joined or sewed together, including plates, linings, and crosses, except plates and mats of dog and goat skins, and articles manufactured from fur not specially provided for in this section, 40 per centum ad valorem; articles of wearing apparel of every description partly or wholly manufactured, composed of or of which hides or skins of cattle of the bovine species, or of the dog or goat are the component material of chief value, 15 per centum ad valorem; articles of wearing apparel of every description, partly or wholly manufactured, composed of or of which fur is the component material of chief value, not specially provided for in this section, 50 per centum ad valorem; * * *

PAR. 491. Furs and fur skins, undressed [Free].

FURS, DRESSED, AND MANUFACTURES OF FURS.

(See Survey N-10.)

Description and uses.—Raw fur skins are known as "pelts." Fur dressing and dyeing are intermediate processes applied in preparing the pelts for manufacture into garments or other articles, and are generally conducted as independent industries. After the skin has been removed, it is usually salted for preservation until it can be dressed and dyed. Dressing consists of the application of preservative materials and a mechanical treatment to soften the pelt. All the various kinds of furs coming under paragraph 1573 (free list) are subjected to these processes and provide the raw material for the fur manufacturing industry. Skins of the American bison formerly furnished the material for moderate-priced fur coats. The skins of dogs and goats are now substituted. The skins are sewed together in plates or mats for protection in transportation.

Coats, muffs, capes, jackets, stoles, neckwear of various sorts, trimmings, and other articles of wearing apparel are by far the most important manufactures of fur, fashion deciding the kinds used and the style. Great fluctuations in prices occur over a series of years. The use of all kinds of furs has become very popular, and there is an almost unlimited variety in their application as articles of apparel. The most expensive are those of sable, seal, ermine, chinchilla, silver fox, beaver, otter, mink, and marten; the inexpensive are those of skunk, rabbit, squirrel, raccoon, opossum, and others. By the use of the Cimiotti unhairing machine the long hairs of the outer coat of the seal, beaver, muskrat, mink, otter, and other fur animals can be removed, leaving only the soft underfur; thus, by skillful dressing and dyeing, low-grade furs are sometimes made to resemble more expensive skins. Muskrat and coney are sometimes marketed as Hudson seal, near seal, electric seal, or Baltic seal, and the marten as Hudson Bay sable.

Production.—Dressed furs: In 1914 there were 96 establishments engaged in the dressing and dyeing of furs, chiefly located in Brooklyn, N. Y., with 1,525 employees and an output of \$2,875,000. The industry has expanded greatly, the United States taking first place over Germany since 1914. The sealskins from Alaska, formerly sent to London, are now dressed and finished here. In 1919 there were 141 establishments with products valued at \$20,421,000.

Fur wearing apparel and other manufactures of fur: In 1914 1,322 establishments produced fur goods, the output being valued at \$43,633,000; in 1909, 1,241 establishments, with output of \$55,938,000. In 1919 there were 1,812 establishments engaged in the manufacture of "fur goods" with products valued at \$178,533,000. The manufactures consist mostly of wearing apparel. Some of these establishments dress and finish the furs used. New York produced to the value of \$30,312,000 in 1914, leading the States. New York City is the principal center and, it is stated, manufactures more fur goods than London, Paris, Vienna, Leipzig, and Moscow combined. Manufacturers of fur goods may be divided into makers of high-grade furs; medium-grade furs for the better class of the dry-goods trade; "popular priced" furs; low-grade, coarse furs and articles made from fur pieces. During the war the United States assumed the lead, both in fur distribution and manufacturing.

Imports.—Furs dressed on the skin averaged in value over \$5,000,000 before 1914. In the latter year they amounted to \$3,204,251 of which \$1,206,587 came from Germany, \$647,538 from France, \$553,019 from Belgium, \$487,001 from China, and \$250,018 from England. All other manufactures of furs, including waste, amounted to \$1,791,074 in 1914, principally from France, Germany, China, Belgium, and England. Later imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|--|----------------|-----------|-------------|-----------|------------------|
| * FURS DRESSED ON THE SKIN NOT ADVANCED FURTHER THAN DYEING. | | | | | |
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$427,284 | | \$128,216 | 30 |
| 1919..... | 2,278,641 | 3,111,626 | | 933,488 | 30 |
| 1920..... | 1,899,004 | 3,080,873 | | 924,291 | 30 |
| 1921 (9 months)..... | 1,095,070 | 1,015,046 | | | |

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|----------------|-----------|-------------|----------|------------------|
| PLATES AND MATS OF DOG AND GOAT SKINS. | | | | | |
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$616,150 | | \$61,615 | 10 |
| 1919..... | 923,956 | 1,422,424 | \$1.54 | 142,242 | 10 |
| 1920..... | 495,371 | 1,021,534 | 2.05 | 102,153 | 10 |
| 1921 (9 months)..... | 323,978 | 479,507 | 1.48 | | |

MANUFACTURES OF FURS FURTHER ADVANCED THAN DRESSING AND DYEING WHEN PREPARED FOR USE AS MATERIAL, ARTICLES MADE FROM FUR, N. S. P. F., BUT NOT INCLUDING PLATES AND MATS OF DOG AND GOAT SKINS.

| | | | | | |
|----------------------|--|----------|--|----------|----|
| 1918..... | | \$71,831 | | \$28,730 | 40 |
| 1919..... | | 182,214 | | 72,885 | 40 |
| 1920..... | | 315,144 | | 126,058 | 40 |
| 1921 (9 months)..... | | 262,012 | | | |

WEARING APPAREL.

| | | | | | |
|----------------------|--|----------|--|----------|-----|
| 1918..... | | \$34,283 | | \$10,285 | (1) |
| 1919..... | | 86,749 | | 42,929 | (1) |
| 1920..... | | 124,654 | | 62,181 | (1) |
| 1921 (9 months)..... | | 66,438 | | | |

FUR WASTE.

| | <i>Pounds.</i> | | | | |
|----------------------|----------------|-----------|--------|----------|----|
| 1918..... | | \$166,970 | | \$16,697 | 10 |
| 1919..... | 541,773 | 79,060 | \$0.15 | 7,906 | 10 |
| 1920..... | 708,910 | 168,510 | .24 | 16,551 | 19 |
| 1921 (9 months)..... | 78,148 | 21,260 | .27 | | |

¹ 15 per cent on wearing apparel composed of cattle, dog, or goat skins and 50 per cent on wearing apparel composed of fur n. s. p. f.

Imports of wearing apparel composed of cattle, dog, or goat skins have never reached \$20,000 in value and in only two years since 1914 have they exceeded \$10,000.

Exports of dressed furs and manufactures of fur in 1912 were valued at \$615,441, about half going to Canada; in 1914, at \$870,824, more than half to Canada; in 1915, over \$1,000,000; in 1916, nearly \$2,500,000; in 1917, over \$5,000,000. In 1916 and 1917, England, France, and Canada took most of our exports. Later statistics cover calendar years: 1918, \$2,160,107; 1919, \$7,474,873; 1920, \$6,613,688; 1921 (nine months), \$1,302,757. In 1920 the destination of exports was as follows: France, \$2,944,529; Canada, \$1,257,964; England, \$1,145,739; and Argentina, \$472,292.

Important changes in classification.—The most important change is that with respect to silver or black fox furs. Under the act of 1913 these furs, if undressed, are free of duty and, if dressed, dutiable at 30 per cent. Both the undressed and dressed silver or black fox skins are specifically provided for in this paragraph. Manufactures of silver or black fox furs are also specifically provided for.

Conflicting provisions.—Manufacturers of silver or black fox skins and wearing apparel of fur are provided for in this paragraph at different rates of duty.

Suggested changes.—If it is desired to include wearing apparel of silver or black fox skins with other manufactures thereof, it should be there specified to avoid the conflict.

Paragraph 1420 provides for a duty of 40 per cent on black or silver fox furs undressed and paragraph 1573 provides for "fur and fur skins, undressed," free. Should not the latter paragraph have "n. s. p. f." inserted after "undressed?"

PARAGRAPH 1421.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1421. Hatters' furs, or furs not on the skin, prepared for hatters' use, including fur skins carroted, 22 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 439. * * * Furs not on the skin, prepared for hatters' use, including fur skins carroted, twenty per centum ad valorem.

PAR. 348. * * * furs not on the skin, prepared for hatters' use, including fur skins carroted, 15 per centum ad valorem.

HATTERS' FUR.

(See Survey N-10.)

Description and uses.—Hatters' fur is the fur or hair after it has been removed from the skins of such animals as the hare, rabbit, nutria, and beaver. After being prepared and chemically treated it can be used only for the manufacture of felt hats. Fur skins carroted are skins which have been treated with a solution of nitric acid and quicksilver to protect them from damage by insects and to facilitate the operations of manufacture. The raw materials; that is, the fur skins, are imported.

Production.—No separate statistics are given for the production of hatters' fur. The Census classification, "hat and cap materials," which includes fur prepared for hatters' use, gives an output valued at about \$7,600,000 in 1914. Hatters' fur was also reported under "furs, dressed."

Imports.—Imports of furs not on the skin, prepared for hatters' use, including fur skins carroted, in 1914 were \$607,254. The bulk of the imports come from France and Belgium. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 138,913 | \$457,020 | | \$68,230 | 15 |
| 1919..... | 341,237 | 498,569 | \$3.57 | 74,484 | 15 |
| 1920..... | 313,163 | 1,267,420 | 4.07 | 208,113 | 15 |
| 1921 (9 months)..... | 313,163 | 522,267 | 1.67 | | |

Exports.—None recorded.

PARAGRAPH 1422.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1422. Fans of all kinds, except common palm-leaf fans, 40 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 440. Fans of all kinds, except common palm-leaf fans, fifty per centum ad valorem.

PAR. 349. Fans of all kinds, except common palm-leaf fans, 50 per centum ad valorem.

FANS.

(See Survey N-11.)

Description and uses.—The varieties of fans may be classified as (1) those which can be folded or closed and (2) those permanently expanded or fixed. The former are sometimes made of thin slips of ivory or wood, but more commonly of a continuous surface of paper, silk, or other fabrics mounted on strips of rigid material, pivoted at one end, and folding together easily in the manner of a plaiting. Fixed fans are made of feathers set side by side, of leaves of palmate-leaved palm trees, or of paper or similar films spread on slender radiating sticks. Common palm-leaf fans, plain and not ornamented or decorated, are provided for in paragraph 1567.

Production.—Statistics of production in the United States are not available. France, Austria-Hungary, Germany, Japan, and China have been leading producers.

Imports of fans in 1914 were \$216,330, about 40 per cent from Japan. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|----------|------------------|
| | <i>Dozens.</i> | | | | <i>Per cent.</i> |
| 1918..... | 186,125 | \$67,939 | | \$33,872 | 50 |
| 1919..... | 186,125 | 56,211 | \$0.20 | 27,978 | 50 |
| 1920..... | 419,990 | 184,239 | .44 | 92,060 | 50 |
| 1921 (9 months)..... | 204,166 | 103,345 | | 51,677 | ..... |

PARAGRAPH 1423.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1423. Gun wads of all descriptions, not specially provided for, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 441. Gun wads of all descriptions, twenty per centum ad valorem.

PAR. 350. Gun wads of all descriptions, 10 per centum ad valorem.

GUN WADS.

(See Survey N-11.)

Description and uses.—Gun wads are disks used to hold in place powder or shot, and are made of felt, cardboard, or jute.

Production.—Not shown in official statistics.

Imports in 1914 were valued at \$3,716 and in 1916 at \$507. No imports, with the exception of an insignificant amount in 1920, are shown for subsequent years.

Important changes in classification.—The phrase “not specially provided for” has been added in order that there shall be no conflict between this paragraph and paragraph 1426, which provides for manufactures of hair felt, including gun wads.

Suggested changes.—Gun wads are specifically provided for in paragraphs 1423 and 1426. Paragraph 1426 is for wads of hair felt only, but inasmuch as the importation is small, the provision in paragraph 1426 might be stricken out and gun wads of hair felt classified under the general provision, or at least under this paragraph even though different rates of duty be imposed on the two classes. In such case, if different rates are desired, paragraph 1423 might be amended to read:

Gun wads of hair felt [rate]; all other gun wads [rate].

 PARAGRAPH 1424.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1424. Human hair, raw, 10 per centum ad valorem; cleaned or commercially known as drawn, but not manufactured, 20 per centum ad valorem; manufactures of human hair, including nets and nettings, or of which human hair is the component material of chief value, not specially provided for, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 442. Hair, human, if clean or drawn but not manufactured, twenty per centum ad valorem; manufactures of human hair, or of which human hair is the component material of chief value, not specially provided for in this section, thirty-five per centum ad valorem.

PAR. 583. * * * human hair, raw, uncleaned, and not drawn [Free].

PAR. 351. Human hair, raw, 10 per centum ad valorem; if cleaned or commercially known as drawn, but not manufactured, 20 per centum ad valorem; manufactures of human hair, including nets and nettings, or of which human hair is the component material of chief value, not specially provided for in this section, 35 per centum ad valorem.

HUMAN HAIR.

(See Survey N-12.)

Uses of human hair are (1) for switches, wigs, hair nets, etc., made from a fine quality of hair, and (2) press cloth, used in extracting the oil from cotton and other seeds. The latter is made of coarse human hair derived from the Orient.

Production of hair nets, switches, wigs, etc., apparently decreased during the war, but the output of press cloth made from human hair greatly increased. Prior to the war press cloth was made from camel and goat hair, chiefly from Russia, but large quantities of coarse human hair from China are now used. Under the Census classification "hair work," 199 establishments are shown, with products valued at \$7,325,000, in 1919. This includes, in addition to wigs, switches, etc., of human hair, similar articles of adornment made from hair other than human.

Imports of human hair in 1910 were valued at \$3,500,000; in 1915, at \$500,000. Of these imports the largest single item is unmanufactured hair. The great sources of supply have shifted, since 1914, from Continental Europe to the Orient. Imports from Europe in 1914 were 633,253 pounds, valued at \$533,172; from China and Japan, 280,170 pounds, valued at \$115,084. Of manufactured products, the most important item is "nets and nettings," valued at \$103,000 in 1915. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|--|----------------|-----------|-----------|------------------|
| HUMAN HAIR, RAW. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,547,731 | \$791,670 | \$79,167 | 10 |
| 1919..... | 2,069,988 | 1,363,999 | 136,400 | 10 |
| 1920..... | 2,203,206 | 1,534,306 | 153,431 | 10 |
| 1921 (9 months)..... | 801,904 | 506,465 | 50,546 | ..... |
| HUMAN HAIR, CLEANED OR DRAWN, BUT UNMANUFACTURED. | | | | |
| 1918..... | 18,660 | \$28,922 | \$5,784 | 20 |
| 1919..... | 69,000 | 72,492 | 14,498 | 20 |
| 1920..... | 68,936 | 117,216 | 23,443 | 20 |
| 1921 (9 months)..... | 40,334 | 90,986 | 18,187 | ..... |
| HUMAN HAIR, MANUFACTURES OF. | | | | |
| 1918..... | | \$641,192 | \$224,417 | 35 |
| 1919..... | | 2,158,696 | 755,444 | 35 |
| 1920..... | | 5,923,285 | 2,073,150 | 35 |
| 1921 (9 months)..... | | 6,242,709 | 2,184,948 | ..... |

In 1920 raw hair of Asiatic origin amounted to 1,947,624 pounds, with a value of \$1,000,078; cleaned or drawn, to 53,374 pounds, valued at \$52,790. Compared with the latter, imports of cleaned or drawn hair from other sources (chiefly European) amounted to 15,562 pounds, valued at \$64,426. These are from Italy, southern France and Germany. "Nets and netting" continue as the chief item of manufactured products, being valued in 1920 at \$5,774,022. Practically all comes from China.

Exports.—None recorded.

Suggested changes.—Should not "human hair tops" be enumerated in this paragraph?

PARAGRAPH 1425.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1425. Hair, curled, suitable for beds or mattresses, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 444. Hair, curled, suitable for beds or mattresses, ten per centum ad valorem.

PAR. 352. Hair, curled, suitable for beds or mattresses, 10 per centum ad valorem.

CURLLED HAIR.

(See Survey N-12.)

Description and uses.—Short horsehair, cow hair, and the softer kinds of pig hair, after being curled by twisting, boiling, and drying, are used for stuffing beds, mattresses, sofas, divans, and seats. Often Tampico and coconut fiber and Spanish and sea moss are added to the hair in the manufacture of some grades of upholstery.

Production in 1914, valued at \$3,657,414, was by 19 establishments, with \$2,930,000 capital, 1,317 employees, and wages of \$524,000. The industry is widespread, New York and Pennsylvania leading. Figures for 1919 are not available.

Imports of hair, curled, suitable for beds or mattresses, are negligible, being valued at only \$2 in 1914, with no substantial increase until 1921, when, for the first nine months of the calendar year, 18,787 pounds, valued at \$18,735, were imported.

Exports are included with manufactures of animal hair, which were valued at \$344,756 in 1914. Later statistics for calendar years follow: 1918, \$374,985; 1919, \$695,962; 1920, \$1,095,712; 1921 (nine months), \$189,919. Canada, France, and Japan were the principal countries of destination in 1920.

PARAGRAPH 1426.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1426. Haircloth, known as "crinoline" cloth, haircloth, known as "hair seating," and hair press cloth, 35 per centum ad valorem; hair felt, made wholly or in chief value of animal hair, not specially provided for, 25 per centum ad valorem; manufactures of hair felt, including gun wads, 35 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 382. On * * * felts not woven, and not specially provided for in this section, composed wholly or in part of wool, the duty per pound shall be four times the duty imposed by this section on one pound of unwashed wool of the first class and in addition thereto sixty per centum ad valorem.

PAR. 288. * * * felts not woven, and all manufactures of every description made, by any process, wholly or in chief value of wool, not specially provided for in this section, 35 per centum ad valorem; cloths if made in chief value of cattle hair or horse hair, not specially provided for in this section, 25 per centum ad valorem;

PAR. 441. Gun wads of all descriptions, twenty per centum ad valorem.

PAR. 445. Haircloth, known as "crinoline" cloth, eight cents per square yard; haircloth, known as "hair seating," and hair press cloth, twenty cents per square yard.

* * * press cloth composed of camel's hair, not specially provided for in this section, 10 per centum ad valorem.

PAR. 350. Gun wads of all descriptions, 10 per centum ad valorem.

PAR. 353. Haircloth, known as "crinoline" cloth, 6 cents per square yard; haircloth, known as "hair seating," and hair press cloth, 15 cents per square yard.

PAR. 422. * * * Press cloths composed of camel's hair, imported expressly for oil milling purposes, and marked so as to indicate that it is for such purposes, and cut into lengths not to exceed seventy-two inches and woven in widths not under ten inches nor to exceed fifteen inches and weighing not less than one-half pound per square foot [Free].

HAIRCLOTH—CRINOLINE AND HAIR SEATING.

(See Survey N-12.)

Description and uses.—Haircloth is made with horsehair filling and warp of cotton, linen, or worsted. "Crinoline" is a light haircloth with a cotton warp, used extensively for stiffening clothing, bonnets, and hats. Hair seating is a heavy, long-wearing horsehair covering formerly used in upholstering.

Production of all kinds of haircloth in 1909 was valued at \$2,230,033; in 1914, at \$2,394,486; and in 1919, at \$3,315,000.

Imports of crinoline are small, amounting in 1914 to \$46; in 1918 (calendar year) to 2,465 yards, valued at \$11,787; and in 1920, to 74 square yards, valued at \$150. In 1919 and 1921 none was imported. Imports of hair seating are combined with imports of hair press cloth, and are shown under that item.

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 1142.

HAIR PRESS CLOTH.

(See Survey N-12.)

Description and uses.—Press cloth is a very thick cloth woven entirely from spun hair. It is used in the oil milling industry as a wrapper for holding the seed meats while under pressure. Two classes of press cloth are now in use—that made from camel's hair and that made from human (chiefly Chinese) hair. Camel's-hair press cloth excels, because of its quality of not absorbing the liquid or allowing the residue of the seeds to cling to it, as well as for its strength and long life. The human-hair press cloth also possesses these qualities to some extent and is widely used. Its cost is less than that of the camel's-hair cloth. Horse, cattle, and goat hair are employed to some extent.

Production data are not separately shown for either camel's-hair press cloth or press cloth made of human hair. Human-hair press cloth is included in the total for all kinds of haircloth, while camel's-hair press cloth is combined with wool manufactures. Estimates of the trade place the production of human-hair press cloth at approximately 1,800,000 pounds, with a value of \$1,600,000.

Imports of camel's-hair press cloth were not separately shown until 1914, when 129,004 pounds, valued at \$62,804, were entered from January 1 to June 30. Imports of haircloth known as hair seating and hair press cloths in 1914 amounted to 54,920 square yards, valued at \$106,757. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------|------------------------|
|----------------|-----------|--------|-------|------------------------|

CAMEL'S-HAIR PRESS CLOTH.

| | Pounds. | | | Per cent. |
|----------------------|---------|----------|--|-----------|
| 1919..... | 22,673 | \$29,823 | | |
| 1920..... | 15,608 | 18,408 | | |
| 1921 (9 months)..... | 4,476 | 4,460 | | |

HAIRCLOTH KNOWN AS "HAIR SEATING," AND HAIR PRESS CLOTH.

| | Square yards. | | | |
|----------------------|---------------|----------|---------|------|
| 1918..... | 21,379 | \$95,751 | \$3,209 | 3.35 |
| 1919..... | 33,835 | 164,560 | 5,083 | 3.09 |
| 1920..... | 11,831 | 48,775 | 1,774 | 3.64 |
| 1921 (9 months)..... | 4,969 | 14,884 | | 5.00 |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph below.

HAIR FELT, AND MANUFACTURES OF.

Description and uses.—Hair felt is made from cattle or goat hair. Manufactures include polishing felts for plate glass, cushion felts for shoes, refrigerator felts, cartridge felts, felt washers, pipe covering, bumper felts, etc.

Production, import, and export data are not shown in official sources.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The provisions of this paragraph extend to all classes of hair press cloth. In the 1913 act camel's-hair press cloth is separately provided for (par. 288). The provision in paragraph 422 of the 1913 act for camel's-hair press cloths imported expressly for oil-milling purposes has been omitted. Hair felt, and manufactures of hair felt, including gun wads, have been added.

Conflicting provisions.—It is possible that in the case of camel's-hair press cloth paragraph 1121 may conflict with this paragraph. This paragraph provides for "hair press cloth," whereas paragraph 1121, in defining the word "wool," states, "Whenever in this title the word 'wool' is used in connection with a manufactured article of which it is a component material, it shall be held to include wool or hair of the * * * camel, * * * whether manufactured by the woolen, worsted, felt, or any other process."

Suggested changes.—To avoid litigation growing out of this possible conflict, the provision for "hair press cloth," page 159, paragraph 1426, line 22, of H. R. 7456, might be changed to read, "press cloth of camel's or other hair." Gun wads of hair felt are provided for in

this paragraph, and gun wads n. s. p. f., in paragraph 1423. In view of the small imports of gun wads of all descriptions (\$4 in 1920, none in 1918 and 1919), separate provisions appear inadvisable. If different rates are desired, gun wads of hair felt could be given in paragraph 1423 a higher rate than on gun wads n. s. p. f.

Provision might be made in this paragraph for "cloths and all other manufactures of every description, wholly or in chief value of cattle hair or horse hair, not specially provided for, [rate]" following the word "valorem" in line 2, page 160.

PARAGRAPH 1427.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1427. Hats, caps, bonnets, and hoods, for men's, women's, boys', or children's wear, trimmed or untrimmed, including bodies, hoods, plateaux, forms, or shapes, for hats or bonnets, composed wholly or in chief value of fur of the rabbit, beaver, or other animals, valued at not more than \$4.50 per dozen, \$1.50 per dozen; valued at more than \$4.50 and not more than \$9 per dozen, \$3 per dozen; valued at more than \$9 and not more than \$15 per dozen, \$5 per dozen; valued at more than \$15 and not more than \$24 per dozen, \$7 per dozen; valued at more than \$24 and not more than \$36 per dozen, \$10 per dozen; valued at more than \$36 and not more than \$48 per dozen, \$13 per dozen; valued at more than \$48 per dozen, \$16 per dozen; and in addition thereto, on all the foregoing, 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 439. * * * articles of wearing apparel of every description, partly or wholly manufactured, composed of or of which fur is the component material of chief value, fifty per centum ad valorem.
* * *

PAR. 446. Hats, bonnets, or hoods, for men's, women's, boys', or children's wear, trimmed or untrimmed, including bodies, hoods, plateaux, forms, or shapes, for hats or bonnets, composed wholly or in chief value of fur of the rabbit, beaver, or other animals, valued at not more than four dollars and fifty cents per dozen, one dollar and fifty cents per dozen; valued at more than four dollars and fifty cents per dozen and not more than nine dollars per dozen, three dollars per dozen; valued at more than nine dollars per dozen and not more than eighteen dollars per dozen, five dollars per dozen; valued at more than eighteen dollars per dozen, seven dollars per dozen; and in addition thereto, on all the foregoing, twenty per centum ad valorem.

PAR. 348. * * * articles of wearing apparel of every description, partly or wholly manufactured, composed of or of which fur is the component material of chief value, not specially provided for in this section, 50 per centum ad valorem;
* * *

PAR. 354. Hats, bonnets, or hoods, for men's, women's, boys', or children's wear, trimmed or untrimmed, including bodies, hoods, plateaux, forms or shapes, for hats or bonnets, composed wholly or in chief value of fur of the rabbit, beaver, or other animals, 45 per centum ad valorem.

FUR HATS.

(See Survey N-13.)

Description.—The furs most generally used in fur-felt hats are the beaver, coypou, nutria, or South American beaver, the Saxony and Russian hare, the Scotch, English, and French coney, and muskrat. Through processes of manufacture the fur in a felt hat loses its resemblance to fur as generally known. Most of the raw materials used are imported. The fur of the domestic rabbit is unsuitable for fur-felt hats.

Production.—In 1914 the number of fur-felt hat establishments was 224, with 21,318 employees, a capital of \$39,401,429, wages of \$12,070,812. Materials cost \$16,947,058, and the value of products was \$37,349,744. In addition, fur-felt hats to the value of \$476,499 were made in establishments engaged primarily in the manufacture of other products. There is some duplication in the value of the product owing to the inclusion with "hats, fur-felt," of the product of establishments which made nothing but hat bodies, in some instances under contract work for other manufacturers, and of still others which did finishing only. The industry is concentrated in Pennsylvania, Connecticut, New Jersey, and New York. In 1919 there were 176 establishments, with a total product valued at \$82,745,000.

Imports of hats, bonnets, or hoods of fur in 1914 were 36,725 dozen, valued at \$664,717, of which 13,656 dozen, valued at \$304,308, came from Austria-Hungary, the rest mainly from France, England, Italy, and Belgium. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|-----------|------------------|
| | <i>Dozens.</i> | | | | <i>Per cent.</i> |
| 1918..... | 20,644 | \$451,738 | \$21.88 | \$208,282 | 45 |
| 1919..... | 15,244 | 488,479 | 32.04 | 210,816 | 45 |
| 1920..... | 28,089 | 1,094,373 | 39.08 | 492,466 | 45 |
| 1921 (9 months)..... | 14,791 | 483,783 | | | |

In 1920 imports were principally from Italy (17,043 dozen, \$617,288); France (6,768 dozen, \$194,154); Czechoslovakia (1,729 dozen, \$120,220); and England (2,816 dozen, \$108,811).

Exports.—Domestic exports of fur-felt hats are not separately stated in official statistics. With the exception of one firm, which has a well-known trade-mark or name, exports are small. Felt hats and hat materials for men and boys were exported to the values of \$1,273,799, \$1,699,532, and \$3,145,224, respectively, in the calendar years 1918, 1919, and 1920. For the nine months ending September, 1921, exports of felt hats amounted to \$889,402. Exports were chiefly to Canada, Mexico, Cuba, and South American countries.

Important changes in classification.—A provision for caps, composed wholly or in chief value of fur of the rabbit, beaver, or other animals, has been added. Such caps were held dutiable as articles of wearing apparel (paragraph 348, act of 1913), and not as hats, bonnets, or hoods of fur (paragraph 354, act of 1913). Caps are not hats in either customs practice or common parlance. (G. A. 4708, T. D. 22228, of 1900.)

PARAGRAPH 1428.

H. E. 7456.

SENATE AMENDMENTS.

PAR. 1428. Jewelry, commonly or commercially so known, valued above 20 cents per dozen pieces, 55 per centum ad valorem; rope, curb, cable, and fancy patterns of chain not exceeding one-half inch in diameter, width, or thickness, valued above 30 cents per yard; and articles valued above 20 cents per dozen pieces, designed to be worn on apparel or carried on or about or attached to the person, such as and including buckles, cardcases, chains, cigar cases, cigar cutters, cigar holders, cigarette cases, cigarette holders, coin holders, collar, cuff, and dress buttons, combs, match boxes, mesh bags and purses, millinery, military and hair ornaments, pins, powder cases, stamp cases, vanity cases, and like articles; all the foregoing and parts thereof, finished or partly finished, composed of metal, whether or not enameled, washed, covered, or plated, including rolled gold plate, and whether or not set with precious or semiprecious stones, pearls, cameos, coral, or amber, or with imitation precious stones or imitation pearls, 55 per centum ad valorem; stampings, galleries, mesh, and other materials of metal, whether or not set with glass or paste, finished or partly finished, separate or in strips or sheets, suitable for use in the manufacture of any of the foregoing articles in this paragraph, 45 per centum ad valorem.

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PAR. 448. Chains, pins, collar, cuff, and dress buttons, charms, combs, millinery and military ornaments, together with all other articles of every description, finished or partly finished, if set with imitation precious stones composed of glass or paste (except imitation jet), or composed wholly or in chief value of silver, German silver, white metal, brass, or gun metal, whether or not enameled, washed, covered, plated, or alloyed with gold, silver or nickel, and designed to be worn on apparel or carried on or about or attached to the person, valued at twenty cents per dozen pieces, one cent each and in addition thereto three-fifths of one cent per dozen for each one cent the value exceeds twenty cents per dozen; all stampings and materials of metal (except iron or steel), or of metal set with glass or paste, finished or partly finished, suitable for use in the manufacture of any of the foregoing articles (except chain valued at less than thirty cents per yard other than nickel or nickel-plated chain), valued at seventy-two cents per gross, three

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PAR. 356. Jewelry, commonly or commercially so known, valued above 20 cents per dozen pieces, 60 per centum ad valorem; rope, curb, cable, and fancy patterns of chain not exceeding one-half inch in diameter, width, or thickness, valued above 30 cents per yard; and articles valued above 20 cents per dozen pieces designed to be worn on apparel or carried on or about or attached to the person, such as and including buckles, card cases, chains, cigar cases, cigar cutters, cigar holders, cigarette cases, cigarette holders, coin holders, collar, cuff, and dress buttons, combs, match boxes, mesh bags, and purses, millinery, military, and hair ornaments, pins, powder cases, stamp cases, vanity cases, and like articles; all the foregoing and parts thereof finished or partly finished, composed of metal, whether or not enameled, washed, covered, or plated, including rolled gold plate, and whether or not set with precious or semiprecious stones, pearls, cameos, coral, or amber, or with imitation precious stones or imitation pearls,

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cents per dozen pieces and in addition thereto one-half of one cent per gross for each one cent the value exceeds seventy-two cents per gross; rope, curb, cable, and other fancy patterns of chain, without bar, swivel, snap or ring, composed of rolled gold plate or of silver, German silver, white metal, or brass, not exceeding one-half of one inch in diameter, breadth or thickness, valued at thirty cents per yard, six cents per foot, and in addition thereto three-fifths of one cent per yard for each one cent the value exceeds thirty cents per yard; finished or unfinished bags, purses, and other articles, or parts thereof, made in chief value of metal mesh composed of silver, German silver, or white metal, valued at two dollars per dozen pieces, ten cents per piece and in addition thereto three-fifths of one cent per dozen pieces for each one cent the value exceeds two dollars per dozen; all of the foregoing, whether known as jewelry or otherwise and whether or not denominatively or otherwise provided for in any other paragraph of this Act, twenty-five per centum ad valorem in addition to the specific rate or rates of duty herein provided; all articles commonly or commercially known as jewelry, or parts thereof, finished or unfinished, including chain, mesh, and mesh bags and purses composed of gold or platinum, whether set or not set with diamonds, pearls, cameos, coral, or other precious or semiprecious stones, or imitations thereof, sixty per centum ad valorem.

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60 per centum ad valorem. Stampings, galleries, mesh and other materials of metal, whether or not set with glass or paste, finished or partly finished, separate or in strips or sheets, suitable for use in the manufacture of any of the foregoing articles in this paragraph, 50 per centum ad valorem.

JEWELRY AND RELATED ARTICLES.

(See Survey N-1.)

Description and uses.—The wording of the paragraph describes and indicates the uses of the articles of jewelry included therein.

Production.—In 1914 there were 1,914 establishments manufacturing jewelry, with \$72,404,000 capital, 28,289 employees, wages of \$18,302,000, and a product valued at \$81,006,000. In 1919 there were 2,037 establishments, with products valued at \$203,898,000.

Imports of jewelry in 1914 were valued at \$1,057,900, principally from Germany, France, Austria-Hungary, England, and Switzerland. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|---|-----------|----------|------------------|
| JEWELRY, COMMONLY OR COMMERCIALY SO KNOWN, VALUED ABOVE 20 CENTS PER DOZEN PIECES. | | | |
| 1918..... | \$147,851 | \$88,700 | Per cent. (a) |
| 1919..... | 543,998 | 326,288 | (a) |
| 1920..... | 1,063,190 | 637,902 | (a) |
| 1921 (9 months)..... | 711,312 | | |

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|---|---------|---------|------------------|
| STAMPINGS, GALLERIES, MESH, ETC. | | | |
| 1918..... | \$4,716 | \$2,358 | 50 |
| 1919..... | 18,160 | 9,080 | 50 |
| 1920..... | 14,873 | 7,437 | 50 |
| 1921 (9 months)..... | 16,661 | | |

MESH BAGS AND PURSES VALUED ABOVE 20 CENTS PER DOZEN PIECES.

| | | | |
|----------------------|---------|---------|----|
| 1918..... | \$5,864 | \$3,518 | 60 |
| 1919..... | 288 | 173 | 60 |
| 1920..... | 15,514 | 9,308 | 60 |
| 1921 (9 months)..... | 18,182 | | |

ARTICLES DESIGNED TO BE WORN ON APPAREL OR CARRIED ON OR ABOUT OR ATTACHED TO THE PERSON VALUED ABOVE 20 CENTS PER DOZEN PIECES, N. E. S.

| | | | |
|----------------------|----------|----------|----|
| 1918..... | \$26,719 | \$16,031 | 60 |
| 1919..... | 155,449 | 90,950 | 60 |
| 1920..... | 196,916 | 118,060 | 60 |
| 1921 (9 months)..... | 125,505 | | |

Imports of cable, curb, rope, etc., are negligible, being valued at only \$66 in nine months of 1921.

Exports in 1914 were valued at \$1,005,285—mainly to Canada. Later exports in calendar years have been valued as follows: 1918, \$547,377; 1919, \$1,428,910; 1920, \$815,780; 1921 (nine months), \$247,862. In 1919, when exports were largest in value, of the total amount \$549,435 went to England and \$300,235 to Canada.

Conflicting provisions.—This paragraph provides for cigar and cigarette holders if composed of metal, at 55 per cent ad valorem, and paragraph 1452 provides for the same articles, of whatever material composed, at 45 per cent ad valorem.

Suggested changes.—"Dress" buttons valued above 20 cents per dozen pieces are dutiable at 55 per cent ad valorem under this paragraph, while such buttons worth less than 20 cents per dozen pieces would come within the provision in paragraph 349 for buttons of metal not specially provided for at three-fourths of one cent per line per gross and 19 per centum ad valorem, or, if embossed, at 35 per centum ad valorem. It is thus possible to have the same kind of dress buttons varying in value only a few cents per dozen pieces pay rates as divergent as 12 per centum and 55 per centum, or to have a high-valued metal button come in at the common metal button rate.

PARAGRAPH 1429.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1429. Diamonds and other precious stones, rough or uncut, and not advanced in condition or value from their natural state by cleaving, splitting, cutting, or other process, whether in their natural form or broken, any of the foregoing not set, and diamond dust, 10 per centum ad valorem; pearls and parts thereof, drilled or undrilled, but not set or strung; diamonds, coral, rubies, cameos, and other precious stones and semiprecious stones, cut but not set, and suitable for use in the manufacture of jewelry, 20 per centum ad valorem; chatons, doublets, and synthetic cut stones, used in the manufacture of jewelry and other similar articles, 20 per centum ad valorem; imitation pearls of all kinds and shapes, of whatever material composed, pierced or unpierced, mounted or unmounted, and imitation precious or semiprecious stones except chatons, doublets, and synthetic cut stones of any kind, of all kinds and shapes, of whatever material composed, 45 per centum ad valorem.

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PAR. 449. Pearls and parts thereof, drilled or undrilled, but not set or strung, ten per centum ad valorem; diamonds, coral, rubies, cameos, and other precious stones and semi-precious stones, cut but not set, and suitable for use in the manufacture of jewelry, ten per centum ad valorem; imitation precious stones, including pearls and parts thereof, for use in the manufacture of jewelry, doublets, artificial, or so-called synthetic or reconstructed pearls and parts thereof, rubies, or other precious stones, twenty per centum ad valorem.

PAR. 555. Diamonds and other precious stones, rough or uncut, and not advanced in condition or value from their natural state by cleaving, splitting, cutting, or other process * * * [Free].

PAR. 556. * * * bort³; any of the foregoing not set, and diamond dust [Free].

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PAR. 357. Diamonds and other precious stones, rough or uncut, and not advanced in condition or value from their natural state by cleaving, splitting, cutting, or other process, whether in their natural form or broken, and bort; any of the foregoing not set, and diamond dust, 10 per centum ad valorem; pearls and parts thereof, drilled or undrilled, but not set or strung; diamonds, coral, rubies, cameos, and other precious stones and semiprecious stones, cut but not set, and suitable for use in the manufacture of jewelry, 20 per centum ad valorem; imitation precious stones, including pearls and parts thereof, for use in the manufacture of jewelry, doublets, artificial, or so-called synthetic or reconstructed pearls and parts thereof, rubies, or other precious stones, 20 per centum ad valorem.

PRECIOUS STONES.

(See Survey N-1.)

Description.—"Precious stones" as a trade term includes the diamond, sapphire, emerald, pearl, opal, turquoise, garnet, beryl, topaz, rock crystal, lapis lazuli, agate, onyx, jade, amethyst, tiger-eye, chalcedony, bloodstone, moonstone, tourmaline, chrysoprase, etc.

³ Or opposite par. 1561, H. R. 7456.

Production.—In 1914 there were 89 establishments engaged in lapidary work with value of products amounting to \$5,380,000, and in 1919, 121 establishments with products of \$30,056,000. In many cases the work is done for jewelry concerns which furnish the materials.

Important changes in classification.—See General Notes on Paragraph, page 1152.

BORT AND DIAMOND DUST.

(See Survey N-1.)

Description and uses.—Bort denotes diamonds of inferior quality, especially such as have a radiating crystallization, not taking a polish; also, an amorphous variety of diamond, brown, gray, or black, known as "black diamond or carbonado," found massive in Brazil in association with pure diamonds. Diamond dust is a powder secured by rubbing together two diamonds in the process of faceting, and also by crushing bort. It is used for cutting and polishing diamonds and other precious stones. The amorphous variety is extensively used in diamond drills and stone saws, for which ordinary diamonds are unsuited.

Imports in 1914 of bort and diamond dust were valued at \$90,512 and came principally from France and England. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|------------------|
| BORT. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$460,237 | \$46,024 | 10 |
| 1919..... | 1,367,088 | 136,709 | 10 |
| 1920..... | 3,328,871 | 332,837 | 10 |
| 1921 (6 months)..... | 314,240 | 31,424 | 10 |
| DIAMOND DUST. | | | |
| 1915..... | \$15,633 | \$1,563 | 10 |
| 1919..... | 53,354 | 5,335 | 10 |
| 1920..... | 59,117 | 5,912 | 10 |
| 1921 (9 months)..... | 19,609 | 1,961 | 10 |

Important changes in classification.—See General Notes on Paragraph, page 1152.

DIAMONDS.

(See Survey N-1.)

Uses.—Besides its value as a gem, the diamond is of great use in the arts and manufactures.

Production of rough and uncut diamonds for 1907-1918 ranged from \$608 (1915) to \$6,315 (1913), and was \$1,910 in 1918. A few diamonds have been found along the base of the Sierra Nevadas, in Wisconsin, Michigan, Indiana, Ohio, Kentucky, Tennessee, and along the eastern base of the Appalachians from Virginia to Alabama. South Africa furnishes almost the whole of the world supply; its total production in 1917 was valued at \$37,527,689.

Imports.—During 1911–1913 imports of diamonds in the rough ranged from \$9,071,089 (1911) to \$11,973,764 (1913); in 1915 they amounted to \$3,204,206. More than three-fourths are from England. Imports of diamonds cut, but not set, were \$24,390,076 in 1911, and \$27,170,996 in 1913. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

DIAMONDS, ROUGH OR UNCUT AND NOT ADVANCED.

| | Carats. | | | | Per cent. |
|----------------------|---------|--------------|---------|-------------|-----------|
| 1918..... | | \$12,636,024 | | \$1,263,602 | 10 |
| 1919..... | 290,677 | 20,308,758 | \$69.86 | 2,030,676 | 10 |
| 1920..... | 121,031 | 10,526,125 | 86.97 | 1,052,613 | 10 |
| 1921 (9 months)..... | 29,517 | 1,997,427 | 67.67 | 199,743 | 10 |

DIAMONDS, CUT BUT NOT SET, AND SUITABLE FOR MANUFACTURE OF JEWELRY.

| | | | | | |
|----------------------|---------|-------------|----------|-------------|----|
| 1918..... | | \$7,784,150 | | \$1,546,830 | 20 |
| 1919..... | 524,710 | 164,085,610 | \$122.13 | 12,817,096 | 20 |
| 1920..... | 302,920 | 45,240,013 | 149.34 | 9,048,003 | 20 |
| 1921 (9 months)..... | 184,408 | 19,327,173 | | 3,865,435 | 20 |

¹ Includes small amount from Cuba.

Important changes in classification.—See General Notes on Paragraph, page 1152.

PEARLS.

(See Survey N-1.)

Description and uses.—Mother-of-pearl, the inner layer of the shell of the pearl mollusk, is secreted from the mantle of the shellfish. When a grain of sand or like foreign element finds lodgment between the shell and the mantle, it becomes enveloped in this pearly secretion, and thus is formed the pearl of commerce.

Production.—River pearls are found in many parts of the United States, and have been systematically worked in the Little Miami and Mississippi Rivers. Pearls are obtained from India, the Persian Gulf, the Sulu seas, the coast of Australia, the shores of South America, and some of the Pacific islands. (See also Imitation Precious Stones, p. 1151.)

Imports were valued at \$1,932,109 in 1916, \$1,551,597 in 1915, \$5,800,790 in 1913, and \$515,478 in 1908. About 90 per cent comes from France and England. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|-----------|-----------|------------------|
| | Number. | | | Per cent. |
| 1918..... | } | \$97,939 | \$138,598 | 20 |
| | | 667,990 | | |
| 1919..... | } | 175,403 | 2,186,702 | 20 |
| | | 5,381,160 | | |
| 1920..... | | 7,801,728 | 1,560,346 | 20 |
| 1921 (9 months)..... | | 2,436,714 | 487,343 | |

¹From Philippine Islands, free.

Important changes in classification.—See General Notes on Paragraph, page 1152.

OTHER PRECIOUS STONES, ROUGH OR UNCUT.

(See Survey N-1.)

Production of precious stones, other than diamonds, was valued at \$104,413 in 1918.

Imports were \$167,331 in 1916, \$54,141 in 1915, \$75,614 in 1913, and \$180,012 in 1911. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Carats.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$129,859 | | \$12,996 | 10 |
| 1919..... | 2,183,858 | 219,526 | \$0.10 | 21,953 | 10 |
| 1920..... | 1,607,900 | 354,937 | .22 | 35,494 | 10 |
| 1921 (9 months)..... | 283,692 | 145,278 | .52 | 14,528 | ..... |

Important changes in classification.—See General Notes on Paragraph, page 1152.

OTHER PRECIOUS AND SEMIPRECIOUS STONES, CUT BUT NOT SET.

Imports were valued at \$2,774,220 in 1913, and \$4,058,696 in 1911, coming principally from France, England, and Germany. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|-----------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$956,939 | \$191,387 | 20 |
| 1919..... | 4,938,287 | 987,057 | 20 |
| 1920..... | 5,010,563 | 1,002,113 | 20 |
| 1921 (9 months)..... | 2,000,689 | 400,138 | ..... |

Important changes in classification.—See General Notes on Paragraph, page 1152.

IMITATION PRECIOUS STONES.

(See Survey N-1.)

Description and uses.—Imitation gems are manufactured from a specially prepared glass called "strass," after its German inventor. This glass consists essentially of a complex borosilicate of lead and potassium. The finished colorless glass is used in imitation diamonds. When employed to imitate colored precious stones, the strass is melted with various metallic oxides. Real diamonds, however, have been made artificially by Prof. Moissan, of Paris, by the use of an electric furnace. The stones produced were exceedingly small, but they possessed all the characteristics of the natural diamond.

Artificial pearls are of two kinds, the solid or massive and the blown pearls. The first are known as "Venetian pearls," made chiefly on the island Murano, near Venice, from small white or col-

ored glass tubes, the desired hues being produced by the use of oxide of tin and other metals. Blown pearls consist of small globules of thin glass, coated on the inside with the so-called oriental pearl essence, or "essence d'Orient," which is made from silvery scales of the bleak, a small fish common in France and Germany. Many imitation pearls are also formed of an opaline glass of nacreous luster, and the soft appearance of the pearl is obtained by the judicious use of hydrofluoric acid. It is said that certain Japanese firms are producing by artificial methods a genuine pearl in the body of the oyster. Synthetic or reconstructed stones differ from the imitation article in that they are of the same composition as the true stone. Doublets are defined as imitation gems consisting of a real stone cemented to a piece of glass colored to simulate the imitation gems, or paste jewels mounted with a thin face of the genuine jewels. A chaton is an eight-faceted stone in imitation of a diamond or other precious stone.

Production.—The United States has never been an important producer of imitation precious stones. In recent years domestic manufacturers have produced considerable quantities of imitation pearls but it can not be said that the business is in a stable condition.

Imports of imitation precious stones, including pearls and parts thereof, for use in the manufacture of jewelry, doublets, artificial or so-called synthetic or reconstructed pearls and parts thereof, rubies, or other precious stones, amounted to \$1,192,897 in 1914. They came chiefly from France. Later import statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|-----------|---------------------|
| 1918..... | \$889,086 | \$177,817 | <i>Per cent.</i> 20 |
| 1919..... | 1,590,182 | 318,036 | 20 |
| 1920..... | 2,174,632 | 434,926 | 20 |
| 1921 (9 months)..... | 1,045,361 | 209,072 | 20 |

Important changes in classification.—See General Notes on Paragraph, below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Bort is not specifically provided for.

The provision for chatons is new. Synthetic stones have been restricted to cut stones. The phrase "used in the manufacture of jewelry and other similar articles" is made to cover chatons, doublets, and synthetic cut stones.

Imitation pearls are given a separate classification and are not included under imitation precious stones. The descriptive phrase "of all kinds and shapes, of whatever material composed, pierced or unpierced, mounted or unmounted," is new and the phrase "for use in the manufacture of jewelry" is omitted.

Imitation precious or semiprecious stones exclude chatons, doublets, and synthetic cut stones, which are specifically provided for. The phrase "of all kinds and shapes, of whatever material composed" is new and the phrase "for use in the manufacture of jewelry" is omitted.

Conflicting provisions.—The provision in this paragraph for imitation pearls differs from the provision in paragraph 1403 for imitation pearl beads only in the words "strung or loose" which are in paragraph 1403 and not in this paragraph. There was litigation under the act of 1909 between two somewhat similar provisions (pars. 421 and 449), in which the provision for imitation pearl beads was declared more specific than the provision for imitation pearls. For legislative purposes, paragraph 449 of the act of 1909 was declared to include only such imitation pearls for use in the manufacture of jewelry as were not also imitation pearl beads. (*Lorsch v. United States*, 5 Ct. Cust. Appls., 93; *Cohn v. United States*, 5 Ct. Cust. Appls., 339; both of 1914.) The words "pierced or unpierced" in both paragraphs increase the conflict.

Suggested changes.—Since beads are usually if not always pierced, omission of the words "pierced or unpierced" wherever they occur in paragraphs 1403 and 1429 would tend to limit the provisions of 1403 to beads and 1429 to imitation pearls and imitation precious and semiprecious stones.

Specific provision might be made for pearls, strung.

Page 161, line 20, of H. R. 7456: Insert rate and change semicolon to a comma.

PARAGRAPH 1430.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1430. Laces, including burnt-out laces, lace window curtains; handkerchiefs, napkins, wearing apparel, and all other articles or fabrics of lace, or made wholly or in part, however small, of lace or of imitation lace of any kind; edgings, insertings, galloons, nets, nettings, veils, veilings, neck ruffings, ruchings, tuckings, trimmings, flouncings, flutings, quilings, ornaments; ribbons ornamented in the process of weaving; braids loom woven and ornamented in the process of weaving, or made by hand, or on any braid machine, knitting machine, or lace machine; and all articles composed in any part, however small, of any of the foregoing fabrics or articles; all the foregoing (except plain gauze or leno woven cotton nets or nettings, and materials and articles specially provided for in paragraphs 919, 1006, 1403, 1404, 1406, and 1424 of this Act), by whatever name known, and to whatever use applied, and whether or not named, described, or provided for elsewhere in this Act, when composed wholly or in chief value of yarns, threads, filaments, tinsel wire, lame, bullions, metal threads, spangles, or beads, 45 per centum ad valorem; embroideries, handkerchiefs, napkins, wearing apparel, and all other articles or fabrics embroidered in any manner by hand or machinery, whether with a plain or fancy initial, monogram,

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or otherwise, or tamboured, appliqué, scalloped, or ornamented with beads or spangles, or from which threads have been omitted, drawn, punched, or cut, and with threads introduced after weaving to finish or ornament the openwork, not including straight hemstitching; all the foregoing (except plain gauze or leno woven cotton nets or nettings, and materials and articles specially provided for in paragraphs 919, 1006, 1403, 1404, 1406, and 1424 of this Act), by whatever name known, and to whatever use applied, and whether or not named, described, or provided for elsewhere in this Act, when composed wholly or in chief value of yarns, threads, filaments, tinsel wire, lame, bullions, metal threads, spangles, or beads, 37½ per centum ad valorem.

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PAR. 179. * * * laces, embroideries, braids, galloons, trimmings, * * * ornaments, * * * made wholly or in chief value of tinsel wire, lame or lahn, bullions, or metal threads, fifteen cents per pound and sixty per centum ad valorem.

PAR. 322. Handkerchiefs or mufflers composed of cotton, whether in the piece or otherwise and whether finished or unfinished, * * * embroidered in any manner, whether with an initial letter, monogram, or otherwise, by hand or machinery, or are tamboured, appliqué, or trimmed wholly or in part with lace or with tucking or insertion, they shall not pay a less rate of duty than sixty per centum ad valorem.

PAR. 349. Laces, lace window curtains, and all other lace articles; handkerchiefs, napkins, wearing apparel, and all other articles made wholly or in part of lace or laces, or in imitation of lace; nets, nettings, veils, veilings, neck ruffings, ruchings, tuckings, flutings, quillings, embroideries, trimmings, braids, feather-stitch braids, edgings, insertings, flouncings, galloons, gorings, * * * ornaments, ribbons, * * * wearing apparel, handkerchiefs, and other articles or fabrics embroidered in any manner by hand or machinery, whether with a plain or fancy letter, initial, or monogram, or otherwise, or tamboured, appliqué, or scalloped, by hand or machinery, for any purpose, or from which threads have been drawn, cut, or punched to produce openwork, ornamented or embroidered in any manner herein described, in any part thereof, however small; hemstitched or tucked flouncings or skirtings; all of the foregoing, composed wholly or in chief value of cotton, flax, or other vegetable

SENATE AMENDMENTS.

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PAR. 358. Laces, lace window curtains, not specially provided for in this section, coach, carriage, and automobile laces, and all lace articles of whatever yarns, threads, or filaments composed; handkerchiefs, napkins, wearing apparel, and all other articles or fabrics made wholly or in part of lace or imitation lace of any kind; embroideries, wearing apparel, handkerchiefs, and all articles or fabrics embroidered in any manner by hand or machinery, whether with a plain or fancy initial, monogram, or otherwise, or tamboured, appliqué, or scalloped by hand or machinery, any of the foregoing by whatever name known; edgings, insertings, galloons, nets, nettings, veils, veilings, neck ruffings, ruchings, tuckings, flouncings, flutings, quillings, ornaments; braids, loom woven and ornamented in the process of weaving, or made by hand, or on any braid machine, knitting machine, or lace machine, and not specially provided for; trimmings not specially provided for; woven fabrics or articles from which threads have been omitted, drawn, punched, or cut, and with threads introduced after weaving, forming figures or designs, not including straight hemstitching; and articles made in whole or in part of any of the foregoing fabrics or articles; all of the foregoing of whatever yarns, threads, or filaments composed, 60 per centum ad valorem.

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fiber, or of cotton, flax, or other vegetable fiber and india rubber, or of cotton, flax, or other vegetable fiber, india rubber, and metal, and not elsewhere specially provided for in this section, sixty per centum ad valorem: *Provided*, That no article composed wholly or in chief value of one or more of the materials or goods specified in this paragraph, shall pay a less rate of duty than the highest rate imposed by this section upon any of the materials or goods of which the same is composed: *And provided further*, That no article or fabric of any description, composed of flax or other vegetable fiber, or of which these materials or any of them is the component material of chief value, when embroidered by hand or machinery, or having hand or machinery embroidery thereon, shall pay a less rate of duty than that imposed in this section upon any embroideries of the materials of which such embroidery is composed.

PAR. 350. Laces, embroideries, edgings, insertings, galloons, flouncings, nets, nettings, trimmings, and veils, composed of cotton, silk, artificial silk, or other material (except wool), made on the Lever or Gothrough machine, seventy per centum ad valorem: *Provided*, That no wearing apparel, handkerchiefs, or articles of any description, composed wholly or in chief value of any of the foregoing, shall pay a less rate of duty than that imposed upon the articles or the materials of which the same are composed.

PAR. 383. * * * braids, galloons, edgings, insertings, flouncings, fringes, gimps, * * * ornaments, laces, trimmings, and articles made wholly or in part of lace, embroideries and all articles embroidered by hand or machinery, head nets, nettings, * * * and manufactures of wool ornamented with beads or spangles of whatever material composed, any of the foregoing made of wool or of which wool is a component material, whether containing india rubber or not, fifty cents per pound and sixty per centum ad valorem.

PAR. 400. Handkerchiefs or mufflers composed wholly or in chief value of silk, finished or unfinished, * * * embroidered in any manner, whether with an initial letter, monogram, or otherwise, by hand or machinery, or are tamboured, appliquéd, or having tucking or insertion, sixty per centum ad valorem.

PAR. 402. Laces, edgings, insertings, galloons, flouncings, neck ruffings, ruchings, braids, * * * trimmings, ornaments, nets or nettings, veils or veillings, and articles made wholly or in part of any of the foregoing, or of chiffons, embroideries and articles embroidered by hand

ACT OF 1909.

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or machinery, or tamboured or appliquéed, * * * all of the foregoing composed of silk, or of silk and metal, or of which silk is the component material of chief value, whether in part of India rubber or otherwise and braid composed in part of India rubber, not specially provided for in this section, and silk goods ornamented with beads or spangles, sixty per centum ad valorem: *Provided*, That articles composed wholly or in chief value of any of the materials or goods dutiable under this paragraph shall pay not less than the rate of duty imposed upon such materials or goods by this section: *Provided further*, That tamboured, embroidered, or appliquéed articles or fabrics shall pay no less rate of duty than that imposed upon the material if not so tamboured, embroidered, or appliquéed.

PAR. 405. * * * braids, laces, embroideries, galloons, neck ruffings, ruchings, * * * trimmings, * * * or other articles or fabrics composed wholly or in chief value of yarns, threads, filaments, or fibers of artificial or imitation silk or of artificial or imitation horsehair, by whatever name known, and by whatever process made, forty-five cents per pound, and in addition thereto, sixty per centum ad valorem.

PAR. 421. * * * nets or nettings, laces, embroideries, galloons, wearing apparel, ornaments, trimmings, curtains, fringes, and other articles not specially provided for in this section, composed wholly or in chief value of beads or spangles made of glass or paste, gelatin, metal, or other material, but not in part of wool, sixty per centum ad valorem: *Provided*, That no article composed wholly or in chief value of beads or spangles made of glass, paste, gelatin, metal, or other material shall pay duty at a less rate than is imposed in any paragraph of this section upon such articles without such beads or spangles.

LACE, EMBROIDERY, ETC.

Description and uses.—Paragraph 1430, after paragraph 1008 (jute burlap, etc.), is probably the most important textile provision as regards value of imports. It includes laces, nets, embroideries, braids, and articles made of any of these materials.

Lace is ornamental network made by intertwisting fine threads to form a pattern. When made by hand it is termed "real" or "point" lace, as distinguished from machine-made lace, sometimes known as imitation lace. Modern lace is mainly machine-made. The machines used are either the Lever or the "go-through."

Netting is made by intertwisting fine threads to form open meshes, usually hexagonal in shape. Net, sometimes used as a synonym for netting, is, correctly, a particular length of netting.

Veiling is a general commercial term covering a great variety of articles, such as chiffon, grenadine, fancy netting (having fancy "veiling" meshes, or ornamented with a bar or border or figuring), used chiefly or exclusively for the making of veils. A veil is a particular length of veiling.

Embroidery is ornamental stitching. It implies a foundation material, such as cloth, or net, on which the embroidery is worked, thus differing from lace, which is made directly from yarn. Embroidering is done by hand and by hand or power machines. Modern embroidery is made chiefly on the power-driven schiffli (shuttle) machines. A special type of embroidery is known as burnt-out lace; this is also called etched lace, embroidery lace, and Plauen lace. It is made by embroidering on a specially prepared cloth and then removing this foundation material, by chemicals or otherwise, so as to obtain an openwork embroidery fabric which resembles lace.

Fancy braids, including the type known as "Barmen lace," are made on braiding machines with Jacquard attachments.

Edging is narrow lace or embroidery specially designed for trimming frills and parts of dresses. It is usually made with one edge straight and one scalloped. Inserting, or insertion, is narrow lace or embroidery or other ornamental material especially made for inserting in a plain fabric. It is made with both edges alike, usually straight, and with a certain amount of plain work on either edge for use in sewing it to the fabric. Galloon is a narrow fabric made of lace, embroidery, or braid. Some of it is made with a mixture of metallic threads; composed of threads or cords covered with gold, silver, gilt, etc., and is used for ornamenting uniforms. Neck ruffling is a strip of textile material drawn up at one edge in gathers or pleats, especially prepared for wearing around the neck. Ruching is a full quilling or pleating of net, lace, ribbon, or other material in widths ranging from 1 to 3 inches, used as a trimming for women's garments or worn at the neck or wrists. It usually consists of two or more rows of material arranged in box or shell pleats, or in the form of quilling. Tucking consists of textile material ornamented with parallel rows of tucks, either arranged close together and covering the surface, or in clusters with spaces between. It is used for women's summer waists, yokes, underwear, and skirts and as fronts for men's shirts. Flouncing is textile material of any description used for making deep ruffles or flounces, usually gathered or pleated at one edge and loose at the other, the gathered edge being sewn to the garment. Fluting is ruffling made with a flute-shaped crimp. Quilling is a narrow border of lace, net, or ribbon, pleated or fluted so as to resemble a row of quills; it is a variety of ruffling. Tambour work originally meant a kind of embroidery worked by hand on muslin tightly stretched by means of hoops or a frame similar to that encircling a tambour. It is now usually applied to work, made on the embroidery machine, in which the tambour stitch is used. This stitch produces a pattern of straight ridges crossing each other in every direction at right or acute angles. Appliqué in dress and upholstery usage means applied or sewn on. Thus, a gimp or pattern of lace may be sewn on a new ground, or embroidered flowers may be secured to silk net; in such case the pattern ornament is said to be appliquéd.

Production data of clothing and articles of wearing apparel made or ornamented with lace, embroidery, etc., are not obtainable. Their manufacture centers in New York, Chicago, Philadelphia, and other large cities.

The production figures of lace, embroidery, etc., are not available except for certain items. The output of Lever laces of cotton, amounted in 1914 to 7,237,000 square yards, valued at \$3,681,000, and in 1919 to 19,863,000 square yards, valued at \$6,608,000. The production of braids and narrow laces, of cotton, was valued at \$897,000 in 1914 and at \$620,000 in 1919. The production of silk laces, embroideries, nets, veils, veilings, etc., was valued at \$1,362,000 in 1914 and at \$5,953,000 in 1919; of silk fringes and gimps, at \$1,025,000 in 1914 and at \$3,464,000 in 1919; of military and tailors' trimmings of silk, at \$642,000 in 1914 and at \$1,317,000 in 1919.

The machine embroidery industry centers around New York City, being largest on the New Jersey side of the North River; there are also aggregations of embroidery machines at Philadelphia and Chicago and smaller numbers at other points. Fancy laces are produced most largely in Pennsylvania, Rhode Island, New Jersey, New York, and Connecticut.

Imports of laces, embroideries, etc., have been valued as follows: 1914, \$48,134,985; 1918, \$22,314,665; 1919 (calendar year), \$30,811,353; 1920 (calendar year), \$50,190,422. The record was \$53,361,350 in 1907. The temporary free entry accorded lace and embroidery machines from August 5, 1909, to January 1, 1911, more than doubled the capacity of the local lace and embroidery industries and their development has tended to curtail the imports of foreign laces and embroideries. The decline in imports after 1914 was, however, largely because of the war. Lace imports are normally from Nottingham and Calais; embroidery from St. Gall; etched lace (burnt-out embroidery) from Plauen; and fancy braids most largely from Barmen. Ornamented wearing apparel comes chiefly from Paris.

Imports are shown more in detail as to nature and material as follows:

Lace, embroidery, etc.

| Calendar year. | Cotton. | Flax, etc. | Wool. | Silk. | Artificial silk and artificial horsehair. | Metal thread fabrics. | Total |
|----------------|---------|------------|-------|-------|---|-----------------------|-------|
|----------------|---------|------------|-------|-------|---|-----------------------|-------|

LACES AND LACE ARTICLES.

| | | | | | | | |
|-----------|-------------|-----------|-------|-----------|-------|-------|-------------|
| 1918..... | \$5,372,441 | \$134,080 | ..... | \$119,999 | ..... | ..... | \$5,626,520 |
| 1919..... | 9,031,847 | 142,399 | ..... | 478,028 | ..... | ..... | 9,652,244 |
| 1920..... | 12,593,994 | 257,731 | ..... | 982,329 | ..... | ..... | 13,834,054 |

COACH, CARRIAGE, AND AUTOMOBILE LACES.

| | | | | | | | |
|-----------|---------|-------|-------|-------|-------|-------|---------|
| 1918..... | \$2,576 | ..... | \$129 | ..... | ..... | ..... | \$2,705 |
| 1919..... | 1,010 | ..... | ..... | ..... | ..... | ..... | 1,010 |
| 1920..... | 4,601 | ..... | ..... | ..... | ..... | ..... | 4,601 |

LACE WINDOW CURTAINS.¹

| | | | | | | | |
|-----------|-----------|---------|-------|-------|-------|-------|-----------|
| 1918..... | \$127,628 | \$6,714 | ..... | ..... | ..... | ..... | \$134,342 |
| 1919..... | 145,063 | ..... | ..... | ..... | ..... | ..... | 145,063 |
| 1920..... | 893,201 | 18,821 | ..... | ..... | ..... | ..... | 912,022 |

¹ Not made on Nottingham lace-curtain machines.

Lace, embroidery, etc.—Continued.

| Calendar year. | Cotton. | Flax, etc. | Wool. | Silk. | Artificial silk and artificial horsehair. | Metal thread fabrics. | Total. |
|----------------|---------|------------|-------|-------|---|-----------------------|--------|
|----------------|---------|------------|-------|-------|---|-----------------------|--------|

NETS, NETTINGS, VEILS, VEILINGS.

| | | | | | | | |
|-----------|-------------|--------|-------|-------------|-------|-------|-------------|
| 1918..... | \$1,493,885 | \$269 | ..... | \$1,604,118 | ..... | ..... | \$3,188,272 |
| 1919..... | 2,645,382 | 13,718 | \$74 | 3,765,599 | ..... | ..... | 6,424,778 |
| 1920..... | 1,983,802 | 6,062 | 260 | 4,523,105 | ..... | ..... | 6,513,238 |

BRAIDS.

| | | | | | | | |
|-----------|---------|-------|-------|---------|----------|----------|----------|
| 1918..... | \$6,702 | \$159 | \$72 | \$6,145 | \$31,557 | \$15,832 | \$60,467 |
| 1919..... | 33,832 | 490 | 171 | 13,795 | 30,476 | 5,081 | 83,845 |
| 1920..... | 168,194 | 835 | 2,109 | 107,331 | 671,833 | 3,480 | 953,833 |

EMBROIDERIES AND EMBROIDERED ARTICLES.

| | | | | | | | |
|-----------|-------------|-------------|-------|-----------|-------|-------|-------------|
| 1918..... | \$1,079,881 | \$1,060,933 | ..... | \$63,569 | ..... | ..... | \$2,224,383 |
| 1919..... | 2,073,430 | 1,811,120 | ..... | 609,195 | ..... | ..... | 4,493,745 |
| 1920..... | 5,636,204 | 2,799,866 | ..... | 1,123,982 | ..... | ..... | 9,610,052 |

HANDKERCHIEFS, EMBROIDERED, ETC.

| | | | | | | | |
|-----------|-----------|-------------|-------|----------|-------|-------|-------------|
| 1918..... | \$638,471 | \$1,456,362 | ..... | \$23,143 | ..... | ..... | \$2,117,976 |
| 1919..... | 857,705 | 989,223 | ..... | 55,180 | ..... | ..... | 1,902,108 |
| 1920..... | 1,823,772 | 1,390,505 | ..... | 69,081 | ..... | ..... | 3,283,358 |

CORSETS, EMBROIDERED, ETC.

| | | | | | | | |
|-----------|---------|-------|-------|---------|-------|-------|---------|
| 1918..... | \$2,598 | \$578 | ..... | \$2,773 | ..... | ..... | \$5,049 |
| 1919..... | 2,644 | 2,182 | ..... | 3,810 | ..... | ..... | 8,636 |
| 1920..... | 1,438 | 984 | ..... | 1,132 | ..... | ..... | 3,554 |

OTHER WEARING APPAREL, EMBROIDERED, ETC.

| | | | | | | | |
|-----------|-------------|-----------|-------|-------------|-------|-------|-------------|
| 1918..... | \$2,363,851 | \$181,706 | ..... | \$1,546,284 | ..... | ..... | \$4,091,841 |
| 1919..... | 3,903,955 | 148,065 | ..... | 3,126,120 | ..... | ..... | 7,178,140 |
| 1920..... | 9,164,084 | 694,103 | ..... | 3,547,446 | ..... | ..... | 13,405,638 |

ALL OTHER.

| | | | | | | | |
|-----------|-----------|-----------|----------|-----------|----------|-----------|-------------|
| 1918..... | \$752,847 | \$922,503 | \$56,021 | \$494,948 | \$32,745 | \$229,577 | \$2,488,641 |
| 1919..... | 133,127 | 7,886 | 68,442 | 150,033 | 78,015 | 479,296 | 921,789 |
| 1920..... | 179,534 | 18,686 | 106,584 | 395,311 | 461,595 | 508,367 | 1,665,077 |

TOTAL.

| | | | | | | | |
|-----------|--------------|-------------|----------|-------------|-----------|-----------|--------------|
| 1918..... | \$11,840,880 | \$3,783,304 | \$56,222 | \$3,950,979 | \$64,302 | \$245,400 | \$19,941,096 |
| 1919..... | 18,832,995 | 3,115,053 | 68,687 | 8,201,760 | 108,491 | 484,367 | 30,811,353 |
| 1920..... | 32,608,826 | 5,137,593 | 108,983 | 10,749,767 | 1,138,428 | 506,847 | 50,190,422 |

DUTIES, TOTAL.

| | | | | | | | |
|-----------|-------------|-------------|----------|-------------|----------|-----------|--------------|
| 1918..... | \$5,878,398 | \$2,199,378 | \$33,733 | \$2,303,055 | \$33,581 | \$147,245 | \$10,600,390 |
| 1919..... | 9,608,441 | 1,837,831 | 41,212 | 4,896,025 | 65,075 | 290,621 | 16,739,256 |
| 1920..... | 15,123,944 | 2,726,806 | 65,376 | 6,424,636 | 690,038 | 304,108 | 26,321,908 |

Exports of clothing and other articles of wearing apparel made or ornamented with lace, embroidery, etc., are not separately recorded, nor are there separate export statistics of the other articles covered by this paragraph except in regard to one item. Exports of cotton laces and embroideries were valued in the fiscal year 1914, at \$232,457, and in the calendar years 1918-1921 as follows: 1918, \$1,569,322; 1919, \$1,731,675; 1920, \$1,629,409; 1921 (nine months), \$500,298. Canada is the main purchaser, followed by Mexico, Cuba, and the Philippine Islands.

Important changes in classification.—In general this paragraph covers the same class of goods as is covered by paragraph 358 of the act of 1913. These articles, however, have been divided into two groups at different rates of duty, the group carrying the higher duty being composed of laces, fancy braids, and certain other specialties, and that carrying the lower duty being composed of embroideries and articles more or less similar. A special form of embroidery, known as "burnt-out lace" or "etched lace" is, however, placed in the higher class with laces. Fabrics and articles specially provided for in other paragraphs which are not of the class of goods covered by this paragraph are expressly excepted.

The wording of the paragraph has been strengthened so that its intent can not be evaded because of the wording in any other paragraph. The need for a careful phraseology has been shown by judicial construction of the act of 1913, which took from paragraph 358 Jacquard figured nets and nettings intended for use as curtains and admitted them under the lower rates of paragraph 258.

"Coach, carriage and automobile laces," which are listed in paragraph 358 of the act of 1913, have been omitted from paragraph 1430 because they are not similar to the other articles here included; they are narrow woven fabrics, usually pile-woven, used as arm straps in vehicles, and except for their misleading trade name would probably never have been included with lace in preceding acts.

There has been inserted a provision for "ribbons ornamented in the process of weaving"; this will include all ribbons other than the plain (plain woven, twilled, or sateen). There has also been inserted a provision for fabrics and articles "ornamented with beads or spangles."

Conflicting provisions.—This paragraph conflicts with the provisions for "ribbons, beltings, toys, and other articles made wholly or in chief value of tinsel wire, lame or lahn, and india rubber, bullions, or metal threads, not specially provided for, 45 per centum ad valorem; woven fabrics, fringes, and tassels, made of any of the foregoing, 55 per centum ad valorem," in lines 1 to 5, page 73, paragraph 382. There is also a conflict with paragraph 1403.

Suggested changes.—In view of the foregoing conflict, with articles of tinsel, etc., and as the articles in this paragraph carry rates of duty not greater than the articles provided for in paragraph 382, "382" might be inserted before "919" in line 21, page 162, and in line 12, page 163. Should this be done appropriate changes should be made in paragraph 1430. It may be noted that the phrase "ribbons ornamented in the process of weaving" causes the inclusion with laces at the lace rate of duty of ribbons woven with a jacquard or other special loom attachment, and leaves under the textile schedules only plain ribbons.

As fringes and gimps are of the same class as trimmings, the words "fringes, gimps," might be added after "trimmings" in line 13, page 162.

Separate provisions for articles of lace and embroidered articles at different rates of duty may involve litigation where both lace and embroidery are used on the same article. This litigation might be avoided by having one rate of duty on all such articles. If this should be done the two provisions should be combined. The omission of 1403 from this paragraph, H. R. 7456, page 162, line 21, page 163, line 12, would prevent a conflict with paragraph 1403 and assure the classification of such articles as beaded net and spangled gowns in paragraph 1430.

Page 162, line 15, of H. R. 7456: Insert comma after "braids."

PARAGRAPH 1431.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1431. Chamois skins, pianoforte, pianoforte-action, player-piano-action leather, enameled upholstery leather, and glove leather, finished, in the white or in the crust, 20 per centum ad valorem.

ACT OF 1909.

PAR. 451. * * * chamois skin, twenty per centum ad valorem; * * * enameled leather weighing not over ten pounds per dozen hides or skins, twenty-seven cents per pound and fifteen per centum ad valorem; if weighing over ten pounds and not over twenty-five pounds per dozen, twenty-seven cents per pound and eight per centum ad valorem; if weighing over twenty-five pounds per dozen, twenty cents per pound and ten per centum ad valorem; pianoforte leather and piano-forte-action leather, and glove leather, twenty per centum ad valorem; * * *

ACT OF 1913.

PAR. 359. Chamois skins, 15 per centum ad valorem; pianoforte, pianoforte action, enameled upholstery leather, and glove leathers, 10 per centum ad valorem.

CHAMOIS SKIN.

(See Survey N-17.)

Description and uses.—The goat antelope, known as the chamois, is nearly extinct. The trade name "chamois skin" applies to a form of "tawed" or oil-tanned sheepskin. Only the stronger sheepskins are capable of conversion into chamois leather. The skin is split into two layers and the flesh side is treated vigorously with oil. The grain split is called a "skiver" and is vegetable or chrome tanned and marketed for bookbindings, pocketbooks, hat sweat bands, and other light leather uses. As domestic sheepskins are usually not suitable for making chamois, sheepskins for such purpose are generally imported. When domestic skins are used they must be tanned in "the full pelt," as it is impossible to split them because the grain is porous; this also precludes their use for the light-leather purposes

mentioned. Chamois skin is used extensively for washing and polishing. Formaldehyde-tanned sheep fleshers are bought and sold as steel-color chamois. These skins are made by a new process of tanning, and will bear washing in very hot water and remain soft without shrinkage until completely worn out. They will not absorb cold water as do the oiltanned chamois.

Production in 1914 was 1,948,533 skins, valued at \$925,492. A half dozen companies manufacture it exclusively, 12 or 15 only incidentally. Fleshers, in 1919, were valued at \$2,160,873, not all of which were chamois, although the production of the latter was probably greater than in 1914.

Import values were \$149,057 in 1913; \$107,424 in 1914; \$64,267 in 1915. The ratio of imports to production in 1914 was about 12 per cent. France is the principal competing country. England sends to the United States large quantities of "crust chamois"—tanned but unfinished—figures for which are not given separately. Imports of chamois skin since 1917 are shown as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------|
| 1918..... | \$23,711 | \$4,007 | Per cent. 15 |
| 1919..... | 47,533 | 7,130 | 15 |
| 1920..... | 53,439 | 8,016 | 15 |
| 1921 (9 months)..... | 64,804 | 9,720 | ..... |

PIANOFORTE AND PIANOFORTE-ACTION LEATHER.

(See Survey N-17.)

Description and uses.—This leather is oil-tanned buckskin made largely from Central American deerskins. It is used in pianos, principally to deaden the click of the keys, and must be of uniform thickness and pliability; the imported skins are best suited on account of their thickness and close texture. The skins for this use are especially selected and cost 10 per cent over the price of the ordinary quality. Some other varieties of light leather are used in pianos. Much of this can not be distinguished from light leather for other purposes. The amount of oil-tanned buckskin used has not increased greatly in recent years.

Production.—The output of pianoforte-action leather in 1914 was 92,639 skins, valued at \$159,031, production being mostly in New York, and sometimes in connection with that of glove leather. Separate figures were not given in 1919. The best quality of cod oil, a good quality of finishing lime, soda ash, and aniline dyes are used. The process requires close attention, and machinery is less used than in making most kinds of leather.

Import values in 1912 were \$7,311; in 1913, \$521; in 1914, \$2,790. Imports from Germany ceased during the war period. The ratio of imports to domestic production in 1914 was about 2 per cent. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|-------|---------------------|
| 1920..... | \$3,605 | \$360 | <i>Per cent.</i> 10 |
| 1921 (9 months)..... | 5,554 | 555 | 10 |

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, page 1165.

ENAMELED UPHOLSTERY LEATHER.

(See Survey N-16.)

Description.—Enameled upholstery leather is made principally from cattle hide “grains” or “splits.” It differs from the patent leather made here for shoe uppers, the enamel being usually on the flesh side, while the patent leather is finished on the grain side.

Production statistics are not obtainable for enameled upholstery leather. The output of upholstery leather was valued at \$14,328,358 in 1914, and in 1919 the number of hides tanned for all upholstery was 2,441,662, valued at \$32,224,644. The proportion which was enameled was not separately stated for either year.

Imports in 1913 were included with “all other leather, patent, japanned, varnished or enameled;” in 1914 the value of the imports of enameled upholstery leather was \$17,123; in 1915, \$6,563; in 1916, \$3,579; in 1917, \$2,710. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------|-------|---------------------|
| 1918..... | \$126 | \$13 | <i>Per cent.</i> 10 |
| 1919..... | 604 | 60 | 10 |
| 1920..... | 1,290 | 129 | 10 |
| 1921 (9 months)..... | 479 | 48 | ..... |

Exports of enameled upholstery leather are not separately stated. For exports of “carriage, automobile, and upholstery,” see paragraph 1600, page 1353.

GLOVE LEATHER.

(See Survey N-17.)

Description and uses.—The principal kinds of leather used in making dress gloves are sheep and lamb skins, goat and kid skins, Capeskin, and Mocha, for which large quantities are imported. The greater part of domestic dress gloves was formerly made of imported materials, sheep and lamb skins being the most important. Of recent years domestic sheep and lamb skins have been more largely used. Horsehide and cowhide “splits” (the flesh side of the hide split into two layers) are the chief materials used in making work gloves. Deer, elk, and pig skin are also used. The term “Capeskin” at first designated the skin of a goat found in South Africa. The skins were

fairly large, heavy and tight-grained—that is, having small pores. This designation is now used, but applies to other kinds of high-quality glove leather as well as to the genuine. Mocha skins are the pelts of a variety of haired sheep found in Arabia and Africa. Deerskin, formerly plentiful here, now comes in large quantities from South America. Nearly all the goat and kid skins used in making glove leather come from Europe, the best from France, with Italy, Germany, Austria, and Belgium following. Most of the lambskins used for glove leather come from Italy, Sicily, Sardinia, Corsica, Spain, France, Germany, Austria, Russia, and the Balkan States—the best, known as Tuscany lambskin, from northern Italy. The skins of the dog, fox, bear, colt, kangaroo, and other animals are also used, but are not, save some grades of colt skin, used for the finer grades of gloves.

Production.—The value in 1919 was \$20,853,999. Sheep and lamb skins were valued at \$9,179,619; calf and kip declined to \$27,323; goat and kid skin production increased to \$297,003; and horsehide glove leather rose to \$5,014,024. Cattle grains and splits, particularly the latter, became very important, amounting to nearly \$4,000,000. Several other varieties, pig and hog, deer and elk, etc., were manufactured. A most important feature in the glove-leather industry was the development of the chrome process of tanning. Leather imported for gloves has been of the fine grades calling for considerable hand labor. The chrome tannage is distinctly a machine process and is better adapted to American conditions. The cessation of imports of glove leather from Germany, and the chrome method of tanning glove leather explain the domestic development of this industry in the past five years. Statistics of production of glove leather are given in the following table:

| | 1914 | | 1919 | |
|---------------------------|----------------|-------------|----------------|-------------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Number.</i> | | <i>Number.</i> | |
| Sheep and lamb skins..... | 3,637,279 | \$2,169,839 | 4,872,351 | \$9,179,619 |
| Calf and kip skins..... | 356,935 | 725,024 | 5,530 | 27,323 |
| Goat and kid skins..... | 5,694 | 4,080 | 123,397 | 297,003 |
| Cattle grains, sides..... | (1) | (1) | 43,169 | 312,298 |
| Cattle splits, sides..... | (1) | (1) | 4,357,984 | 3,569,792 |
| Horse, sides..... | 343,949 | 998,303 | 2,968,816 | 5,014,024 |
| Pig and hog skins..... | (1) | (1) | 217,122 | 334,137 |
| Deer and elk skins..... | (1) | (1) | 324,273 | 1,027,511 |
| All other..... | | 387,409 | | 1,095,382 |
| Total..... | 4,343,857 | 4,284,655 | 10,912,642 | 20,853,999 |

¹ Not specified.

² Figures given in 1919 census of manufactures are 197,482 hides and 573,852 sides; hides are multiplied by two to make figures comparable with 1914 amounts; the total is 968,816 sides.

Imports of glove leather in 1912 were valued at \$1,783,950; in 1913, \$2,307,057; in 1914, \$2,225,645. Before the war more than 75 per cent came from Germany; Austria-Hungary and France followed. Italy has recently been exporting a considerable quantity to the United States. In 1919 nearly \$560,000 out of the \$789,098 value imported came from Italy. France was the source of imports valued at \$131,984; Spain, \$38,515; Austria-Hungary, \$34,920; and England, \$18,102. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$11,818 | \$1,182 | 10 |
| 1919..... | 747,632 | 74,763 | 10 |
| 1920..... | 954,816 | 95,482 | 10 |
| 1921 (9 months)..... | 132,344 | 13,234 | ..... |

Exports of glove leather, almost entirely to Canada, were valued at \$316,715 in 1913 and at \$359,486 in 1914. In 1917, out of exports of \$1,497,957, \$1,436,970 went to Canada; in 1920, the same country's share of our exports was over \$2,000,000. Later statistics for calendar years are: 1918, \$2,908,890; 1919, \$1,797,024; 1920, \$2,198,759; 1921 (nine months), \$445,150.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Provision is made for player-piano-action leather. The words “finished, in the white or in the crust” are also new.

Suggested changes.—If the words “finished, in the white or in the crust,” are intended to be confined to glove leather, the comma after “leather” and after “finished” should be omitted. If the word “finished,” but not the words “in the white or in the crust,” relates to glove leather, the comma should be stricken out after “leather.” In either of these cases the word “and” should be inserted before “enameled upholstery leather.” If the words “finished, in the white or in the crust,” or the words “in the white or in the crust,” are intended to apply to the entire paragraph, the words “all the foregoing” should be inserted before “finished” or before the first word “in,” as the case may be.

“Pianoforte and pianoforte-action leather” was formerly practically synonymous with oil-tanned buckskin, but a number of other kinds of leather are now used in pianos. Some of these are, and some are not, tanned expressly for the purpose. Furthermore, felt and cork are more often used now to accomplish the purpose for which buckskin was formerly used. Calf, kid, and lamb skins are used for “pneumatic” leather for the bellows of player-pianos. It should be made clear in the law either that it is intended to include only oil-tanned buckskin or that it is intended to include all leather suitable for use in pianos and pianoforte-actions and player-pianos, so far as the possibility of such use can be ascertained.

PARAGRAPH 1432.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1432. Bags, baskets, belts, satchels, cardcases, pocketbooks, jewel boxes, portfolios, and other boxes and cases, wholly or in chief value of leather or parchment, not jewelry, and moccasins, and manufactures of leather, rawhide, or parchment or of which leather, rawhide,

H. R 7456.

SENATE AMENDMENTS.

or parchment is the component material of chief value, not specially provided for, 25 per centum ad valorem; any of the foregoing permanently fitted and furnished with traveling, bottle, drinking, dining or luncheon, sewing, manicure, and similar sets, 30 per centum ad valorem.

ACT OF 1909.

PAR. 452. Bags, baskets, belts, satchels, cardcases, pocketbooks, jewel boxes, portfolios, and other boxes and cases, made wholly of or in chief value of leather, not jewelry, and manufactures of leather, or of which leather is the component material of chief value, not specially provided for in this section, forty per centum ad valorem; any of the foregoing permanently fitted and furnished with traveling, bottle, drinking, dining or luncheon and similar sets, fifty per centum ad valorem.

ACT OF 1913.

PAR. 360. Bags, baskets, belts, satchels, cardcases, pocketbooks, jewel boxes, portfolios, and other boxes and cases, made wholly of or in chief value of leather or parchment, not jewelry, and manufactures of leather or parchment, or of which leather or parchment is the component material of chief value, not specially provided for in this section, 30 per centum ad valorem; any of the foregoing permanently fitted and furnished with traveling, bottle, drinking, dining, luncheon and similar sets, 35 per centum ad valorem.

BAGS, BELTS, POCKETBOOKS, ETC.

(See Survey N-18.)

Description and uses.—These articles—bags, baskets, belts, satchels, cardcases, pocketbooks, jewel boxes, etc.—correspond very closely with the Census classifications, “Trunks and Valises,” “Pocketbooks,” and “Leather goods, not elsewhere specified.” The first class includes leather bags; only a few leather trunks are now made. Under the second class are “purses, ladies’ purse handbags, cardcases, wallets, coin purses, etc., made chiefly of leather.” The third group includes “handbags, belts, wristlets for watches, straps, music rolls, burnt-leather goods, razor strops, leather cases of all kinds, fobs, handles, firemen’s leather helmets, suspender parts, sweatbands, tags, kid hair curlers, washers, valves, dog collars, leather garments,” and similar products.

Production of “leather goods, not elsewhere specified,” was valued at \$18,838,000 in 1909, at \$19,334,000 in 1914, and \$52,934,098 in 1919. New York State produced \$9,895,000 in 1914; Illinois, Pennsylvania, and New Jersey, nearly \$2,000,000 each; and Massachusetts, \$1,309,000. Of the quantity produced in 1919, New York led with over \$30,000,000, followed by Minnesota, with slightly over \$4,000,000. The production of pocketbooks in 1909 was valued at \$3,628,000 and in 1914 at \$3,351,000, New York leading, and Massachusetts second. The value in 1919 was \$14,725,930, New York producing \$11,292,361 and Massachusetts \$1,324,791. Although there are a few large concerns, this is mainly a small-scale industry, the majority of establishments having less than 20 employees and an average capital of about \$25,000. Formerly there were many skilled artisans and handworkers, mostly of German origin; but the adoption of machine methods has greatly reduced their numbers. England, Germany, France, and Austria-Hungary were leaders in the production of

leather goods; England in the manufacture of high-class hand-sewed leather and pigskin goods. Jewelry cases, manicure sets, etc., requiring much hand labor, were made in small shops in England and Germany, the factory output not being large. France originated styles of handbags, which were frequently "extreme."

Imports under this classification in 1913 were valued at \$1,252,520; in 1914, at \$1,381,649. England, Germany, France, and Austria-Hungary have supplied the largest quantities of leather goods, with Germany and England leading in 1914. In 1916 and 1917 England supplied about two-thirds; in 1918, Canada, over 90 per cent; Japan, to the value of \$38,502 in 1918, and \$80,170 in 1920. Imports since 1917 have been as follows:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|-----------------|----------|------------------|
| BAGS, BASKETS, SACHELS, BOXES, ETC., NOT JEWELRY. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$10 126,647 | \$37,994 | 30 |
| 1919..... | 45,012 | 13,504 | 30 |
| 1920..... | 247,260 | 74,178 | 30 |
| 1921 (9 months)..... | 170,685 | 51,205 | ..... |

BAGS, BASKETS, SACHELS, BOXES, ETC., FITTED WITH TRAVELING BOTTLES, ETC.

| | | | |
|----------------------|---------|---------|----|
| 1918..... | \$4,014 | \$1,404 | 35 |
| 1919..... | 16,896 | 5,914 | 35 |
| 1920..... | 136,790 | 47,877 | 35 |
| 1921 (9 months)..... | 93,009 | | |

MANUFACTURES OF LEATHER OR PARCHMENT, N. S. P. F.

| | | | |
|----------------------|----------------|-----------|-------|
| 1918..... | \$8 375,657 | \$112,697 | 30 |
| 1919..... | 4 286,992 | 86,098 | 30 |
| 1920..... | 814,783 | 244,432 | 30 |
| 1921 (9 months)..... | 253 600,180 | 180,054 | ..... |

¹ From Philippines, free.

Exports of "all other manufactures of leather" (exclusive of boots and shoes and harness and saddlery) were \$2,175,179 in 1913, and \$1,881,223 in 1914. Later exports in calendar years have been as follows: 1918,¹ \$3,058,924; 1919,¹ \$7,254,395; 1920,² \$5,521,569; 1921² (nine months), \$1,404,217. Of the value of exports in 1920, England received \$1,327,960, Canada \$1,206,185, and Cuba \$650,758.

Important changes in classification.—See General Notes on Paragraph, page 1168.

¹ Exclusive of boots and shoes, gloves, and harness and saddlery.

² Exclusive of boots and shoes, gloves, harness and saddlery, and leather belting.

LEATHER BELTING.

(See Survey N-18.)

Description and uses.—Leather belting is generally produced from green-salted hides, free from scratches, brands, etc., as it is essential that the finished product possess uniformity. Most of the leather belting is vegetable-tanned, oak tannage giving a product of great tensile strength at moderate cost. Chrome tannage is employed to some extent, especially when a steam-proof product is desired. Chrome leather is effective in temperatures where leathers tanned by the vegetable processes fail. Chrome-tanned belting usually costs more per pound owing to the lower yield from the hide. Progress has been made in the sewing of leather belting, handwork being practically supplanted by machine sewing. Leather belting is used in a great number of industries. Chain belting and other substitutes for leather compete with this product.

Production of leather belting increased from \$6,525,737 in 1879 to \$14,220,306 in 1904, and to \$23,035,951 in 1914. In 1919, the value of the leather belting manufactured was \$40,540,653. Materials cost \$28,156,713. New York led in production with an output valued at \$9,391,023, followed by Pennsylvania with \$5,574,105; Massachusetts came next with \$3,943,685, and Connecticut with \$3,930,487.

Import statistics are not separately recorded.

Exports of leather belting were included under "all other manufactures of leather" prior to 1920. In that year and nine months of the following, exports were, respectively, 2,819,078 pounds, valued at \$5,412,290, and 64,124 pounds, valued at \$41,035. Cuba received the largest amount in 1920, taking 359,106 pounds, valued at \$807,715. England followed with purchases valued at \$507,728. Japan with \$402,235, British India with \$399,180, and Mexico with \$288,889.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—The provisions for moccasins and manufactures of rawhide are new.

Suggested changes.—Page 163, line 24, of H. R. 7456: Transpose "wholly or in chief value of leather or parchment" and "not jewelry" so as to make the phrase read: "and other boxes and cases, not jewelry, wholly or in chief value of leather or parchment, * * *."

Page 164, line 5: change "and" to "or" before "similar sets."

PARAGRAPH 1433.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1433. Gloves made wholly or in chief value of leather, whether wholly or partly manufactured, shall pay duty at the following rates, the lengths stated in each case being the extreme length when stretched to their full extent, namely: Men's gloves not over twelve inches in length, \$4 per dozen pairs; and women's and children's gloves not over twelve

H. R. 7456.

SENATE AMENDMENTS.

inches in length, \$3 per dozen pairs; for each inch in length in excess thereof, 50 cents per dozen pairs: *Provided*, That, in addition thereto, on all of the foregoing there shall be paid the following cumulative duties: When lined with cotton, wool, or silk, \$2.40 per dozen pairs; when lined with leather or fur, \$4 per dozen pairs; when embroidered or embellished, 40 cents per dozen pairs: *Provided further*, That all the foregoing shall pay a duty of not less than 37½ per centum ad valorem: *Provided further*, That glove trunks, with or without the usual accompanying pieces, shall pay 75 per centum of the duty provided for the gloves in the fabrication of which they are suitable.

ACT OF 1909.

PAR. 453. Gloves made wholly or in part of leather, whether wholly or partly manufactured, shall pay duty at the following rates, the lengths stated in each case being the extreme length when stretched to their full extent, namely:

PAR. 454. Women's or children's "glace" finish, Schmaschen (of sheep origin), not over fourteen inches in length, one dollar and twenty-five cents per dozen pairs; over fourteen inches and not over seventeen inches in length, two dollars and twenty-five cents per dozen pairs; over seventeen inches in length, two dollars and seventy-five cents per dozen pairs; men's "glace" finish, Schmaschen (sheep), three dollars per dozen pairs.

PAR. 455. Women's or children's "glace" finish, lamb or sheep, not over fourteen inches in length, two dollars and fifty cents per dozen pairs; over fourteen and not over seventeen inches in length, three dollars and fifty cents per dozen pairs; over seventeen inches in length, four dollars and fifty cents per dozen pairs; men's "glace" finish, lamb or sheep, four dollars per dozen pairs.

PAR. 456. Women's or children's "glace" finish, goat, kid, or other leather than of sheep origin, not over fourteen inches in length, three dollars per dozen pairs; over fourteen and not over seventeen inches in length, three dollars and seventy-five cents per dozen pairs; over seventeen inches in length, four dollars and seventy-five cents per dozen pairs; men's "glace" finish, kid, goat, or other leather than of sheep origin, four dollars per dozen pairs.

PAR. 457. Women's or children's of sheep origin, with exterior grain surface removed, by whatever name known, not over seventeen inches in length, two

ACT OF 1913.

PAR. 361. Gloves, not specially provided for in this section, made wholly or in chief value of leather, whether wholly or partly manufactured, shall pay duty at the following rates, the lengths stated in each case being the extreme length when stretched to their full extent, namely:

PAR. 362. Men's, women's, or children's "glacé" finish, Schmaschen (of sheep origin), not over fourteen inches in length, \$1 per dozen pairs; over fourteen inches in length, 25 cents additional per dozen pairs for each inch in excess of fourteen inches.

PAR. 363. All other women's or children's gloves wholly or in chief value of leather, not over fourteen inches in length, \$2 per dozen pairs; over fourteen inches in length, 25 cents additional per dozen pairs for each inch in excess of fourteen inches; all men's leather gloves not specially provided for in this section, \$2.50 per dozen pairs.

PAR. 364. In addition to the foregoing rates there shall be paid the following cumulative duties: On all leather gloves when lined with cotton or other vegetable fiber, 25 cents per dozen pairs; when lined with a knitted glove or when lined with silk, leather, or wool, 50 cents per dozen pairs; when lined with fur, \$2 per dozen pairs; on all piqué and pique-seam gloves, 25 cents per dozen pairs.

PAR. 365. Glove trunks, with or without the usual accompanying pieces, shall pay 75 per centum of the duty provided for the gloves in the fabrication of which they are suitable.

PAR. 495. Gloves, made wholly or in chief value of leather made from horse-hides, pigskins, and cattle hides of cattle of the bovine species, excepting calf-skins, whether wholly or partly manufactured [Free].

ACT OF 1909.

ACT OF 1913.

dollars and fifty cents per dozen pairs; over seventeen inches in length, three dollars and fifty cents per dozen pairs; men's, of sheep origin, with exterior surface removed, by whatever name known, four dollars per dozen pairs.

PAR. 458. Women's or children's kid, goat, or other leather than of sheep origin, with exterior grain surface removed, by whatever name known, not over fourteen inches in length, three dollars per dozen pairs; over fourteen inches and not over seventeen inches in length, three dollars and seventy-five cents per dozen pairs; over seventeen inches in length, four dollars and seventy-five cents per dozen pairs; men's goat, kid, or other leather than of sheep origin, with exterior grain surface removed, by whatever name known, four dollars per dozen pairs.

PAR. 459. In addition to the foregoing rates there shall be paid the following cumulative duties: On all leather gloves, when lined, one dollar per dozen pairs; on all pique or prix seam gloves, forty cents per dozen pairs; on all gloves stitched or embroidered, with more than three single strands or cords, forty cents per dozen pairs.

PAR. 460. Glove trunks, with or without the usual accompanying pieces, shall pay seventy-five per centum of the duty provided for the gloves in the fabrication of which they are suitable.

LEATHER GLOVES.

(See Survey N-18.)

Description and uses.—Leather gloves may be dress gloves, work gloves, or automobile gloves (now almost an independent branch of the industry). Work gloves are "block-cut" with dies of approximate measurements; dress gloves are "table-cut,"—that is, the skin is manipulated to the sizes that will stretch to desired widths when drawn on the hand. The dress gloves made here are "broad-cut;" the imports, principally in the lighter weight, fit more exactly. Most dress gloves were formerly made of imported sheep and lamb skins, but are now made principally from domestic raw materials. Mocha skins, extensively used, are practically all dressed and finished here. Work gloves are from domestic materials—cowhide, horsehide, and sheepskin, or of canvas or canton flannel reinforced with leather.

Schmaschen gloves are cheap dress gloves made of the skins of stillborn (or sometimes of very young) lambs.

Production of leather gloves and mittens in 1914 was 3,082,376 dozen pairs, valued at \$20,296,558. Of this total, men's gloves were 2,367,263 dozen pairs, valued at \$15,334,605; women's and children's gloves, 425,501 dozen pairs, at \$3,963,170; boys' gloves, 289,612 dozen pairs, at \$998,783. The output of dress gloves was 1,086,509 dozen pairs, valued at \$10,494,253; of work gloves, 1,995,807 dozen pairs, at \$9,802,305. In 1919 the total number of dress gloves, street

gloves, mittens, and gauntlets was 1,227,284 dozen pairs, valued at \$24,563,017; of working gloves, 2,388,419 dozen pairs, at \$20,268,760. The number of all leather gloves produced was 3,615,703 dozen pairs, worth \$44,831,777. Fulton County, N. Y., is the center of the industry, producing 54.7 per cent in 1909. Wisconsin, Illinois, and California follow in order, their products being largely work and automobile gloves. In 1919 New York produced gloves and mittens, valued at \$27,003,998; Wisconsin, \$6,772,808; Illinois, \$5,422,794; and California, \$2,048,503.

Imports are almost wholly of the "dress" variety and are principally women's gloves. Before the war approximately 40 per cent of the dress gloves was imported. In 1913, 99.7 per cent of the imports came from Germany, France, England, Italy, Belgium, and Austria, in order. In 1914 about \$8,000,000 of a total \$9,000,000 value came from Germany and France. Of the men's gloves imported in the years 1919 and 1920, England sent amounts valued at \$104,754 and \$485,122, respectively. During the war period imports of women's and children's schmaschen gloves decreased. In 1918 none was received from Germany and Belgium, and but small quantities from France and Italy. In 1920, however, Germany sent gloves to the value of \$170,890, which was a large proportion of the total. Imports of women's and children's gloves, not schmaschen, less than 14 inches in length, came largely from France. In 1920, the United States imported a value of \$8,796,004 from that country, \$1,615,900 from Germany, \$1,061,374 from Italy, over \$750,000 from Belgium and almost the same amount from England. Imports of leather gloves for recent years are shown as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|--|---------------------|----------|-------------|---------|------------------------|
| MEN'S GLOVES. | | | | | |
| OTHER THAN SCHMASCHEN, UNLINED. | | | | | |
| | <i>Dozen pairs.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,276 | \$14,834 | \$11.63 | \$3,190 | 21.50 |
| | 6,918 | 112,469 | 16.26 | 19,025 | 16.91 |
| 1919..... | 1,233 | 4,857 | 20.54 | 583 | 11.99 |
| | 2,881 | 55,857 | 19.04 | 7,922 | 14.18 |
| 1920..... | 14,461 | 94,666 | 21.22 | 11,153 | 11.78 |
| | 18,536 | 397,089 | 21.06 | 51,854 | 13.06 |
| 1921 (9 months)..... | 1,456 | 26,669 | 18.35 | | |
| | 7,524 | 134,902 | 17.94 | | |
| OTHER THAN SCHMASCHEN, LINED. | | | | | |
| 1918..... | 11,361 | \$22,812 | \$16.76 | \$4,046 | 17.36 |
| | 1,773 | 51,786 | 29.15 | 7,777 | 14.96 |
| 1919..... | 1,281 | 8,335 | 29.66 | 1,089 | 13.06 |
| | 1,718 | 56,599 | 32.94 | 7,311 | 12.91 |
| 1920..... | 1,650 | 19,956 | 30.70 | 2,316 | 11.61 |
| | 3,461 | 129,147 | 37.31 | 14,162 | 10.97 |
| 1921 (9 months)..... | 1,459 | 10,280 | 22.39 | | |
| | 836 | 26,889 | 32.16 | | |
| SCHMASCHEN. | | | | | |
| 1918..... | 771 | \$13,028 | \$16.90 | \$1,284 | 9.70 |
| 1919..... | 88 | 1,890 | 21.48 | 95 | 5.02 |
| 1920..... | 1,272 | 25,013 | 19.66 | 1,554 | 6.21 |
| 1921 (9 months)..... | | 13,447 | | | |

¹ Plain.

² Figue or prix seam.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|---|---------------------|-------------|-------------|-----------|------------------------|
| WOMEN'S AND CHILDREN'S GLOVES. | | | | | |
| SCHMASCHEN. | | | | | |
| | <i>Dozen pairs.</i> | | | | <i>Per cent.</i> |
| 1918..... | 491 | \$4,705 | \$9.77 | \$491 | 10.24 |
| 1919..... | 6,472 | 45,052 | 6.96 | 7,121 | 15.81 |
| 1920..... | 27,164 | 247,520 | 9.11 | 27,698 | 11.18 |
| 1921 (9 months)..... | | 189,232 | | | |
| OTHER THAN SCHMASCHEN, NOT OVER 14 INCHES IN LENGTH. | | | | | |
| 1918..... | 1 120,942 | \$1,614,245 | \$13.35 | \$272,119 | 16.86 |
| | 2 383,832 | 3,852,931 | 11.54 | 667,704 | 17.34 |
| 1919..... | 1 116,050 | 1,944,292 | 16.75 | 261,113 | 13.43 |
| | 2 264,067 | 3,748,173 | 14.19 | 528,134 | 14.09 |
| 1920..... | 1 263,331 | 4,111,648 | 15.61 | 592,494 | 14.41 |
| | 2 460,736 | 6,385,294 | 13.86 | 921,472 | 14.43 |
| 1921 (9 months)..... | 1 224,853 | 3,461,599 | 15.39 | | |
| | 2 320,873 | 4,122,483 | 12.85 | | |
| LINED WITH COTTON OR OTHER VEGETABLE FIBER. | | | | | |
| 1918..... | 1 38 | \$707 | \$18.61 | \$95 | 13.44 |
| | 2 557 | 7,691 | 13.81 | 1,253 | 16.39 |
| 1919..... | 1 70 | 1,276 | 18.23 | 175 | 24.11 |
| | 2 294 | 3,134 | 10.66 | 662 | 13.71 |
| 1920..... | 1 98 | 2,129 | 21.72 | 245 | 11.51 |
| | 2 248 | 3,978 | 16.04 | 558 | 14.03 |
| 1921 (9 months)..... | 1 72 | 1,348 | 18.72 | | |
| | 2 48 | 138 | 28.75 | | |
| LINED WITH KNITTED GLOVE. | | | | | |
| 1918..... | 1 55 | 5 | \$17.18 | \$138 | 14.55 |
| | 2 718 | 10,000 | 14.37 | 1,975 | 19.14 |
| 1919..... | 1 128 | 1,537 | 37.36 | 77 | 7.43 |
| | 2 23 | 435 | 19.78 | 58 | 12.64 |
| 1920..... | 1 102 | 11,016 | 27.40 | 1,106 | 10.01 |
| | 2 8 | 102 | 12.95 | | |
| 1921 (9 months)..... | 1 20 | 551 | 27.55 | | |
| | 2 | | | | |
| LINED WITH SILK, LEATHER, OR WOOL. | | | | | |
| 1918..... | 1 10 | \$122 | \$12.20 | \$25 | 20.49 |
| | 2 54 | 1,280 | 23.70 | 149 | 11.61 |
| 1919..... | 1 66 | 1,437 | 21.77 | 165 | 11.48 |
| | 2 14 | 373 | 26.64 | 39 | 10.32 |
| 1920..... | 1 128 | 3,095 | 24.16 | 320 | 10.34 |
| | 2 286 | 6,192 | 21.50 | 787 | 12.79 |
| 1921 (9 months)..... | 1 151 | 2,037 | 13.18 | | |
| | 2 107 | 2,136 | 19.96 | | |
| LINED WITH FUR. | | | | | |
| 1918..... | 1 89 | \$2,668 | \$29.98 | \$386 | 13.54 |
| | 2 261 | 6,474 | 24.80 | 1,109 | 17.13 |
| 1919..... | 1 8 | 274 | 34.25 | 32 | 11.68 |
| | 2 22 | 1,236 | 56.18 | 94 | 7.56 |
| 1920..... | 1 297 | 9,793 | 22.87 | 1,188 | 17.49 |
| | 2 244 | 10,064 | 41.25 | 1,037 | 10.30 |
| 1921 (9 months)..... | 1 10 | 276 | 27.60 | | |
| | 2 82 | 2,548 | 21.07 | | |
| OVER 14 INCHES IN LENGTH—LINED. | | | | | |
| 1921 (9 months)..... | 125 | \$1,635 | \$13.08 | | |

1 Plain.

2 Pique or prix seam.

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------|-----------|--------|-------------|-------|------------------------|
|----------------|-----------|--------|-------------|-------|------------------------|

WOMEN'S AND CHILDREN'S GLOVES—Continued.

OVER 14 INCHES IN LENGTH—UNLINED.

| | Dozen pairs. | | | | Per cent. |
|----------------------|--------------|-----------|---------|---------|-----------|
| 1918..... | 1 610 | \$12,205 | \$20.01 | \$1,927 | 15.78 |
| | 1 135 | 2,135 | 15.31 | 436 | 20.41 |
| 1919..... | 1 7,383 | 197,818 | 26.79 | 24,018 | 12.14 |
| | 1 1,132 | 26,001 | 22.07 | 3,348 | 12.87 |
| 1920..... | 1 84,990 | 2,234,736 | 26.29 | 316,682 | 14.17 |
| | 1 16,349 | 352,462 | 21.56 | 54,651 | 15.51 |
| 1921 (9 months)..... | 1 73,076 | 1,905,044 | 26.06 | | |
| | 1 14,232 | 336,494 | 23.64 | | |

1 Plain.

2 Pique or prix seam.

Exports of dress gloves not given separately.

Important changes in classification.—See General Notes on Paragraph, page 1174.

GLOVES OF HORSEHIDE, ETC.

(See Survey N-18.)

Description and uses.—Gloves made from horsehide, pigskin, and cattle-hide leather are chiefly work gloves, but include a small proportion of automobile gauntlets and heavy winter gloves. Work gloves are not used to any extent in foreign countries, except in Canada. Unlined gauntlets of horsehide and cowhide are the most important type of work gloves manufactured; although some deerskin and elk-skin workmen's gloves are still made, this branch of the business is of comparatively little consequence.

Production of work gloves, mittens, and gauntlets of leather in 1914 was 1,995,807 dozen pairs, valued at \$9,802,305—horsehide, cattle-hide, and calfskin gloves, 852,513 dozen pairs; sheepskin gloves, 675,190 dozen pairs; deer or elk skin, 94,002 dozen pairs; and all other kinds, 374,102 dozen pairs. Women's and children's work gloves were valued at \$199,630; men's unlined gloves, at \$6,312,817; and men's lined gloves, at \$2,027,079. In 1919 the production of working gloves, mittens, and gauntlets was 2,388,419 dozen pairs, valued at \$20,268,760. Horsehide, cattle-hide, and calfskin gloves numbered 1,510,895 dozen pairs, sheepskin 274,998 dozen pairs, deer and elk skin 81,408 dozen pairs, and working gloves of other kinds 521,118 dozen pairs. Women's and children's work gloves were valued at \$468,405 and men's and boys' at \$19,800,355. Work gloves and automobile gloves and gauntlets are manufactured principally in factories located in the Middle West.

Imports in 1914 were 145 dozen pairs, valued at \$503; in 1917, 60 dozen pairs, valued at \$965. Sources are not indicated. There has been practically no foreign competition in work gloves; they are used principally in this country, and foreign manufacture is negligible. The importation of gloves of this class in 1918 was large, but the value per dozen pairs indicates that they were not largely of the "work"

variety. Imports of gloves made from horsehides, pigskins, and cattle hides, except calfskins, for calendar years are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-------------|----------|----------|------------------|
| Quantity (dozen pairs)..... | 86,385 | 5,246 | 6,716 | 27 |
| Value..... | \$1,857,371 | \$65,207 | \$66,297 | \$556 |

Exports of gloves were not separately given prior to 1918, but were included under "all other manufactures of leather." Since 1918 the quantity exported has been increasing. In that year 6,374 dozen pairs out of the total of 13,186 dozen pairs were sent to Canada. In 1919 the quantity to Canada decreased almost half, but 19,142 dozen pairs were taken by England. In 1920 England again received the bulk of the exports, taking 17,537 dozen pairs, valued at \$325,620. Working gloves are the kind principally exported. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-----------|-----------|-----------|------------------|
| Quantity (dozen pairs)..... | 13,186 | 41,936 | 33,359 | 2,319 |
| Value..... | \$153,781 | \$623,693 | \$552,930 | \$28,786 |

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Gloves, manufactured wholly or in chief value of leather made from horsehides, pigskins, and cattle hides of cattle of the bovine species, except calfskins, whether wholly or partly manufactured, are on the free list of the act of 1913 (par. 495).

Specific enumeration of different kinds of leather has been omitted.

PARAGRAPH 1434.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1434. Catgut, whip gut, worm gut, oriental gut, and manufactures thereof, 25 per centum ad valorem.

ACT OF 1909.

PAR. 462. Manufactures of * * * catgut or whip gut or worm gut, * * * or of which these substances or any of them is the component material of chief value, not specially provided for in this section, twenty-five per centum ad valorem; * * *.

PAR. 467. * * * strings for musical instruments, not otherwise enumerated in this section, * * * forty-five per centum ad valorem.

PAR. 529. Catgut, whip gut, or worm gut, unmanufactured [Free].

ACT OF 1913.

PAR. 366. Manufactures of catgut, or whip gut, or worm gut, including strings for musical instruments; any of the foregoing or of which these substances or any of them is the component material of chief value, not specially provided for in this section, 20 per centum ad valorem.

PAR. 443. Catgut, whip gut, or worm gut, unmanufactured [Free].

CATGUT, WHIP GUT, WORM GUT, AND ORIENTAL GUT.

(Survey N-19.)

Description and uses.—Catgut is made from the intestines of sheep, sometimes from those of the horse, ass, or mule, but never from those of the cat. The best grades and parts of intestines are used in making strings for musical instruments and surgical sutures for closing wounds. Catgut is also used for making tennis strings, clockmaker's and hatter's cords, and whipcord. Catgut known as spinning gut forms the base of all wound strings. "Oriental" gut, used for tennis strings, is made from animal sinews, silk, and glue. Worm gut is a strong cord composed of the fiber drawn from a silkworm ready to spin its cocoon; it is used in the manufacture of snelled hooks, leaders, casts, and other fishing tackle.

Production.—The manufacture of gut strings is a comparatively new industry in the United States. Value of the domestic product is not given in the census reports. Based upon reports of individual manufacturers, the annual value of gut strings produced in the United States is about \$2,000,000.

Imports of catgut and worm gut in 1914 were valued at \$123,551. About one-third of the imports came from Japan, the remainder principally from Germany, England, Scotland, Spain, and France. Imports in 1914 of manufactures of gut amounted to \$62,566, excluding strings for musical instruments, which amounted to \$13,755. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

CATGUT, WHIP GUT, OR WORM GUT, UNMANUFACTURED.

| | Pounds. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------|-----------|-------------|-------|------------------|
| 1918..... | | \$229,734 | | | Per cent. |
| 1919..... | 21,379 | 243,914 | \$11.41 | | |
| 1920..... | 40,215 | 307,214 | 7.64 | | |
| 1921 (9 months)..... | 32,374 | 204,770 | 6.33 | | |

MANUFACTURES OF CATGUT, WHIP GUT, OR WORM GUT, N. E. S.

| | | | | | |
|----------------------|-----|----------|--------|---------|----|
| 1918..... | | \$15,199 | | \$3,040 | 20 |
| 1919..... | 609 | 6,009 | \$9.86 | 1,202 | 20 |
| 1920..... | | 15,034 | | 3,127 | 20 |
| 1921 (9 months)..... | | 11,919 | | | |

STRINGS FOR MUSICAL INSTRUMENTS.

| | | | | | |
|----------------------|--|----------|--|---------|----|
| 1918..... | | \$21,332 | | \$4,266 | 20 |
| 1919..... | | 17,395 | | 3,479 | 20 |
| 1920..... | | 49,820 | | 9,964 | 20 |
| 1921 (9 months)..... | | 59,429 | | | |

Exports.—Not shown in official statistics.

Important changes in classification.—Catgut has been imported almost wholly under paragraph 443 of the free list of the act of 1913 as unmanufactured catgut. The strings, the form in which gut is imported, are the crudest form in which catgut is known to the trade.

The strings are not raw, dried, or salted, but have passed through processes of manufacture. These strings, including whip gut, worm gut, and oriental gut, are made dutiable in H. R. 7456 at the same rate of duty as manufactures of gut. Specific enumeration of catgut strings for musical instruments (par. 366, act of 1913) has been omitted.

Suggested changes.—It is represented to the Tariff Commission that worm gut, which is used by manufacturers of fishing tackle, is not produced in the United States and might be retained on the free list.

PARAGRAPH 1435.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1435. Gas, kerosene, or alcohol mantles, and mantles not specially provided for, treated with chemicals or metallic oxides, wholly or partly manufactured, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 183. * * * gas mantles treated with chemicals or metallic oxides, * * * 25 per centum ad valorem.

PAR. 154. * * * gas, kerosene, or alcohol mantles treated with chemicals or metallic oxides, 25 per centum ad valorem; * * *

GAS, KEROSENE, OR ALCOHOL MANTLES.

(See Survey C-22.)

Description and production.—Incandescent gas mantles are composed of 99 per cent of thoria and 1 per cent of ceria. In their manufacture a fabric of cotton or ramie is knit into the proper shape and saturated with a solution of thorium and cerium nitrates. The fabric is then dried and heated to a red heat to convert the nitrates into oxides, a process which preserves the shape and structure of the knit fabric. Much skilled labor, principally by women, is required in this industry. There are 30 domestic manufacturers, and the output is estimated at about 80,000,000 mantles per year.

Imports of gas mantles averaged about \$60,000 in value before 1914 and yielded an annual revenue of approximately \$24,000. In 1915 the imports were 1,077,289 mantles, valued at \$40,627. Before the war imports were principally from Germany. Later statistics follow:

| Calendar year | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Number.</i> | | | | <i>Per cent.</i> |
| 1918..... | 3,117 | \$316 | \$0.10 | \$79 | 25 |
| 1919..... | 132 | 54 | .41 | 13 | 25 |
| 1920..... | 208,497 | 13,243 | .06 | 3,311 | 25 |
| 1921 (9 months)..... | 379,101 | 16,214 | ..... | 4,054 | ..... |

Exports of gas mantles first shown separately in 1918, have been valued as follows for calendar years: 1918, \$252,284; 1919, \$358,642; 1920, \$478,371; 1921 (nine months), \$167,850. Exports are principally to Canada, British India, and South America.

Important changes in classification.—The provisions for gas, kerosene, and alcohol mantles in paragraph 154 of the metal schedule of the act of 1913 have been transferred by H. R. 7456 to Schedule 14, Sundries, where they properly belong.

PARAGRAPH 1436.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1436. Manufactures of amber, bladders, or wax, or of which these substances or any of them is the component material of chief value, not specially provided for, 15 per centum ad valorem.

ACT OF 1909.

PAR. 462. Manufactures of amber, * * * bladders, * * * or wax, or of which these substances or any of them is the component material of chief value, not specially provided for in this section, twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 367. Manufactures of amber, * * * bladders, or wax, or of which these substances or any of them is the component material of chief value, not specially provided for in this section, 10 per centum ad valorem; * * *

MANUFACTURES OF AMBER.

(See Survey N-19.)

Uses.—Amber is used principally in ornaments, beads, pipes, cigar holders, and sometimes in scientific instruments as an insulating material. (For amber unmanufactured see par. 1577, p. 1319.)

Imports were valued at \$9,333 in 1914; and \$5,436 in 1916. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|--------|------------------|---------------------|
| 1918..... | \$425 | \$43 | Per cent. 10 |
| 1919..... | 2,486 | 217 | 10 |
| 1920..... | 25,000 | (¹) | (¹) 10 |
| 1921 '9 months)..... | 21,846 | 2,183 | 10 |
| | 8,564 | 850 | 10 |

¹ From Philippine Islands, free.

Exports.—None recorded.

MANUFACTURES OF BLADDERS.

(See Survey N-19.)

For unmanufactured bladders, see paragraph 706.

Imports have been negligible except in 1917 and 1918, when they were valued at \$1,259 and \$8,288, respectively.

Exports.—None recorded.

MANUFACTURES OF WAX.

(See Survey N-19.)

Uses.—Waxes are used chiefly for the manufacture of candles, floor waxes and other polishes, insulating compounds, plastic masses, phonograph records, modeling wax, and pharmaceutical preparations. (See par. 1676.)

Imports prior to 1914 averaged about \$20,000 in value; in 1914 they were \$36,327. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|-------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$9,613 | \$769 | 8 |
| | 3,630 | 363 | 10 |
| 1919..... | 2,955 | 236 | 8 |
| | 12,039 | 1,204 | 10 |
| 1920..... | 2,895 | 1,232 | 8 |
| | 14,117 | 1,412 | 10 |
| 1921 (9 months)..... | 19,489 | | |

¹ From Cuba.

Exports increased from \$47,303 in 1911 to \$112,193 in 1914. Later statistics follow for calendar years: 1918, \$592,132; 1919, \$1,382,355; 1920, \$1,001,345; 1920 (nine months), \$487,943. England, Australia, Canada, and Japan are the principal countries of destination.

PARAGRAPH 1487.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1437. Manufactures of bone, chip, grass, horn, quills, india rubber, gutta-percha, palm leaf, straw, weeds, or whalebone, or of which these substances or any of them is the component material of chief value, not specially provided for, 20 per centum ad valorem; automobile and bicycle tires composed wholly or in chief value of rubber, 10 per centum ad valorem; molded insulators and insulating materials, wholly or partly manufactured, composed wholly or in chief value of india rubber or guttapercha, 30 per centum ad valorem; combs composed wholly of horn or of horn and metal, 35 per centum ad valorem. The terms "grass" and "straw" shall be understood to mean these substances in their natural state and not the separated fibers thereof.

ACT OF 1909.

ACT OF 1913.

PAR. 463. Manufactures of bone, chip, grass, horn, quills, india rubber, palm leaf, straw, weeds, or whalebone, or of which these substances or any of them is the component material of chief value, not specially provided for in this section,

PAR. 368. Manufactures of bone, chip, grass, horn, india rubber or gutta-percha, palm leaf, quills, straw, weeds, or whalebone, or of which any of them is the component material of chief value not otherwise specially provided for in this section.

ACT OF 1909.

ACT OF 1913.

thirty-five per centum ad valorem; but the terms "grass" and "straw" shall be understood to mean these substances in their natural form and structure; and not the separated fiber thereof; sponges made of rubber, forty per centum ad valorem; combs, composed wholly of horn, or composed of horn and metal, fifty per centum ad valorem.

PAR. 464. Manufactures of gutta-percha, * * * or of which these substances or any of them is the component material of chief value, not specially provided for in this section, * * * thirty-five per centum ad valorem.

shall be subject to the following rates: Manufactures of india rubber or gutta-percha, commonly known as druggists' sundries, 15 per centum ad valorem; manufactures of india rubber or gutta-percha, not specially provided for in this section, 10 per centum ad valorem; palm leaf, 15 per centum ad valorem; bone, chip, horn, quills, and whalebone, 20 per centum ad valorem; grass, straw, and weeds, 25 per centum ad valorem; combs composed wholly of horn or of horn and metal, 25 per centum ad valorem. The terms "grass" and "straw" shall be understood to mean these substances in their natural state, and not the separated fibers thereof.

MANUFACTURES OF BONE, CHIP, GRASS, HORN, QUILLS, PALM LEAF,
STRAW, WEEDS, OR WHALEBONE.

(See Survey N-21.)

Description and uses.—This paragraph covers a considerable variety of the manufactures of bone, chip, grass, horn, etc., the qualification "n. s. p. f." not restricting narrowly the number of items. Among articles held dutiable are mats made of braids of straw sewn together with cotton; millinery ornaments consisting of natural straw twisted together loosely and looped or tied, used in the crowns of straw hats; palm-leaf baskets; baling twine consisting of strands of braided grass; bottle covers and caps of palm leaf; and so-called paintings on straw mattings.

Production data under these various classifications are not shown in official sources. Unclassified manufactures of bone and horn are included under paragraph 1438, in the Census classification of "Ivory, shell, and bone work."

Imports in 1914 of manufactures of the various substances and the chief countries of origin were: Palm leaf, \$13,073 (Germany); bone and horn, \$109,909 (France, United Kingdom, and Germany); chip, \$4,086; quills, \$21,682 (France and Austria-Hungary); whalebone, \$713; grass and straw, \$426,438 (Japan, Canada, and Netherlands); combs composed wholly of horn, or of horn and metal, \$127,137. Later import statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|-----------------------------------|---------|---------|------------------|
| MANUFACTURES OF HORN, N. S. P. F. | | | |
| 1918..... | \$8,420 | \$1,684 | 20 |
| 1919..... | 1,111 | ..... | ..... |
| 1920..... | 16,509 | 3,302 | 20 |
| 1920..... | 38,153 | 7,631 | 20 |
| 1921 (9 months)..... | 15 | ..... | ..... |
| | 121,860 | 24,372 | 20 |

¹ July 1 to Dec. 31 only; combined with manufactures of horn prior to July 1, 1918.

² From Philippines—Free.

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|---|----------|----------|------------------|
| MANUFACTURES OF BONE, N. S. P. F. | | | |
| 1918..... | \$32,272 | \$6,454 | 20 |
| 1919..... | 6,020 | 1,202 | 20 |
| 1920..... | 34,782 | 6,956 | 20 |
| 1921 (9 months)..... | 87,180 | 17,436 | 20 |
| | 51,484 | 10,297 | 20 |
| MANUFACTURES OF CHIP, N. S. P. F. | | | |
| 1918..... | \$11,579 | \$3,316 | 29 |
| 1919..... | 53,000 | 10,600 | 20 |
| 1920..... | 140,607 | 28,121 | 20 |
| 1921 (9 months)..... | 113,149 | 22,629 | 20 |
| MANUFACTURES OF PALM LEAF (EXCEPT FANS). | | | |
| 1918..... | \$1,912 | \$298 | 15 |
| 1919..... | 5,138 | 716 | 15 |
| 1920..... | 18,393 | 2,728 | 15 |
| 1921 (9 months)..... | 7,615 | 1,142 | 15 |
| MANUFACTURES OF QUILLS, N. S. P. F. | | | |
| 1918..... | \$14,903 | \$2,981 | 20 |
| 1919..... | 19,511 | 3,902 | 20 |
| 1920..... | 33,189 | 6,638 | 20 |
| 1921 (9 months)..... | 15,961 | 3,192 | 20 |
| MANUFACTURES OF STRAW AND GRASS, N. S. P. F. | | | |
| 1918..... | \$845 | \$51,629 | 25 |
| 1919..... | 207,315 | 88,303 | 25 |
| 1920..... | 741 | 161,017 | 25 |
| 1921 (9 months)..... | 353,211 | 70,393 | 25 |
| | 644,067 | | |
| | 75 | | |
| | 281,565 | | |
| MANUFACTURES OF WEEDS, N. S. P. F. | | | |
| 1920..... | \$398 | \$100 | 25 |
| 1921 (9 months)..... | 246 | 61 | 25 |
| MANUFACTURES OF WHALEBONE, N. S. P. F. | | | |
| 1918..... | \$2 | | 20 |
| 1919..... | 72 | \$14 | 20 |
| 1920..... | 330 | 66 | 20 |
| 1921 (9 months)..... | 292 | 58 | 20 |
| COMBS COMPOSED WHOLLY OF HORN, OR OF HORN AND METAL. | | | |
| 1918..... | \$12,136 | \$3,031 | 25 |
| 1919..... | 8,874 | 2,219 | 25 |
| 1920..... | 73,262 | 18,316 | 25 |
| 1921 (9 months)..... | 77,372 | 19,343 | 25 |

* From Philippines—Free.

* Jan. 1 to June 30.

Manufactures of bone, horn, and combs of horn, chiefly from Japan, France, and United Kingdom. Manufactures of straw and grass, chiefly from Canada, France, and Japan.

Export statistics are lacking in most cases. Exports of manufactures of straw and palm leaf were valued at \$799,507 in 1914, and later were as follows (calendar years): 1918, \$849,709; 1919, \$926,430; 1920, \$1,602,941; 1921 (9 months), \$264,875. Cuba, United Kingdom, Canada, and Mexico were the principal countries of destination.

MANUFACTURES OF INDIA RUBBER.

(See Survey N-21.)

Description and uses.—Manufactures of india rubber provided for in this paragraph constitute the greater portion of products of the rubber industry. Automobile and other tires form the largest single item, while manufactures not specially provided for include such important items as rubber boots and shoes, rubber tubing, dentists' rubber supplies; rubber balls, pouches, bulbs, and sponges; partly manufactured rubber; rubber sheets and rubber hospital sheeting; hot water bottles, ice bags, and similar articles. Rubber belting is not included, nor is rubber hose, except that made entirely of rubber not combined with cotton or other fiber. Gutta-percha products are not shown separately.

Production.—The census of manufactures gives statistics of the rubber industry under three classifications: Rubber belting and hose, Rubber boots and shoes, and Manufactures of rubber not elsewhere specified. The first classification is not covered by the provisions of this paragraph except to a small degree in the case of pure rubber hose. For the other two classifications, 324 establishments were shown in 1914, employing 68,907 wage earners, with production valued at \$276,150,510. In 1919 there were 461 establishments with production of \$1,112,258,000. This total included rubber boots and shoes, \$132,188,000; casings and solid tires, 34,404,000, valued at \$550,718,000; and inner tubes, 41,093,000, valued at \$202,207,000. Ohio leads in the production of general manufactures, New Jersey in belting and hose, and Massachusetts in boots and shoes.

Imports of all classes in 1914 were valued at \$1,489,680. Statistics for later years follow:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|--------------------------|----------------|----------|---------|------------------------|
| AUTOMOBILE TIRES. | | | | |
| | <i>Number.</i> | | | <i>Per cent.</i> |
| 1918..... | 1,482 | \$54,124 | \$5,400 | 10 |
| 1919..... | 5 | 170 | 14 | 8 |
| | 13,321 | 367,976 | 36,798 | 10 |
| 1920..... | 1,725 | 15,525 | 1,242 | 8 |
| | 8,702 | 178,920 | 17,892 | 10 |
| 1921 (9 months)..... | 990 | 28,981 | 2,898 | 10 |

¹ July 1 to Dec. 31.

² From Cuba; general rate less 20 per cent.

| Calendar year. | Quantity. | Value. | Duty. | Equiva- lent ad valorem. |
|--|-----------|-------------|------------|--------------------------------|
| MANUFACTURES OF INDIA RUBBER, N. S. P. F. | | | | |
| 1918..... | | 1 \$213,250 | 1 \$22,956 | Per cent. 10 |
| 1919..... | | 2 422,758 | 2 46,505 | 10 |
| 1920..... | | 3 891,701 | 3 100,041 | 10 |
| 1921 (9 months)..... | | 492,328 | 49,232 | 10 |
| MANUFACTURES OF GUTTA-PERCHA, N. S. P. F. | | | | |
| 1918..... | | \$48,214 | \$4,821 | 10 |
| 1919..... | | 143,438 | 14,344 | 10 |
| 1920..... | | 199,265 | 19,927 | 10 |
| 1921 (9 months)..... | | 18,445 | 1,844 | 10 |

¹ July 1 to Dec. 31.

² Includes small amounts from Cuba.

England, Canada, and Japan are the chief countries of origin; tires come mostly from England.

Exports in 1914 amounted to \$12,441,220, of which tires constituted \$3,505,267. England, Canada, and Germany were the principal purchasers. Later statistics follow for calendar years: Automobile and other tires, 1918, \$15,267,509; 1919, \$30,481,886; 1920, \$53,074,015; 1921 (nine months), \$11,732,676. Other manufactures of rubber, 1918, \$16,233,783; 1919, \$23,383,769; 1920, \$32,362,882; 1921 (nine months), \$11,623,993. These articles are exported to practically all parts of the world, with United Kingdom, France, Cuba, Argentina, and Sweden leading as purchasers.

Important changes in classification.—The special provision for manufactures of rubber known as druggists' sundries has been eliminated, and special provision made for automobile and bicycle tires, and molded insulators and insulating materials, wholly or partly manufactured, composed wholly or in chief value of india rubber or gutta-percha.

Suggested changes.—Automobile and bicycle but not motor-cycle tires are specially provided for in paragraph 1437. Automobile tires (in par. 369), but not bicycle or motor-cycle tires (par. 371), are expressly excluded. Apparently motor-cycle tires should be included in paragraph 1437 and bicycle and motor-cycle tires in terms excluded from paragraph 371 or the exclusion of automobile tires be dropped from paragraph 369 to avoid possible conflict of classification.

PARAGRAPH 1438.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1438. Manufactures of ivory or vegetable ivory, or of which either of these substances is the component material of chief value, not specially provided for; manufactures of mother-of-pearl, shell, plaster of Paris, and india rubber known as "hard rubber," vulcanized

H. R. 7456.

SENATE AMENDMENTS.

or unvulcanized, or of which these substances or any of them is the component material of chief value, not specially provided for; and shells and pieces of shells engraved, cut, ornamented, or otherwise manufactured, 30 per centum ad valorem.

ACT OF 1909.

PAR. 464. Manufactures of * * * ivory, vegetable ivory, mother-of-pearl and shell, plaster of Paris, * * * and vulcanized india rubber known as "hard rubber," or of which these substances or any of them is the component material of chief value, not specially provided for in this section, and shells engraved, cut, ornamented, or otherwise manufactured, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 368. * * * Manufactures of india rubber * * * commonly known as druggists' sundries, 15 per centum ad valorem; * * *

PAR. 369. * * * manufactures of ivory or vegetable ivory, or of which either of these substances is the component material of chief value, not specially provided for in this section, 35 per centum ad valorem; manufactures of mother-of-pearl and shell, plaster of Paris, * * * and vulcanized india rubber known as "hard rubber," or of which these substances or any of them is the component material of chief value, not specially provided for in this section, 25 per centum ad valorem; shells engraved, cut, ornamented, or otherwise manufactured, 25 per centum ad valorem.

MANUFACTURES OF IVORY OR VEGETABLE IVORY.

(See Survey N-21.)

Description and uses.—Manufactures of ivory have included numerous articles, useful and ornamental, such as toilet articles, statuettes, and piano keys, the demand for the last being so great that imitation products must be drawn upon to meet requirements. Manufactures of vegetable ivory embrace handles for umbrellas, toilet articles, small trinkets, etc. (Buttons of vegetable ivory, see par. 1410, p. 1105.)

Production figures are not fully available. In 1914 the output of ivory, shell, and bone work, not including combs and hairpins, was valued at \$1,896,000, from 54 establishments, with \$1,160,000 capital and 795 employees. In 1919 the number of establishments was reported at 44, with production valued at \$2,817,000. Japan, England, Germany, and France are important manufacturers of animal and vegetable ivory products. Shell manufactures (mother-of-pearl and other) are important in England, France, Germany, and Asiatic Turkey.

Imports in 1914 of manufactures of animal and vegetable ivory amounted to \$51,697. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------|---------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$17,950 | \$6,286 | 35 |
| 1919..... | 32,214 | 11,275 | 35 |
| 1920..... | 140,314 | 49,110 | 35 |
| 1921 (9 months)..... | 52,992 | 18,647 | 35 |

Export figures are meager. In 1918 the exports of ivory and manufactures thereof and scrap amounted to \$175,458, of which exports valued at \$136,131 went to Canada. Later export statistics are not shown.

MANUFACTURES OF MOTHER-OF-PEARL AND SHELL.

(See Survey N-21.)

Description and uses.—Manufactures of mother-of-pearl and shell embrace handles of various articles, such as knives, opera glasses, toilet articles, etc., art and inlay work, and buttons (pearl buttons—par. 1410).

Production data are combined under the Census classification "Ivory, shell, and bone work," shown above.

Imports in 1914 of manufactures of shell and mother-of-pearl amounted to \$91,218; of shells engraved, cut, ornamented, or otherwise manufactured, to \$38,987. France, Japan, and England are the leading sources. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|---|-------------------|-------|------------------|
| SHELLS ENGRAVED, CUT, ORNAMENTED, OR OTHERWISE MANUFACTURED. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | 1 883 2,901 | 8748 | 25 |
| 1919..... | 1 514 3,990 | 998 | 25 |
| 1920..... | 1 1,932 7,489 | 1,872 | 25 |
| 1921 (9 months)..... | 1 1,018 20,767 | 5,192 | 25 |

MANUFACTURES OF MOTHER-OF-PEARL AND SHELL.

| | | | |
|----------------------|-------------------|--------|----|
| 1918..... | 1 8129 2,663 | 8041 | 25 |
| 1919..... | 1 68 15,097 | 3,924 | 25 |
| 1920..... | 1 705 47,570 | 11,800 | 25 |
| 1921 (9 months)..... | 1 2,823 30,276 | 7,569 | 25 |

¹ From Philippines, free.

Exports.—None recorded.

MANUFACTURES OF INDIA RUBBER KNOWN AS "HARD RUBBER."

(See Survey N-21.)

Description and uses.—Hard rubber differs from soft or pliable rubber in its sulphur content and in being cured or vulcanized at a higher temperature; it is used in bowling balls, razor handles, fountain-pen barrels, combs, etc.

Production data are not shown separately, being included with other manufactures of rubber.

Imports amounted to \$376,906 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|--------|------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$2,513 | \$628 | 25 |
| 1919..... | 4,624 | 1,156 | 25 |
| 1920..... | 80,058 | 22,015 | 25 |
| 1921 (9 months)..... | 84,853 | 21,213 | 25 |

Exports.—None recorded.

Suggested changes.—See General Notes on Paragraph below.

MANUFACTURES OF PLASTER OF PARIS.

(See Survey B-2.)

Description and uses.—Plaster of Paris is a cement obtained by the pulverization and partial calcination of gypsum. It is used as a hard-finish plaster for walls and ceilings; in surgery for making casts to inclose fractures, and for making impressions for dental plates in which teeth are set; for casts of sculpture in round, high, and low reliefs; replicas of archaeological objects; and life and death masks.

Production data for miscellaneous manufactures of plaster of Paris are not shown.

Imports amounted to \$36,172 in 1914. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|------------------|---------------------|
| | | | <i>Per cent.</i> |
| 1918..... | \$1,315 | \$329 | 25 |
| 1919..... | 1 86 | (¹) | (¹) 25 |
| 1920..... | 7,495 | 1,874 | 25 |
| 1921 (9 months)..... | 10,066 | 2,514 | 25 |
| | 27,092 | 6,523 | 25 |

¹ From Philippines, free.

Exports.—Not separately recorded.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Manufactures of papier-mâché have been placed in paragraph 1303.

Suggested changes.—The words "vulcanized or unvulcanized" after "hard rubber" might be omitted, as probably all hard rubber is vulcanized.

PARAGRAPH 1439.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1439. Electrical insulators and other articles, wholly or partly manufactured, composed wholly or in chief value of shellac, copal, or synthetic phenolic resin, not specially provided for, 30 per centum ad valorem.

ACT OF 1909.

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[Classable according to component material of chief value.]

[Classable according to component material of chief value.]

ELECTRICAL INSULATORS AND OTHER ARTICLES.

Description and uses.—Synthetic phenolic resin is of comparatively recent development. In addition to serving for electrical insulators it is used in the production of a variety of articles, some of which are brush backs and handles, beads, advertising novelties, penholders, mouthpieces for pipes, etc.

Production.—No data are available.

Imports and exports.—Not shown. Imports before the war were principally from Germany.

Important changes in classification.—New specific provision.

PARAGRAPH 1440.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1440. Moss and sea grass, eelgrass, and seaweeds, if manufactured or dyed, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 78. Moss and sea grass, eelgrass, and seaweeds, if manufactured or dyed, ten per centum ad valorem.

PAR. 372. Moss and sea grass, eelgrass, and seaweeds, if manufactured or dyed, 10 per centum ad valorem.

MOSS, SEA GRASS, EELGRASS, AND SEAWEEDS MANUFACTURED OR DYED.

(See Survey N-22.)

Uses.—Dyed sea moss is prepared for florists' use or for ornamental purposes. Eelgrass has been used in filling mattresses, cushions, etc., and sheathing houses. Seaweed ashes formerly supplied much of the alkali that was used in soap and glass making and for the preparation of iodine. In its raw state it was and still is used as a fertilizer. As a rule, however, cheaper sources of most of the materials furnished by seaweed have been discovered.

Imports in 1914 of moss and sea grass, eelgrass, and seaweeds, manufactured or dyed, were valued at \$55,624, mainly from Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$2,329 | | \$233 | 10 |
| 1919..... | 51,377 | 6,044 | \$0.12 | 604 | 10 |
| 1920..... | 56,400 | 15,282 | .27 | 1,528 | 10 |
| 1921 (9 months)..... | 36,853 | 8,510 | .23 | 851 | 10 |

Imports in 1920 were \$35,718 from the Netherlands and \$13,561 from Germany.

Exports in 1914 of moss amounted to \$51,006 of which \$32,663 went to Canada; and of seaweed to \$40,592, practically all of which went to Hongkong. Exports of moss for the calendar years 1918, 1919, and 1920 amounted, respectively, to \$91,667, \$91,475 and \$115,346, Canada being the principal importing country.

PARAGRAPH 1441.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1441. Musical instruments and parts thereof, not specially provided for, pianoforte or player actions and parts thereof, cases for musical instruments, pitch pipes, tuning forks, tuning hammers, and metronomes, music wire, strings for musical instruments, composed wholly or in part of steel or other metal, all the foregoing, 35 per centum ad valorem; tuning pins, \$1 per thousand and 25 per centum ad valorem; violins, violas, violoncellos, and double basses, of all sizes, wholly or partly manufactured or assembled, \$1.50 each and 35 per centum ad valorem; unassembled parts of the foregoing, 35 per centum ad valorem.

ACT OF 1909

PAR. 467. Musical instruments or parts thereof, pianoforte actions and parts thereof, strings for musical instruments, not otherwise enumerated in this section, cases for musical instruments, pitch pipes, tuning forks, tuning hammers, and metronomes; strings for musical instruments, composed wholly or in part of steel or other metal, all the foregoing, forty-five per centum ad valorem.

PAR. 135. * * * all other wire not specially provided for in this section, shall pay a duty of not less than thirty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 373. Musical instruments or parts thereof, pianoforte actions and parts thereof, cases for musical instruments, pitch pipes, tuning forks, tuning hammers, and metronomes; strings for musical instruments, composed wholly or in part of steel or other metal, all the foregoing, 35 per centum ad valorem.

PAR. 114. * * * all other wire not specially provided for in this section, * * * 15 per centum ad valorem; * * *

PAR. 366. Manufactures of catgut, or whip gut, or worm gut, including strings for musical instruments; * * * not specially provided for in this section, 20 per centum ad valorem.

MUSICAL INSTRUMENTS.

(See Surveys N-23 and FI-17.)

Description.—These articles include all musical instruments except phonographs, graphophones, etc., covered in paragraph 1442.

Production in 1914 was valued at \$92,573,000; manufacturers numbered 719, with capital of \$134,848,000 and 39,387 wage earners. Of the total value of products that of organs amounted to \$6,297,000, pianos to \$62,775,000, materials for organs and pianos to \$19,876,000, and other musical instruments (excepting phonographs, etc.) to \$3,625,000. Germany, Austria-Hungary, France, and Italy are important producers. In 1919 the production was valued as follows: Pianos, \$107,245,000; organs, \$6,118,000; piano and organ material, \$36,052,000; and musical instruments, n. e. s. \$14,266,000.

Imports.—In 1914 imports of musical instruments and parts of, including steel or metal strings, were valued at \$1,967,733. Imports, before the war, were supplied chiefly by Germany, but about one-half of the total in 1918 came from Japan. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate |
|----------------|-----------|--------|-------|-----------------|
|----------------|-----------|--------|-------|-----------------|

PIANOFORTE ACTIONS, AND PARTS OF.

| | Number. | | | Percent. |
|----------------------|---------|---------|---------|----------|
| 1919..... | 781 | \$3,922 | \$1,373 | 35 |
| 1920..... | | 40,619 | 14,217 | 35 |
| 1921 (9 months)..... | | 15,244 | 5,335 | 35 |

CASES FOR MUSICAL INSTRUMENTS.

| | | | | |
|----------------------|----|-------|-----|----|
| 1919..... | 54 | \$20 | \$7 | 35 |
| 1920..... | | 747 | 261 | 35 |
| 1921 (9 months)..... | | 2,789 | 976 | 35 |

PITCH PIPES, TUNING FORKS, TUNING HAMMERS, AND METRONOMES.

| | | | | |
|----------------------|---------|----------|---------|----|
| 1919..... | 877,596 | \$14,785 | \$5,175 | 35 |
| 1920..... | | 23,034 | 8,062 | 35 |
| 1921 (9 months)..... | | 26,384 | 9,234 | 35 |

ALL OTHER MUSICAL INSTRUMENTS, AND PARTS OF.

| | | | | |
|----------------------|-----------|------------------------|-----------|----|
| 1918..... | | \$506,859 | \$177,351 | 35 |
| 1919..... | 8,432,733 | 1,256,771 | 440,897 | 35 |
| 1920..... | | 2,465,932 | 873,542 | 35 |
| 1921 (9 months)..... | | 1,934,280 ¹ | | |

STRINGS, STEEL OR METAL, FOR MUSICAL INSTRUMENTS.

| | | | | |
|----------------------|--|-------|-------|----|
| 1918..... | | \$520 | \$182 | 35 |
| 1919..... | | 2,613 | 914 | 35 |
| 1920..... | | 4,782 | 1,674 | 35 |
| 1921 (9 months)..... | | 5,096 | 1,786 | 35 |

¹ From the Philippines, free of duty.

Exports in 1914 were valued as follows: Organs, \$555,743; player pianos, \$335,299; all other pianos, \$1,416,888; piano players, \$177,683; perforated music rolls, \$127,626; all other musical instruments, and parts of, \$745,392. Organs were exported chiefly to England; player pianos to Canada, Australia, England, and Italy; all other pianos to Canada and England; piano players to England; music rolls to England and Canada; all other to Canada, Germany, and England. Later exports for calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-----------|-----------|------------|---------------------|
| Organs..... | \$113,062 | \$174,647 | \$296,942 | \$122,414 |
| Player pianos..... | 1,272,210 | 1,656,519 | 3,472,632 | 1,096,758 |
| All other pianos..... | 1,949,708 | 3,001,994 | 5,261,071 | 1,062,858 |
| Piano players..... | 45,567 | 57,664 | 46,399 | 19,628 |
| Perforated music rolls..... | 160,511 | 294,742 | 409,913 | 210,673 |
| All other and parts of..... | 1,134,636 | 1,698,317 | 2,361,610 | 951,155 |
| Total..... | 4,675,694 | 6,883,883 | 11,848,567 | 3,463,486 |

In 1920 the principal destinations of exports were as follows: Organs, England and British South Africa; player pianos, Australia, Spain, Cuba, Argentina, and Peru; all other pianos, Australia, Argentina, Cuba, and British South Africa; music rolls, Canada and Australia; all other musical instruments, Canada, England, and Australia.

Important changes in classification.—The provisions for player actions and parts of, music wire, tuning pins, and violins, violas, violoncellos, and double basses are new.

Suggested changes.—Page 166, line 20, of H. R. 7456: Strike out comma after "instruments."

PARAGRAPH 1442.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1442. Phonographs, gramophones, graphophones, and similar articles and parts thereof, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 468. Phonographs, gramophones, graphophones, and similar articles, or parts thereof, forty-five per centum ad valorem.

PAR. 374. Phonographs, gramophones, graphophones, and similar articles, or parts thereof, 25 per centum ad valorem.

PHONOGRAPHS, GRAMOPHONES, ETC.

(See Survey N-23.)

Description and uses.—The essential parts of a phonograph are a funnel for receiving the sounds, a diaphragm which vibrates with these sounds and to which is attached a point, and a covered cylinder with which the point makes contact. The Edison diaphragm is iron, the point metallic, and the cylinder covered tin foil. By revolving the cylinder the recorded sound is reproduced. The graphophone applies

the phonograph principle of sound record and reproduction, but substitutes a wax cylinder. The term "graphophone," however, is being supplanted by "phonograph." The gramophone is a machine having a disk instead of a cylinder.

Production in 1914 was valued at \$27,115,916. The number of machines was 515,154, valued at \$15,290,491; and records and blanks, 27,221,290, valued at \$11,111,418. Parts of machines, materials, and supplies, not included in finished instruments, amounted to \$356,935, and all other products to \$357,072. In addition, phonographs, etc., valued at \$66,531, were made in establishments engaged primarily in the manufacture of products other than those covered by this industry. Eighteen establishments made phonographs, graphophones, etc., with capital of \$33,771,000, and 9,381 employees. In 1919 there were 167 establishments with value of products amounting to \$158,668,000.

Imports of phonographs, graphophones, etc., in 1914 amounted to \$147,384, over one-half of which came from Germany. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|---------------------|
| 1918..... | \$322,188 | \$80,547 | <i>Per cent.</i> 25 |
| 1919..... | 578,518 | 144,629 | 25 |
| 1920..... | 817,965 | 204,491 | 25 |
| 1921 (9 months)..... | 427,552 | 106,888 | 25 |

In 1920 imports from Germany amounted to \$115,826, from Switzerland to \$583,070, and from Japan to \$73,074.

Exports of machines and records and materials in 1914 amounted to \$2,512,320, principally to Canada, England, Australia, Cuba, and Argentina. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------------------|-------------|-------------|-------------|---------------------|
| Phonographs, etc.: | | | | |
| Number..... | 64,459 | 67,337 | 87,571 | 26,974 |
| Value..... | \$1,906,052 | \$2,490,719 | \$4,130,812 | \$1,287,683 |
| Records and accessories, value..... | \$2,276,357 | \$3,702,668 | \$3,746,387 | \$1,646,653 |

Suggested changes.—The phrase "and parts thereof" is apparently intended to apply to phonographs, etc., as well as to similar articles. A comma inserted after "articles" would bring this out more clearly.

Phonograph disks but not master records have been held to be parts of phonographs. (*American Express Co. v. United States*, 4 Ct. Cust. Appls., 279, of 1913; G. A. 7182, T. D. 21351, of 1911.)

PARAGRAPH 1443.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1443. Rolls: Calendar rolls or bowls made wholly or in chief value of cotton, paper, husk, wool, or mixtures thereof, or stone of any nature, compressed between and held together by iron or steel heads or washers fastened to iron or steel mandrels or cores, suitable for use in calendaring, embossing, mangling, or pressing operations, 25 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[Classable according to component material of chief value.]

[Classable according to component material of chief value.]

CALENDER ROLLS OR BOWLS.

Description and uses.—Calender rolls or bowls vary in size, some being as large as 20 inches in diameter and 100 inches long. In manufacturing the rolls great accuracy of work is required to make the surface truly cylindrical. They are used in the textile and paper industries, in the manufacturing of linoleum, artificial leather, etc. as integral parts of calenders, embossing, and mangling machines. Stone rolls are generally used on the presses of a fourdrinier type of paper-making machine. The rolls are set in the machines in series through which the fabric or other material is passed for the purpose of imparting a glaze or polish, or other finish.

Production data are not separately available from official sources. The industry is an important one, as these rolls are essential parts of the machinery used in the above-mentioned industries. In the hearings before the Committee on Ways and Means of the House of Representatives a list of eight manufacturers is given as large producers of these articles.

Import and export data are not shown.

Important changes in classification.—This provision is new.

Suggested changes.—The correct spelling is "calender."

PARAGRAPH 1444.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1444. Rosaries, chaplets, and similar articles of religious devotion, of whatever material composed, valued at not more than \$1.25 per dozen, 15 per centum ad valorem; valued at more than \$1.25 per dozen, 30 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

[Classable according to component material of chief value or as articles "designed to be worn on apparel or carried on or about or attached to the person."]

[Classable according to component material of chief value or as articles "designed to be worn on apparel or carried on or about or attached to the person."]

ROSARIES, CHAPLETS, ETC.

Description and uses.—A rosary as used in religious worship is a series of beads strung on a metal chain in combination with a flat metal piece of diversity in design together with a cross. The smaller rosaries are sometimes known as chaplets. The beads are made of a variety of materials—wood, glass, metal, bone, etc.—and the cross is usually composed of metal.

Production.—The value of rosaries produced in the United States is not shown in official statistics. Practically all of the rosaries made in this country are composed of precious metal, or of precious metal in combination with beads of semiprecious or imitation precious stones.

Imports.—The value of imports is not shown in official statistics. It is estimated by an importer that they amount to \$300,000 annually. France, Holland, Czechoslovakia, Ireland, Germany, and Italy are the sources of imports.

Exports.—Not shown in official statistics.

Important changes in classification.—Rosaries and chaplets are separately provided for. They are now dutiable according to component materials, except where they come within paragraph 356 of the act of 1913.

Suggested changes.—Beads in imitation of pearls or precious or semiprecious stones of any kind, the duty on which is 40 or 45 per centum ad valorem under paragraph 1403, could be imported strung as rosaries at 15 or 30 per centum, according to value, and after importation separated from the cross or crucifix and used for other purposes. This result might be avoided by providing that the rate of duty on rosaries shall not be less than that on the beads.

 PARAGRAPH 1445.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1445. Sponges, 15 per centum ad valorem; manufactures of sponges, or of which sponge is the component material of chief value, not specially provided for, 25 per centum ad valorem.

ACT OF 1909.

PAR. 79. Sponges, twenty per centum ad valorem; manufactures of sponges, or of which sponge is the component material of chief value, not specially provided for in this section, thirty per centum ad valorem.

ACT OF 1913.

PAR. 68. Sponges: Trimmed or untrimmed but not advanced in value by chemical processes, 10 per centum ad valorem; bleached sponges and sponges advanced in value by processes involving chemical operations, manufactures of sponges, or of which sponge is the component material of chief value, not specially provided for in this section, 15 per centum ad valorem.

SPONGES.

(See Survey A-19.)

Description and uses.—Sponges are collected principally in the Mediterranean and Red Seas and waters of the West Indies, Florida, and Central America. The finest are obtained from the Mediterranean, the next in quality from the Red Sea.

Crude sponges are prepared by maceration in cold water for several days followed by beating to break up and remove concretions. The better grades are treated with a dilute solution of hydrochloric acid to remove remaining calcareous matter and then, if desired, are bleached by chemical means.

Production.—Most of the crude sponges marketed in this country are from the Florida fisheries. The product of these fisheries in 1913 was valued at about \$735,000, a little over \$615,000 in 1914, and over \$920,000 in 1917. In 1918 there was a decrease to about \$623,000. This decrease was due partly to the high price of fish, which induced those engaged in sponge gathering to take up fishing. Tarpon Springs, Fla., is the center of American sponge production. New York is the principal distributing center. In 1920 there were sold at the exchange at Tarpon Springs, Fla., 409,746 pounds of sponges, valued at \$678,209. This is estimated to be about 90 per cent of the output of the Florida fisheries.

Imports of crude sponges have averaged a little more than half the domestic production since 1913, and in that year were valued at \$289,642. Imports of chemically treated sponges have been much less, amounting to \$38,300 in 1914 and \$58,797 in 1916. Imports of manufactures of sponges amounted to \$73 in 1914. Crude sponges come mostly from the British West Indies, Cuba, and Greece. Later statistics follow:

| Calendar year. | Value. | Duty. |
|--|-----------|----------|
| SPONGES, CRUDE. | | |
| 1918..... | \$523,480 | \$48,940 |
| 1919..... | 462,898 | 42,869 |
| 1920..... | 658,360 | 61,029 |
| 1921 (9 months)..... | 171,652 | |
| SPONGES, BLEACHED AND ADVANCED BY CHEMICAL PROCESS. | | |
| 1918..... | \$19,313 | \$2,895 |
| 1919..... | 11,798 | 1,734 |
| 1920..... | 40,842 | 5,987 |
| 1921 (9 months)..... | 19,161 | |
| MANUFACTURES OF SPONGES. | | |
| 1920..... | \$6,631 | \$1,025 |
| 1921 (9 months)..... | 882 | |

Exports, 1910-1914, inclusive, averaged about 200,000 pounds, with a value of a little less than \$200,000, and dropped in 1917 to 116,131 pounds, valued at \$129,063. Exports are principally to Canada and England. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 85,957 | 371,602 | 146,575 | 78,899 |
| Value..... | \$147,519 | \$328,131 | \$217,812 | \$104,914 |

Important changes in classification.—The distinction between sponges trimmed and untrimmed in paragraph 68 of the act of 1913 and between sponges bleached and otherwise advanced in value by chemical process is not made in H. R. 7456.

Conflicting provisions.—Rubber bath sponges have been held not to come within the provision for sponges but within the provision for manufactures of india rubber. (*Smith Co. v. United States*, 149 Fed., 1022, of 1906.)

PARAGRAPH 1446.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1446. Violin rosin, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 469. Violin rosin, in boxes or cases or otherwise, twenty per centum ad valorem.

PAR. 375. Violin rosin, in boxes or cases or otherwise, 10 per centum ad valorem.

VIOLIN ROSIN.

(See Survey FL-17.)

Description and uses.—Violin rosin is a good grade of rosin cast in the form of cubes or embedded in pieces of wood to facilitate its application to the bow of stringed musical instruments, such as the violin.

Production.—It is of comparatively simple manufacture, and the United States is the largest producer, but figures are not available.

Imports of violin rosin in 1914 were valued at \$11,688, about 52 per cent from Germany and 32 per cent from France. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|---------|-------|------------------|
| 1918..... | \$2,803 | \$280 | 10 |
| 1919..... | 4,765 | 476 | 10 |
| 1920..... | 6,255 | 625 | 10 |
| 1921 (9 months)..... | 5,657 | 566 | 10 |

Exports.—None recorded.

Important changes in classification.—The phrase "in boxes or cases or otherwise" has been omitted as unnecessary.

PARAGRAPH 1447.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1447. Works of art, including paintings in oil or water colors, pastels, pen and ink drawings, and copies, replicas, or reproductions of any of the same; statuary, sculptures, or copies, replicas, or reproductions thereof; and etchings and engravings; all the foregoing, not specially provided for, 15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 470. Paintings in oil or water colors, pastels, pen and ink drawings, and sculptures, not specially provided for in this section, fifteen per centum ad valorem; but the term "sculptures" as used in this Act shall be understood to include only such as are cut, carved, or otherwise wrought by hand from a solid block or mass of marble, stone, or alabaster, or from metal, and as are the professional production of a sculptor only, and the term "painting" as used in this Act shall be understood not to include such as are made wholly or in part by stenciling or other mechanical processes.

PAR. 376. Works of art, including paintings in oil or water-colors, pastels, pen and ink drawings, or copies, replicas or reproductions of any of the same, statuary, sculptures, or copies, replicas or reproductions thereof, and etchings and engravings, not specially provided for in this section, 15 per centum ad valorem.

PAR. 416. * * * engravings,
* * * etchings, * * * all the fore-
going wholly or in chief value of paper,
and not specially provided for in this sec-
tion, twenty-five per centum ad valorem
* * *

WORKS OF ART, N. S. P. F.

(See Survey N-24.)

Description and uses.—For most practical purposes works of art may be classified as follows: (1) Products of the fine arts, properly so called, intended solely for ornamental purposes, and including paintings in oil and water colors on canvas, plaster, or other material, and original statuary of marble, stone, or bronze. (2) Minor objects of art, intended also for ornamental purposes, such as statuettes, vases, drawings, etchings, etc., which are susceptible of an indefinite reproduction from the original. (3) Objects of art which serve primarily an ornamental and incidentally a useful purpose, such as painted or stained-glass windows, tapestry, paper hangings, etc. (4) Objects primarily designed for a useful purpose, such as ornamental clocks, higher grades of carpets, curtains, etc.

The list of articles included under this paragraph is restricted by paragraphs 1685 to 1689 inclusive. The greater number of works of arts are entered free under those paragraphs.

Production data on works of art are necessarily incomplete. Under the classification "Statuary and art goods" the Census gives data covering the manufacture of such articles as statues, vases, urns, flower boxes, fountains, pedestals, church statuary, bronze statuary, and papier mâché articles. In 1914 these were valued at \$3,910,000, and in 1919 at \$4,982,000.

Imports of works of art in 1914 were valued at \$766,464, mainly from France, Italy, England, and Germany. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|---------------------|
| 1918..... | \$76,058 | \$11,400 | <i>Per cent.</i> 15 |
| 1919..... | 1 182,546 | 1 27,381 | 15 |
| 1920..... | 1 525,953 | 1 78,890 | 15 |
| 1921 (9 months)..... | 1 270,940 | 1 40,641 | 15 |

¹ Includes small amounts from Philippines and Cuba.

The principal countries of origin in 1919 and 1920 were Italy, France, Sweden, and England.

Exports in 1914 of paintings and statuary of all kinds were valued at \$1,415,302, going mainly to France, England, Canada, and Germany. Later exports, by calendar years, have been as follows: 1918, \$341,035; 1919, \$1,150,015; 1920, \$1,640,701; 1921 (nine months), \$756,552. In 1918 Canada, Cuba, Spain, and France were the principal purchasers, and France, Canada, and Cuba in 1919 and 1920.

PARAGRAPH 1448.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1448. Peat moss, 50 cents per ton.

ACT OF 1909.

ACT OF 1913.

PAR. 471. Peat moss, one dollar per ton. PAR. 377. Peat moss, 50 cents per ton.

PEAT MOSS.

(See Survey N-22.)

Description and uses.—Peat moss consists largely of various species of sphagnum (bog moss). It is used for stable litter, potting plants, packing materials, and for insulation. Peat moss is an excellent absorbent, hence its value for stable litter. Gardeners employ it for covering and moistening the roots of plants because it readily absorbs moisture from the air. It may also be used as stuffing for mattresses.

Production of small quantities of peat moss of unknown value was reported after the outbreak of the war, practically all having been imported previously. Peat and peat moss are produced chiefly in the northern sections of the world. In warm regions the decay of vegetable matter is, as a rule, too rapid to permit of extensive bog moss deposition. Russia, Germany, Ireland, Norway, Sweden, France, Austria, Denmark, Holland, Canada, and the United States have very large deposits. Peat moss has been more systematically utilized in Holland than in any other country. The American deposits remain almost untouched.

Imports.—In 1914 imports were about 9,580 tons, valued at \$57,670—8,900 tons from the Netherlands and about 500 tons from Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|--------------|----------|-------------|-------|------------------------|
| | <i>Tons.</i> | | | | <i>Per cent.</i> |
| 1919..... | 414 | \$16,345 | \$39.48 | \$207 | 1.27 |
| 1920..... | 2,466 | 36,201 | 14.68 | 1,233 | 3.41 |
| 1921 (9 months)..... | 2,284 | 16,577 | | | |

Exports.—None recorded.

PARAGRAPH 1449.

H. R. 7456.

SENATE AMENDMENTS

PAR. 1449. Pencils of paper, wood, or other material not metal, filled with lead or other material, pencils of lead, crayons, including charcoal crayons or fusains, and mechanical pencils, not specially provided for, 50 cents per gross and 25 per centum ad valorem; and in addition thereto, the following cumulative duties: Caps or protectors, whether separate or attached to pencils, and pencils prepared for caps or protectors, 25 cents per gross; pencils stamped with names other than the manufacturers', 50 cents per gross; slate pencils, not in wood, 25 per centum ad valorem.

ACT OF 1909.

PAR. 56. * * * crayons, including charcoal crayons or fusains * * * not otherwise specially provided for in this section, thirty per centum ad valorem; * * *

PAR. 199. Articles or wares not specially provided for in this section, composed wholly or in part of * * * metal, and whether partly or wholly manufactured, forty-five per centum ad valorem.

PAR. 448. * * * articles of every description, finished or partly finished, * * * composed wholly or in chief value of silver, German silver, white metal, brass, or gunmetal, whether or not enameled, washed, covered, plated, or alloyed with gold, silver or nickel, and designed to be * * * carried on or about or attached to the person, valued at twenty cents per dozen pieces, one cent each and in addition thereto, three-fifths of one cent per dozen for each one cent the value exceeds twenty cents per dozen; * * *

PAR. 472. Pencils of paper or wood, or other material not metal, filled with lead

ACT OF 1913.

PAR. 63. * * * crayons, including charcoal crayons or fusains * * * not specially provided for in this section, 15 per centum ad valorem; * * *

PAR. 167. Articles or wares not specially provided for in this section; if composed wholly or in part of platinum, gold, or silver, and articles or wares plated with gold or silver, and whether partly or wholly manufactured, 50 per centum ad valorem; if composed wholly or in chief value of * * * other metal, but not plated with gold or silver, and whether partly or wholly manufactured, 20 per centum ad valorem.

PAR. 356. * * * articles valued above 20 cents per dozen pieces designed to be worn on apparel or carried on or about or attached to the person, such as and including * * * like articles; all the foregoing and parts thereof, finished or partly finished, composed of metal, whether or not enameled, washed, covered, or plated, including rolled gold plate, and whether or not set with precious or semiprecious stones, * * *

ACT OF 1909.

or other material, and pencils of lead, forty-five cents per gross and twenty-five per centum ad valorem; slate pencils, covered with wood, thirty-five per centum ad valorem; all other slate pencils, three cents per one hundred.

ACT OF 1913.

or with imitation precious stones, * * * 60 per centum ad valorem. * * *

PAR. 378. Pencils of paper or wood, or other material not metal, filled with lead or other material, pencils of lead, 36 cents per gross, but in no case shall any of the foregoing pay less than 25 per centum ad valorem; slate pencils, 25 per centum ad valorem.

LEAD PENCILS AND SLATE PENCILS.

(See Survey N-22.)

Description and uses.—Pencil leads are made of a mixture of fine graphite and clay. The wood used is usually cedar, although pine or other wood is sometimes used for the cheaper grades. Pencils of paper are made by wrapping the lead in narrow strips of paper, portions of which can be unwrapped as required to expose the lead.

Production.—In 1914 there were 14 manufacturers of lead pencils, with a capital of \$10,670,000, 4,330 employees, and wages of \$1,944,000. Materials cost \$4,564,000, and the product was valued at \$8,328,000, a moderate increase over 1909. In 1919 there were 12 establishments with an output valued at \$24,134,000. The industry is based on abundant domestic supplies of the two essential raw materials—pure graphite and an excellent cedar readily adaptable to machine processes. The industry is an extensive one in England and Germany.

Imports in 1914 of pencils of paper or wood or other material, not metal, filled with lead or other material, and pencils of lead were 188,644 gross, valued at \$512,579. Imports in 1914 of slate pencils covered with wood were 850 gross, valued at \$83, and of other slate pencils, 2,158,700 gross, valued at \$1,416. On the basis of value about one-half of the pencils came from Germany in 1914; the rest largely from England. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|--|---------------|---------|-------------|---------|------------------------|
| PENCILS OF LEAD AND PENCILS OF PAPER, ETC., FILLED WITH LEAD. | | | | | |
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | 12,023 | \$4,815 | \$0.40 | \$4,537 | 34.22 |
| 1919..... | 18,258 | 7,679 | .42 | 6,821 | 88.83 |
| 1920..... | 75,032 | 168,635 | 2.25 | 43,297 | 25.66 |
| 1921 (9 months)..... | 63,876 | 140,543 | 2.20 | | |
| SLATE PENCILS. | | | | | |
| 1918..... | | \$3 | | | 25 |
| 1919..... | 844 | 1,009 | \$1.20 | \$262 | 25 |
| 1921 (9 months)..... | 641 | 682 | 1.06 | 170 | 25 |

The small imports in 1918 were chiefly from Japan. In 1919 and 1920 Germany was the chief source. In the latter year large amounts chiefly of high grade pencils formerly imported from Austria were received from Czechoslovakia. In the same year lead pencils amounting to 59,476 gross and valued at \$150,789 were dutiable at 25 per centum ad valorem as the specific rate of 36 cents per gross amounted to less than the 25 per centum required as a minimum.

Export statistics of pencils and pencil leads are combined. In 1914 their value was \$533,944, of which \$246,872 worth went to North America, mainly to Canada and Mexico; \$188,834 to Europe, chiefly to England; \$49,553 to Oceania; and \$46,762 to South America. Exports in later calendar years have been valued as follows: 1918, \$2,497,208; 1919, \$3,565,347; 1920, \$3,849,221; 1921 (nine months), \$1,669,572. The chief countries of destination were England, Canada, Argentina, Brazil, Mexico, and Spain.

Important changes in classification.—See General Notes on Paragraph below.

CRAYONS.

(See Survey A-15.)

Description and uses.—Crayons are composed of charcoal, clay, or chalk, and mineral waxes colored with various pigments. They are used for drawing and writing on various materials and also for artists' purposes. Ordinary white crayons used for the blackboard are composed chiefly of chalk (calcium carbonate). Black crayons other than charcoal are made of clay and lampblack. "Fusains" is an old and practically obsolete term for charcoal crayons. Crayons used for drawing on lithographic stones are commonly made of wax, lampblack, soap and resins. The ordinary wax crayons are composed chiefly of paraffin wax colored with various colors and dyes.

Production.—The materials necessary for the manufacture of crayons are available from domestic sources. In 1914, under artists' materials, the Census Bureau reports a production of crayons valued at \$181,000 by 11 establishments with a capital of \$325,000. It is doubtful whether this includes ordinary crayons used for schoolroom work. Production figures for later years are not separately reported.

Imports in 1914 were valued at \$18,000; in 1915, at \$15,000; in later calendar years as follows: 1918, \$11,093; 1919, \$12,218; 1920, \$10,145; 1921 (nine months), \$16,431.

Exports.—None recorded.

Important changes in classification.—See General Notes on Paragraph, below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—There are new provisions for mechanical pencils and for cumulative duties. The qualification "not in wood" for slate pencils is also new.

Crayons, including charcoal crayons or fusains, are new for this paragraph, having formerly been provided for in the chemical schedule.

Conflicting provisions.—There is a possible conflict between the provision in paragraph 18 for chalk in sticks and the provision in this paragraph for crayons, with especial reference to white crayons for blackboard use, which might be regarded as chalk in sticks.

Paragraph 1449 might be held to embrace mechanical pencils made of or plated with precious metals.

Suggested changes.—The provision in paragraph 18 for "Chalk or whiting or Paris white: * * * put up in the form of cubes, blocks, sticks, or disks, or otherwise, including tailors', billiard, red, and manufactures of chalk not specially provided for," belongs more properly in the sundries schedule (14), since these articles, unlike chalk or whiting or Paris white, ground, bolted, or precipitated, or in the form of putty, are not chemicals, oils, or paints, to which schedule 1 is restricted. This fact, together with the possible conflict above set forth, appears to render advisable a change in paragraph 1449 and elimination therefrom of the provision for "crayons, including charcoal crayons or fusains."

If these changes should be made, a paragraph might be inserted after paragraph 1450 to provide for chalk or whiting or Paris white other than the chemical kind, and for crayons. Such a provision might be worded as follows:

Chalk, crayons, not colored, [rate]; all other crayons, including charcoal crayons or fusains, not specially provided for, [rate]; billiard chalk, [rate]; tailors' chalk, [rate]; and manufactures of chalk not specially provided for [rate].

If this proposed paragraph is adopted, the words "crayons, including charcoal crayons or fusains" in line 6, page 168 of H. R. 7456 should be stricken out, and the words "or put up in the form of cubes, blocks, sticks, or disks, or otherwise, including tailors', billiard, red, and manufactures of chalk not specially provided for," in lines 1 to 3, page 6, should also be stricken out.

If the change suggested under paragraph 1450, namely, insertion of the words "or crayon leads" after the word "colored" and before the comma in line 17, page 168, should be adopted, the words "crayon lead," followed by a comma, should be inserted after the word "lead" in line 5, page 168.

This paragraph imposes duties of 50 cents per gross and 25 per centum ad valorem on mechanical pencils not specially provided for; paragraph 352 imposes duties of 45 cents per gross and 20 per centum ad valorem on mechanical pencils made of base metal and not plated with gold, silver, or platinum; paragraph 1428 imposes a duty of 55 per centum ad valorem on articles like various articles therein named, valued above 20 cents per dozen pieces, designed to be worn on apparel or carried on or about or attached to the person, composed of metal.

If it is desired to classify mechanical pencils made of or plated with precious metals under paragraph 1428 rather than under paragraph 1449 the words "and mechanical pencils, not specially provided for," in lines 6 and 7, page 168, should be stricken out.

PARAGRAPH 1450.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1450. Pencil leads not in wood or other material, 6 cents per gross; leads not exceeding six one-thousandths of one inch in diameter and commonly known as refills, 10 cents per gross; colored, copy or indelible leads, 60 cents per gross; and, in addition thereto, on all the foregoing, 20 per centum ad valorem.

ACT OF 1909.

PAR. 473. Pencil leads not in wood, or other material, black, three-fourths of one cent per ounce; colored, one and one-fourth cents per ounce; copying, two cents per ounce.

ACT OF 1913.

PAR. 379. Pencil leads not in wood or other material, 10 per centum ad valorem.

PENCIL LEADS.

(See Survey N-22.)

Description and uses.—Ordinary black pencil leads are of pure graphite, or graphite mixed with clay. Colored leads are composed of suitable pigments combined with clay, chalk, or wax. Indelible or copying leads consist of a coal-tar dye mixed with graphite. Refills are sticks of lead used in mechanical pencils. They are generally of smaller diameter than the lead used in the pencils of wood or other material where the lead is permanently fixed.

Production.—Graphite is first ground very fine and mixed with a little water and the required amount of clay, then squeezed through dies by hydraulic pressure to form continuous leads; these are cut into the desired lengths, dried, and finally burned to expel moisture. The amount of clay in the lead determines the hardness. Figures of production are not available. Most of the pencil manufacturers make their own leads, but some of the smaller ones are dependent for their supply of leads upon the imported article.

Imports in 1914 of pencil leads not in wood were valued at \$109,146, which was less than in preceding years. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|---------------|---------|-------------|-------|------------------|
| | <i>Gross.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$2,190 | | \$219 | 10 |
| 1919..... | 55,436 | 25,741 | \$0.46 | 2,574 | 10 |
| 1920..... | 113,600 | 39,892 | .35 | 3,989 | 10 |
| 1921 (9 months)..... | 447,150 | 84,286 | .19 | 8,429 | ..... |

Export figures are combined with those of pencils. (See par. 1449, p. 1199.)

Important changes in classification.—The provisions for leads not exceeding six one-thousandths of 1 inch in diameter, and commonly known as refills, and for colored, copy, or indelible leads are new.

Suggested changes.—The limitation on the size of lead known as refills (six one-thousandths of 1 inch) would appear to render this provision of doubtful value, as most refills are in excess of this size, possibly six one-hundredths or sixty-one thousandths was meant.

As colored pencil leads are usually sold as crayon leads, it is suggested that the words "or crayon leads" be inserted after the word "colored" and before the comma in line 17, page 168.

PARAGRAPH 1451.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1451. Photographic cameras and parts thereof, not specially provided for, 30 per centum ad valorem; photographic dry plates, not specially provided for, and photographic and moving-picture films, sensitized but not exposed or developed, 20 per centum ad valorem; photographic-film negatives, imported in any form, for use in any way in connection with moving-picture exhibits, or for making or reproducing pictures for such exhibits, exposed, whether developed or not, and photographic-film positives, imported in any form, for use in any way in connection with moving-picture exhibits, including herein all moving, motion, motophotography, or cinematography film pictures, prints, positives, or duplicates of every kind and nature, and of whatever substance made, 30 per centum ad valorem: *Provided*, That upon the importation of photographic and motion-picture films or film negatives taken from the United States and exposed in a foreign country by an American producer of motion pictures operating temporarily in said foreign country in the course of production of a picture 60 per centum or more of which is made in the United States the duty shall be 25 per centum ad valorem, and the Secretary of the Treasury shall prescribe such rules and regulations as may be necessary for the entry of such films or film negatives under this proviso: *Provided, further*, That all photographic films imported under this Act shall be subject to such censorship as may be imposed by the Secretary of the Treasury.

ACT OF 1909.

PAR. 108. * * * optical instruments * * * all the foregoing not specially provided for in this section, forty-five per centum ad valorem.

PAR. 474. Photographic dry plates or films, not otherwise specially provided for in this section, twenty-five per centum ad valorem. Photographic film negatives, imported in any form, for use in any way in connection with moving-picture ex-

ACT OF 1913.

PAR. 380. Photographic cameras, and parts thereof, not specially provided for in this section, photographic dry plates, not specially provided for in this section, 15 per centum ad valorem; photographic-film negatives, imported in any form, for use in any way in connection with moving-picture exhibits, or for making or reproducing pictures for such exhibits, exposed but not developed, 2 cents per

ACT OF 1909.

hibits, or for making or reproducing pictures for such exhibits, and moving-picture films not developed or exposed, twenty-five per centum ad valorem. Photographic film positives, imported in any form, for use in any way in connection with moving-picture exhibits, including herein all moving, motion, motophotography or cinematography film pictures, prints, positives or duplicates of every kind and nature, and of whatever substance made, one and one-half cents per linear or running foot.

ACT OF 1913.

linear or running foot; if exposed and developed, 3 cents per linear or running foot; photographic-film positives, imported in any form, for use in any way in connection with moving-picture exhibits, including herein all moving, motion, motophotography or cinematography film pictures, prints, positives or duplicates of every kind and nature, and of whatever substance made, 1 cent per linear or running foot: *Provided, however,* That all photographic-films imported under this section shall be subject to such censorship as may be imposed by the Secretary of the Treasury.⁴

PAR. 578. Photographic and moving-picture films, sensitized but not exposed or developed [Free].

PHOTOGRAPHIC GOODS.

(See Survey N-25.)

Description and uses.—Dry plates are sensitized plates of which the sensitive films are hard and dry, so they may be packed away, and, if protected from light, used afterwards to make negative or positive pictures. Moving picture and other photographic films are made chiefly of pyroxylin (cellulose nitrate), coated with an emulsion of sensitizing materials. Cellulose acetate, being noninflammable, is also used, especially for moving-picture films, but has disadvantages and is usually more expensive. Photographic films are generally furnished in rolls or packs of six or twelve films each and are used in the familiar hand camera. Moving-picture sensitized films unexposed are furnished in long strips, and are used both for exposure in the camera and for printing additional positives. Photographic film negatives show the lights and shades in nature exactly reversed. An exposed film is one that has been used in the camera; a developed film or negative is one on which the chemical changes necessary to cause a latent image or picture to be visible have been induced or, in the case of a negative, the proper density has been assumed to admit of reproduction by a process of printing. Photographic film positives show the lights and shades as in nature and are usually printed from negatives. Moving-picture films are made about 1,000 feet in length and each picture is $\frac{3}{4}$ by 1 inch in size or 16 pictures to the foot.

Production of photographic apparatus in 1914 was valued at \$4,273,000. Of this amount cameras were valued at \$1,254,000; motion-picture machines, at \$1,820,000; and all other apparatus and parts, at \$1,199,000. Manufacturers numbered 87, with capital of \$4,397,000, 2,016 employees, and wages of \$1,289,000. Materials cost \$1,535,000, and value added by manufacture was \$2,738,000. The manufacture of flexible photographic films for motion pictures is now a very large industry. Pyroxylin is made by nitrating cotton waste. A solution is made of pyroxylin and camphor in a mixture of wood alcohol, amyl acetate, and other solvents. This is spread out on a smooth surface, such as a revolving metallic drum. When dry, the film is stripped off, slit into the desired width, and cut into

⁴ The act of July 31, 1912, chapter 263, forbids importation of any film or other pictorial representation of a prize fight.

lengths. For moving pictures, strips about 1½ inches wide and 1,000 feet long constitute one reel. The output in 1914 of photographic materials (plates, films, etc.) was \$34,768,000, by 59 establishments, with capital of \$31,991,000, 6,658 employees, and wages of \$4,256,000. Materials cost \$10,004,000, and value added by manufacture was \$24,764,000. In 1919 the value of apparatus produced was \$9,420,000 and of materials \$110,332,000. Seventy establishments were engaged in the manufacture of apparatus and 168 in the manufacture of materials.

Imports of photographic goods in 1914 were valued at \$2,913,292, distributed as follows: Cameras and parts of, \$261,547; dry plates, \$150,442; films sensitized but not exposed, for moving pictures, 46,174,377 linear feet, valued at \$934,788; other films sensitized but not exposed, \$168,827; negatives for motion pictures, developed and not developed, \$418,481; positives, prints, etc., 19,501,264 linear feet, valued at \$979,306. Germany was the chief source of cameras. Films sensitized but not exposed and film negatives were chiefly from France, Belgium, and Germany; and positives, prints, etc., from England, France and Italy. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|---|---------------------|-----------|-------------|----------|------------------|
| FILMS SENSITIZED BUT NOT EXPOSED, FOR MOVING PICTURES. | | | | | |
| | <i>Linear feet.</i> | | | | <i>Per cent.</i> |
| 1918..... | 25,713,817 | \$419,984 | | | |
| 1919..... | 13,746,502 | 283,271 | | | |
| 1920..... | 99,828,532 | 1,697,976 | | | |
| 1921 (9 months)..... | 122,974,704 | 2,337,078 | | | |
| FILMS OTHER THAN MOVING-PICTURE, SENSITIZED BUT NOT EXPOSED. | | | | | |
| | <i>Number.</i> | | | | |
| 1918..... | | \$456,412 | | | |
| 1919..... | 4,681,826 | 864,708 | | | |
| 1920..... | 13,102,092 | 2,248,666 | | | |
| 1921 (9 months)..... | 10,147,245 | 2,220,247 | | | |
| CAMERAS AND PARTS OF. | | | | | |
| 1918..... | | \$2,389 | | \$423 | 15 |
| 1919..... | | 19,915 | | 2,987 | 15 |
| 1920..... | | 358,000 | | 53,709 | 15 |
| 1921 (9 months)..... | | 302,020 | | 45,303 | 15 |
| DRY PLATES, N. S. P. F. | | | | | |
| | <i>Dozens.</i> | | | | |
| 1918..... | | \$24,472 | | \$3,671 | 15 |
| 1919..... | 16,557 | 18,181 | \$1.10 | 2,727 | 15 |
| 1920..... | 64,452 | 50,266 | .78 | 7,540 | 15 |
| 1921 (9 months)..... | 86,879 | 55,268 | .63 | 8,200 | 15 |
| FILM NEGATIVES, FOR USE WITH MOVING PICTURE EXHIBITS. | | | | | |
| | <i>Linear feet.</i> | | | | |
| 1918..... | 503,932 | \$169,124 | \$0.33 | \$14,322 | |
| 1919..... | 836,089 | 354,611 | .46 | 22,051 | |
| 1920..... | 2,033,707 | 730,765 | .36 | 53,311 | |
| 1921 (9 months)..... | 2,208,819 | 755,947 | .34 | | |
| FILM POSITIVES, PRINTS, DUPLICATES, ETC. | | | | | |
| 1918..... | 1,065,448 | \$123,556 | \$0.68 | \$19,628 | |
| 1919..... | 2,004,045 | 1,111,434 | .56 | 19,937 | |
| 1920..... | 4,189,647 | 2,035,879 | .49 | 41,896 | |
| 1921 (9 months)..... | 5,031,104 | 278,019 | .55 | 50,311 | |

¹ From Philippines, free.

The chief sources of imports in later years were: Cameras and parts of, England and France in 1918 and 1919, Germany in 1920; for 1918-1920, dry plates, France and England; films sensitized but not exposed, for motion pictures, France, England, and Belgium; other films sensitized but not exposed, Canada; film negatives, England, France, and Canada. Positives, prints, etc., came largely from England, France, and Japan in 1918 and 1919, and from England and Germany in 1920. For 1921 complete data of imports by countries are not available, but the entries at the port of New York, the principal port of entry of these articles, show that Germany leads in exports of cameras and parts of, England in dry plates, France and Germany in negatives, and Germany and France in positives, prints, etc.

Exports in 1914 were: Cameras, \$664,006 (going chiefly to England); motion-picture films not exposed, 153,359,550 linear feet, valued at \$4,264,722; exposed, 32,690,104 linear feet, valued at \$2,282,924 (going chiefly to England, Canada, and Australia); other sensitized goods, \$1,348,216 (going chiefly to England); other photographic apparatus, \$183,660; all other picture goods, \$688,272.

Exports since 1917, by calendar years, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------------------|-------------|-------------|-------------|------------------|
| Cameras, value..... | \$1,108,388 | \$1,648,410 | \$3,548,433 | \$2,138,302 |
| Motion-picture films not exposed: | | | | |
| Quantity (linear feet)..... | 71,548,779 | 120,041,912 | 62,956,626 | 31,015,483 |
| Value..... | \$1,745,884 | \$2,680,263 | \$1,706,248 | \$848,607 |
| Motion-picture films exposed: | | | | |
| Quantity (linear feet)..... | 79,388,387 | 153,237,260 | 175,191,635 | 111,585,498 |
| Value..... | \$4,731,382 | \$8,066,723 | \$7,892,198 | \$5,105,974 |
| Other sensitized goods, value..... | \$2,616,434 | \$4,208,181 | \$5,981,340 | \$4,934,482 |
| Other apparatus, value..... | \$782,177 | \$2,105,061 | \$3,218,805 | \$1,454,783 |
| Other picture goods, value..... | \$1,345,174 | \$1,939,924 | \$3,084,628 | \$1,075,909 |

The chief countries of destination in 1919 and 1920 were: Of cameras, England and France; of films unexposed, England, Italy, and France; of films exposed, England, Canada, Australia, and France; of other sensitized goods, photographic goods and apparatus, England and Canada.

Important changes in classification.—The first proviso is new. Photographic and moving-picture films, sensitized but not exposed or developed are transferred from the free list of the act of 1913 (par. 576).

Conflicting provisions.—Paragraph 29, with reference to manufactures of pyroxylin, provides "That all such articles, whether or not more specifically provided for elsewhere, shall be dutiable under this paragraph." This would appear to be in conflict with the provision for motion-picture films, as these films are made generally with a pyroxylin base.

This paragraph provides for photographic cameras and parts thereof not specially provided for, while paragraph 228 provides for photographic and projection lenses not specially provided for.

Suggested changes.—Page 169, line 18 of H. R. 7456: Strike out comma between "provided" and "further."

PARAGRAPH 1452.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1452. Pipes and smokers' articles: Common tobacco pipes and pipe bowls made wholly of clay, valued at not more than 40 cents per gross, 15 cents per gross; valued at more than 40 cents per gross, 45 per centum ad valorem; pipe bowls commercially known as stummels; pipes, cigar and cigarette holders, and mouthpieces for pipes, cigar and cigarette holders, all the foregoing of whatever material composed, and in whatever condition of manufacture, whether wholly or partly finished, or whether bored or unbored; pouches for chewing or smoking tobacco, cases suitable for pipes, cigar and cigarette holders, finished or partly finished; cigarette books, cigarette-book covers, cigarette paper in all forms, except cork paper; and all smokers' articles whatsoever, and parts thereof, finished or unfinished, not specially provided for, of whatever material composed, except china, porcelain, parian, bisque, earthen or stone ware, 45 per centum ad valorem.

ACT OF 1909.

PAR. 475. Pipes and smokers' articles: Common tobacco pipes and pipe bowls made wholly of clay, valued at not more than forty cents per gross, fifteen cents per gross; other tobacco pipes and pipe bowls of clay, fifty cents per gross and twenty-five per centum ad valorem; other pipes and pipe bowls of whatever material composed, and all smokers' articles whatsoever, not specially provided for in this section, including cigarette books, cigarette book covers, pouches for smoking or chewing tobacco, and cigarette paper in all forms, sixty per centum ad valorem.

ACT OF 1913.

PAR. 381. Pipes and smokers' articles: Common tobacco pipes and pipe bowls made wholly of clay, 25 per centum ad valorem; other pipes and pipe bowls of whatever material composed, and all smokers' articles whatsoever, not specially provided for in this section, including cigarette books, cigarette-book covers, pouches for smoking or chewing tobacco, and cigarette paper in all forms, except cork paper, 50 per centum ad valorem; * * *

Par. 356. * * * articles valued above 20 cents per dozen pieces designed to be worn on apparel or carried on or about or attached to the person, such as and including * * * cigar holders, * * * cigarette holders, * * * and parts thereof finished or partly finished, composed of metal, * * * 60 per centum ad valorem. * * *

"PIPES AND SMOKERS' ARTICLES."

(See Survey N-26.)

Description and uses.—The chief material used in the manufacture of pipe bowls is brier wood or brier root imported mainly from France and Italy. Other woods, as well as clay and meerschaum, are also employed. Pipe stems are made of reeds, wood, hard rubber, and for composition. The materials needed in mouthpieces for pipes and cigar and cigarette holders include hard rubber, bakelite, celluloid, ivory, and amber. The pipe bowl and the stem together form the stummel.

Cigarette paper is a light white paper for making cigarettes, used by both the cigarette factory and the smoker. By far the greater

part goes into factory-made cigarettes. It is made usually from flax and hemp products. American consumers say that the imported product is much superior to the domestic. The cigarette paper consumed in the United States comes mainly from France.

Production.—Data cover a great variety of pipes, cigar and cigarette holders, but not cigarette paper, books, and book covers. There were 47 manufacturers of tobacco pipes in 1914, with capital of \$3,232,000, 2,354 employees, wages of \$1,188,000, cost of materials \$2,308,000, and product valued at \$4,220,000. This is a decline in the industry compared with 1909. New York leads in the industry with more than half the domestic output. In 1919 there were 56 establishments engaged in the manufacture of tobacco pipes with a product valued at \$11,554,000.

The estimated annual production of cigarette paper in the United States from 1918 to 1920 was as follows:

| | 1918 | 1919 | 1920 |
|----------------------|-------------|-------------|-------------|
| Amount (pounds)..... | 2,033,000 | 1,629,000 | 2,219,000 |
| Value..... | \$2,000,000 | \$1,600,000 | \$2,200,000 |

This production represents roughly from one-fifth to one-third of the total cigarette paper used in the United States, the remainder being imported.

Imports of cigarette books, cigarette book covers, and cigarette paper in 1914 were \$795,429, excluding \$35,729 for manufacture in bonded warehouse and for export. They were mainly from France and Austria-Hungary. In 1914 imports of pipes and pipe bowls of clay were valued at \$35,676; and all other articles, including pipes and pipe bowls of other material, all smokers' articles, n. s. p. f., and pouches for smoking or chewing tobacco at \$524,386, excluding \$10,621 for manufacture in bonded warehouse and for export, mainly from Austria-Hungary, England, and Germany. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|-------------|-------------|------------------|
| CIGARETTE BOOKS, CIGARETTE-BOOK COVERS, AND CIGARETTE PAPER IN ALL FORMS EXCEPT CORK PAPER. | | | |
| | | | <i>Per cent.</i> |
| 1918..... | \$6,722,534 | \$3,361,268 | 50 |
| 1919..... | 7,722,102 | 3,861,010 | 50 |
| 1920..... | 4,602,064 | 2,346,022 | 50 |
| 1921 (9 months)..... | 3,330,909 | | |
| COMMON TOBACCO PIPES AND PIPE BOWLS OF CLAY. | | | |
| 1918..... | \$4,716 | \$1,179 | 25 |
| 1919..... | 15,853 | 3,963 | 25 |
| 1920..... | 12,091 | 3,023 | 25 |
| 1921 (9 months)..... | 10,455 | | |
| PIPES, PIPE BOWLS OF OTHER MATERIALS, AND ALL SMOKERS' ARTICLES, N. S. P. F., AND POUCHES FOR SMOKING OR CHEWING TOBACCO. | | | |
| 1918..... | \$132,733 | \$66,364 | 50 |
| 1919..... | 170,097 | 85,044 | 50 |
| 1920..... | 693,353 | 346,537 | 50 |
| 1921 (9 months)..... | 557,677 | | |

Exports.—None recorded.

Important changes in classification.—The phrase "in whatever condition of manufacture, whether wholly or partly finished, or whether bored or unbored" brings unfinished parts within the provisions for pipes and smokers' articles.

The provision covering tobacco pouches has been enlarged to include partly finished as well as wholly finished articles. The same is true of all smokers' finished articles whatsoever, and parts of, n. s. p. f., except such of these latter articles as are composed of china, porcelain, parian, bisque, earthen, or stone ware, which are exempted from the provision for smokers' articles, n. s. p. f.

Cases suitable for pipes, cigar and cigarette holders, finished or partly finished, are for the first time specifically provided for.

Conflicting provisions.—This paragraph conflicts with paragraph 1428. Both paragraphs provide specifically for cigar and cigarette holders. The former provides for these articles of whatever material composed and in whatever condition of manufacture, wholly or partly finished, or whether bored or unbored. The latter provides for articles such as cigar and cigarette holders of metal, whether finished or unfinished articles, valued above 20 cents per dozen pieces and designed to be worn on apparel or carried on or about or attached to the person.

There is also a conflict between this paragraph and paragraph 29 in respect to smokers' articles such as cigar and cigarette holders and mouthpieces for pipes, cigar and cigarette holders composed of compounds of pyroxylin.

Suggested changes.—The provisions in this paragraph for "cigarette books, cigarette-book covers, cigarette paper in all forms, except cork paper," might be transferred to the paper schedule.

PARAGRAPH 1453.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1453. Plush, black, known commercially as hatters' plush, composed of silk, or of silk and cotton, of the qualities and widths used generally in the making of men's hats, 10 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 477. Plush, black, known commercially as hatters' plush, composed of silk, or of silk and cotton, such as is used exclusively for making men's hats, ten per centum ad valorem.

PAR. 382. Plush, black, known commercially as hatters' plush, composed of silk, or of silk and cotton, such as is used for making men's hats, 10 per centum ad valorem.

HATTERS' PLUSH.

(See Survey L-1.)

Description and uses.—Hatters' plush, under this paragraph, refers to black plush 22 inches or more in width, with a soft silk "pile" that will iron down to a glossy surface and hold its color under the heated iron. It was primarily used for men's silk hats, but is now a favored material for women's high-grade hats and for other purposes.

Production.—American manufacturers have attempted to make hatters' plush, but, according to hat makers, with unsatisfactory results as to color. It is stated that domestic millinery plushes, closely resembling hatter's plush, are extensively made with a black that stands the heat of ironing. Plush manufacturers and hat makers, however, disagree as to the possibility of producing in this country, with the same rate of duty as for other plushes, the quality demanded for men's silk hats.

Imports of hatters' plush come almost exclusively from France, from 1895 through 1909 averaging only \$46,000 in value. The increase, beginning in 1910 and rising to \$170,777 in 1914, and to \$445,070 in 1917, was largely due to the vogue of this material for women's hats and for other purposes. No phraseology so far adopted seems able to prevent imports of hatters' plush nominally designed for men's hats from being used for other purposes. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$57,097 | | \$5,710 | 10 |
| 1919..... | 121,604 | 463,224 | \$3.81 | 46,322 | 10 |
| 1920..... | 84,004 | 641,548 | 7.64 | 64,155 | 10 |
| 1921 (9 months)..... | 147,337 | 539,939 | | 53,993 | 10 |

Exports.—Not recorded.

Suggested changes.—As the variety of uses to which hatters' plush can be put is steadily increasing and as it seems impossible to confine the import to plush actually used in making men's hats, it is suggested that this paragraph be omitted with the intent that it be dutiable with other silk plushes under paragraph 1206.

PARAGRAPH 1454.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1454. All thermostatic bottles, carafes, jugs, and other thermostatic containers, of whatever material composed, constructed with a vacuous or partially vacuous insulating space to maintain the temperature of the contents, whether imported with or without a jacket or casing of metal or other material, shall pay the following rates of duty, namely: Having a capacity of one pint or less, 10 cents each; having a capacity of more than one pint, 20 cents each; and in addition thereto, on all of the foregoing, 30 per centum ad valorem; parts of any of the foregoing not including those above mentioned, 35 per centum ad valorem: *Provided*, That all articles specified in this paragraph when imported shall have the name of the maker and beneath the same

H. B. 7456.

SENATE AMENDMENTS.

the name of the country of origin legibly, indelibly, and conspicuously etched with acid on the glass part, and die stamped on the jacket or casing of metal or other material, in a place that shall not be covered thereafter: *Provided further*, That each label, wrapper, box, or carton in which any of the foregoing are wrapped or packed, when imported, shall have the name of the maker and beneath the same the name of the country of origin legibly, indelibly, and conspicuously stamped or printed thereon.

ACT OF 1909.

[Classable according to component material of chief value. Those of blown glass dutiable under paragraph 98 at 60 per centum ad valorem.]

ACT OF 1913.

[Classable according to component material of chief value. Those of blown glass dutiable under paragraph 84 at 45 per centum ad valorem.]

THERMOS BOTTLES.

Description and uses.—Thermos bottles consist of double glass bottles, the smaller one enclosed within the larger, the two being fused together at the neck, but separated otherwise by a vacuum. Owing to their construction they preserve for a considerable period the temperature of the contents as at the time when placed in the container.

Production.—Official statistics are not available, the value of the product being included with blown and pressed glassware. It was stated at the hearings before the Committee on Ways and Means that the average production in this country would amount to about 6,000,000 bottles, the thermos bottle complete, or 12,000,000 if consideration is given to the fact that they are double bottles.

Imports are not shown in official statistics. Germany, Japan, and England export thermos bottles to the United States.

Exports.—Not shown in official statistics.

Important changes in classification.—This is a new provision.

PARAGRAPH 1455.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1455. Umbrellas, parasols, and sunshades covered with material other than paper or lace, not embroidered or appliquéd, and walking canes, 35 per centum ad valorem; handles and sticks for umbrellas, parasols, or sunshades, finished or unfinished, 80 per centum ad valorem: *Provided*, That no article provided for in this paragraph shall pay a less rate of duty than the rate provided for the component material of chief value.

ACT OF 1909.

PAR. 478. Umbrellas, parasols, and sunshades covered with material other than paper or lace, fifty per centum ad valorem. Sticks for umbrellas, parasols, or sunshades, and walking canes, finished or unfinished, forty per centum ad valorem.

ACT OF 1913.

PAR. 383. Umbrellas, parasols, and sunshades covered with material other than paper or lace, not embroidered or appliquéd, 35 per centum ad valorem. Sticks for umbrellas, parasols, or sunshades, and walking canes, finished or unfinished, 30 per centum ad valorem.

UMBRELLAS AND CANES.

(See Survey N-27.)

Production.—Most umbrella sticks are now made of steel, but those for parasols are usually of wood. For walking canes woods of many varieties are used, mainly reed, rattan, bamboo, and malacca.

In 1914 there were 265 establishments, with a capital of \$9,469,496, about 5,300 employees, wages of \$2,895,783, cost of materials \$8,592,000, and products (umbrellas, parasols, canes, and parts thereof, including toy parasols) valued at \$13,813,353. In 1919 the production of umbrellas and canes in the United States was valued at \$22,199,000.

Imports.—In 1914 imports of umbrellas, parasols, and sunshades covered with material other than paper or lace not embroidered or appliquéd were valued at \$108,493, a part of which, valued at \$69,563, were covered with material composed wholly or in part of silk. "Sticks for umbrellas, parasols, or sunshades" amounted to \$5,844. "Sticks for walking canes" amounted to \$100,576. Umbrellas, parasols, and sunshades are imported principally from Germany, England, Japan, Spain, and France. Later imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

UMBRELLAS, PARASOLS, AND SUNSHADES, COVERED WITH MATERIAL OTHER THAN PAPER OR LACE, NOT EMBROIDERED OR APPLIQUÉD.

| | Number. | Value. | Unit value. | Duty. | Per cent. |
|----------------------|---------|----------|-------------|---------|-----------|
| 1918..... | | \$19,830 | | \$6,940 | 35 |
| 1919..... | 12,236 | 21,145 | \$1.73 | 7,268 | 35 |
| 1920..... | 45,363 | 88,249 | 1.94 | 30,887 | 35 |
| 1921 (9 months)..... | 45,775 | 49,122 | 1.07 | 17,192 | 35 |

STICKS FOR UMBRELLAS, PARASOLS, OR SUNSHADES.

| | | | | | |
|----------------------|--|---------|--|-------|----|
| 1918..... | | \$1,410 | | \$423 | 30 |
| 1919..... | | 10,044 | | 3,013 | 30 |
| 1920..... | | 22,378 | | 6,718 | 30 |
| 1921 (9 months)..... | | 13,587 | | 4,076 | 30 |

STICKS FOR WALKING CANES.

| | | | | | |
|----------------------|-----------|---------|--|---------|----|
| 1918..... | | \$7,726 | | \$2,317 | 30 |
| 1919..... | 1,499,307 | 25,446 | | 7,633 | 30 |
| 1920..... | | 75,005 | | 22,500 | 30 |
| 1921 (9 months)..... | | 33,456 | | | 30 |

TAMBOURED, EMBROIDERED, OR APPLIQUÉD PARASOLS.¹

| | | | | | |
|-----------|-------|---------|--------|-------|----|
| 1918..... | | \$1,616 | | \$970 | 60 |
| 1919..... | 791 | 1,799 | \$2.27 | 1,079 | 60 |
| 1920..... | 1,665 | 5,326 | 3.40 | 3,135 | 60 |

¹ Dutiable under paragraph 358, act of 1913.

In 1920 imports of umbrellas, parasols, and sunshades not embroidered or appliquéd, covered with material composed wholly or in part of silk amounted in value to \$62,207, and covered with other material except paper or lace to \$25,042.

Exports of umbrellas and parasols were valued at \$29,903 in 1914, since which time they have greatly increased, and considerable quantities have been shipped to Cuba, Spain, Mexico, Brazil, England, Canada, and Australia. Later statistics of values of exports in calendar years are as follows: 1918, \$529,013; 1919, \$681,137; 1920, \$746,401; and 1921, nine months, \$220,466.

Important changes in classification.—Walking canes have been classified with umbrellas, parasols, and sunshades, whereas in the 1913 act (par. 383) they are included with "sticks for umbrellas, parasols, or sunshades, and walking canes, finished or unfinished."

Handles, finished or unfinished, for umbrellas, parasols, or sunshades are specifically provided for in the provision relating to sticks.

A proviso has been added to the effect that no article provided for in the paragraph shall pay a less rate of duty than the rate provided for the component material of chief value.

Suggested changes.—Paragraph 1455, H. R. 7456, apparently provides for finished canes only, as the provision relating to "sticks" and "handles" is limited to those for umbrellas, parasols, and sunshades.

The proviso to this paragraph would not only involve difficulties of administration in determining the rate of duty on the component material of chief value in the case of such materials as cotton and silk and mixtures of cotton and silk, but also destructive analysis of coverings.

The separation of walking canes from the provision for handles and sticks for umbrellas, etc., involves administrative difficulties, as they are often imported in small lots and large variety. These difficulties would be avoided by having the same rate of duty on this class of merchandise.

PARAGRAPH 1456.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1456. Waste, not specially provided for, 10 per centum ad valorem.

ACT OF 1909.

PAR. 479. Waste, not specially provided for in this section, ten per centum ad valorem.

PAR. 660. Rags, not otherwise specially provided for in this section [Free].

ACT OF 1913.

PAR. 384. Waste, not specially provided for in this section, 10 per centum ad valorem.

PAR. 586. Rags, not otherwise specially provided for in this section [Free].

WASTE.

(See Survey N-27.)

Description and uses.—Waste refers to remnants and by-products of small value that have not the quality or utility either of the finished product or of the raw material. (223 U. S. 501, of 1912.)

Imports.—Imports classified under waste, n. s. p. f., do not cover all of the waste imported. Fur waste, although dutiable under this paragraph is separately shown as such under imports of furs. Imports of waste not elsewhere specified amounted to \$990,014 in 1914, principally from England, Germany, Japan, France, and Canada. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|-----------------------|-----------|----------|------------------|
| 1918 | \$487,942 | \$48,790 | Per cent. 10 |
| 1919 | 1,403,399 | 140,321 | 10 |
| 1920 | 1,081,457 | 108,146 | 10 |
| 1921 (9 months) | 314,844 | ..... | ..... |

Exports.—None recorded.

PARAGRAPH 1457.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1457. White bleached beeswax,
15 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 506. Beeswax [Free].

PAR. 412. Beeswax [Free].

WHITE BLEACHED BEESWAX.

(See Survey FL-7.)

Description and uses.—Beeswax is secreted by the common bee, *Apis mellifica*, as a product of digestion. It serves the bee with material for building up the honeycombs. (For crude wax, see par. 1676, p. 1461.) White bleached beeswax is produced from the natural crude material by processes of refining and bleaching, the operation requiring special machinery and skilled labor. Manufacturers state that the labor expense is at least one-third of the production cost. The bleached wax is employed in the manufacture of cosmetics and ointments, in the modeling of heads and forms for window and store display, and for similar uses. It is also used, both pure and as a component wax, in the better grades of candles. Beeswax for pharmaceutical products must conform with the specifications of the United States Pharmacopeia.

Production data are not available from official sources.

Imports are combined with those of crude wax (par. 1676, p. 1462). In a brief filed before the Committee on Ways and Means of the House, with reference to white bleached beeswax, it is stated that imports of this article constitutes 50 per cent of the domestic consumption.

Exports are not separately recorded. Those shown under beeswax and probably all of crude wax amounted in 1914 to 96,215 pounds, valued at \$27,292. Later exports by calendar years have been as follows: 1918, 165,382 pounds, valued at \$63,244; 1919, 210,046 pounds, valued at \$63,244; 1920, 632,811 pounds, valued at \$294,592; 1921 (nine months), 80,650 pounds, valued at \$24,608.

Important changes in classification.—This provision is new, the provision on the free list of the act of 1913 (par. 412) being for "beeswax."

PARAGRAPH 1458.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1458. That there shall be levied, collected, and paid on the importation of all raw or unmanufactured articles not enumerated or provided for, a duty of 10 per centum ad valorem, and on all articles manufactured, in whole or in part, not specially provided for, a duty of 20 per centum ad valorem.

ACT OF 1909.

ACT OF 1913.

PAR. 480. That there shall be levied, collected, and paid on the importation of all raw or unmanufactured articles, not enumerated or provided for in this section, a duty of ten per centum ad valorem, and on all articles manufactured, in whole or in part, not provided for in this section, a duty of twenty per centum ad valorem.

PAR. 385. That there shall be levied, collected, and paid on the importation of all raw or unmanufactured articles not enumerated or provided for in this section, a duty of 10 per centum ad valorem, and on all articles manufactured, in whole or in part, not provided for in this section, a duty of 15 per centum ad valorem.

PAR. 7. * * * ammoniacal gas liquor, 10 per centum ad valorem.

PAR. 81. * * * unmanufactured carbon, not specially provided for in this section, 15 per centum ad valorem; * * *

PAR. 285. Istle or tampico, when dressed, dyed, or combed, 20 per centum ad valorem.

PAR. 82. Sumac, ground, three-tenths of one cent per pound.

PAR. 618. Sumac, ground, * * * [Free].

ARTICLES NOT ENUMERATED OR PROVIDED FOR.

(See Survey N-27.)

General.—In any case where an unenumerated article bears no statutory similitude to one that is enumerated the article falls within this paragraph.

Imports in 1914 of unmanufactured articles under this paragraph were valued at \$3,763, of manufactured articles, at \$52,249. Later statistics follow:

| Calendar year. | Value. | Duty. | Ad valorem rate. |
|--|-----------|----------|------------------|
| RAW OR UNMANUFACTURED ARTICLES. | | | |
| 1918..... | \$36,652 | \$3,665 | Per cent. 10 |
| 1919..... | 70,529 | 7,053 | 10 |
| 1920..... | 134,989 | 13,499 | 10 |
| 1921 (9 months)..... | 77,331 | 7,733 | 10 |
| MANUFACTURED ARTICLES. | | | |
| 1918..... | \$88,705 | \$13,306 | ..... |
| 1919..... | 722,865 | 108,480 | ..... |
| 1920..... | 1,274,473 | 191,171 | ..... |
| 1921 (9 months)..... | 786,267 | ..... | ..... |

Suggested changes.—As this is the ultimate catch-all clause, it would naturally follow rather than precede the similitude provision (par. 1459).

PARAGRAPH 1459.

H. E. 7456.

SENATE AMENDMENTS.

PAR. 1459. That each and every imported article, not enumerated in this Act, which is similar, either in material, quality, texture, or the use to which it may be applied, to any article enumerated in this Act as chargeable with duty, shall pay the same rate of duty which is levied on the enumerated article which it most resembles in any of the particulars before mentioned; and if any nonenumerated article equally resembles two or more enumerated articles on which different rates of duty are chargeable, there shall be levied on such nonenumerated article the same rate of duty as is chargeable on the article which it resembles paying the highest rate of duty; and on articles not enumerated, manufactured of two or more materials, the duty shall be assessed at the highest rate at which the same would be chargeable if composed wholly of the component material thereof of chief value; and the words "component material of chief value," wherever used in this Act, shall be held to mean that component material which shall exceed in value any other single component material of the article; and the value of each component material shall be determined by the ascertained value of such material in its condition as found in the article. If two or more rates of duty shall be applicable to any imported article, it shall pay duty at the highest of such rates, but this provision shall not apply to articles on the free list.

ACT OF 1909.

PAR. 481. That each and every imported article, not enumerated in this section, which is similar, either in material, quality, texture, or the use to which it may be applied, to any article enumerated in this section as chargeable with duty, shall pay the same rate of duty which is levied on the enumerated article which it most resembles in any of the particulars before mentioned; and if any nonenumerated article equally resembles two or more enumerated articles on which different rates of duty are chargeable, there shall be levied on such nonenumerated article the same rate of duty as is chargeable on the article which it resembles paying the highest rate of duty; and on articles not enumerated, manufactured of two or more materials, the duty shall be assessed at the highest rate at which the same would be chargeable if composed wholly of the component material thereof of chief value; and the words "component material of chief value," wherever used in this section, shall be held to mean that component material which shall exceed in value any other single component material of the

ACT OF 1913.

PAR. 386. That each and every imported article, not enumerated in this section, which is similar, either in material, quality, texture, or the use to which it may be applied, to any article enumerated in this section as chargeable with duty, shall pay the same rate of duty which is levied on the enumerated article which it most resembles in any of the particulars before mentioned; and if any nonenumerated article equally resembles two or more enumerated articles on which different rates of duty are chargeable, there shall be levied on such nonenumerated article the same rate of duty as is chargeable on the article which it resembles paying the highest rate of duty; and on articles not enumerated, manufactured of two or more materials, the duty shall be assessed at the highest rate at which the same would be chargeable if composed wholly of the component material thereof of chief value; and the words "component material of chief value," wherever used in this section, shall be held to mean that component material which shall exceed in value any other single component material of the

ACT OF 1909.

article; and the value of each component material shall be determined by the ascertained value of such material in its condition as found in the article. If two or more rates of duty shall be applicable to any imported article, it shall pay duty at the highest of such rates.

ACT OF 1913.

article; and the value of each component material shall be determined by the ascertained value of such material in its condition as found in the article. If two or more rates of duty shall be applicable to any imported article, it shall pay duty at the highest of such rates.

ARTICLES NOT ENUMERATED WHICH BEAR A SIMILITUDE TO ENUMERATED ARTICLES.

(See Survey N-27.)

General.—In determining the classification of any article not enumerated in any part of the tariff, the first inquiry is whether it bears a similitude to any enumerated article. The requirement of the clause is whether there be similitude in any one of the four particulars—material, quality, texture, or the use to which the article may be applied. The similitude must be substantial, not referring merely to adaptability to sale as a substitute for an article which it resembles, but referring rather to its employment or to its effect in producing results. Reference to an article in general terms is enumeration within the clause. Where a provision expressly excludes merchandise of a specific description, such merchandise is not subject through the similitude rule to the duty imposed by such enumerating clause upon articles which the excluded merchandise shall resemble. The similitude clause contemplates similarity and not identity between the related articles.

In determining the component of chief value, the value of the several materials shall be determined as of the time when they have reached such a condition that nothing remains to be done upon them by the manufacturer except putting them together to make the complete product. The component material of chief value is the component material exceeding in value any other single component material of the article.

While it is the rule that the component material of chief value is that single component material which exceeds in value any other single component material, Congress makes exceptions to the rule by providing that two or more component materials may be considered together. Such an exception is made in paragraph 256, tariff act of 1913, by the language "cotton or other vegetable fiber and india rubber," which means that, for this purpose, the value of the cotton or the value of the other vegetable fiber is to be added to that of the india rubber. The exception, however, does not extend to the rest of the paragraph so as to make it include articles the component material of chief value of which is cotton and other vegetable fiber, but not cotton or other vegetable fiber. (*Chin v. United States*, 11 Ct. Cust. Appls., —; T. D. 38932 of 1921.)

The value of component materials is to be taken as of the date of exportation and not the value or cost of the materials at the time they were purchased by the manufacturer. (G. A. 8307, T. D. 38191, of 1919.)

The highest-rate rule will be resorted to only in a clear case. (*Woolworth v. United States*, 1 Ct. Cust. Appls., 120, of 1910.)

Important changes in classification.—The clause "but this provision shall not apply to articles on the free list" has been added.

FREE LIST.

H. B. 7456.

SENATE AMENDMENTS.

TITLE II.

SECTION 201. That on and after the day following the passage of this Act, except as otherwise specially provided for in this Act, the articles mentioned in the following paragraphs, when imported into the United States or into any of its possessions (except the Philippine Islands, the Virgin Islands, and the islands of Guam and Tutuila), shall be exempt from duty:

ACT OF 1909.

FREE LIST.

That on and after the day following the passage of this Act, except as otherwise specially provided for in this Act, the articles mentioned in the following paragraphs shall, when imported into the United States or into any of its possessions (except the Philippine Islands and the islands of Guam and Tutuila), be exempt from duty:

ACT OF 1913.

FREE LIST.¹

That on and after the day following the passage of this Act, except as otherwise specially provided for in this Act, the articles mentioned in the following paragraphs shall, when imported into the United States or into any of its possessions (except the Philippine Islands and the islands of Guam and Tutuila), be exempt from duty:

SCHEDULE 15.

PARAGRAPH 1501.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1501. Acids and acid anhydrides: Chromic acid, hydrofluoric acid, hydrochloric or muriatic acid, nitric acid, sulphuric acid or oil of vitriol, and mixtures of nitric and sulphuric acids, valerianic acid, and all anhydrides of the foregoing not specially provided for.

ACT OF 1909.

PAR. 1. Acids: * * * chromic acid, two cents per pound; * * * sulphuric acid or oil of vitriol not specially provided for in this section, one-fourth of one cent per pound; * * *.

PAR. 482. Acids: * * * fluoric, hydrochloric or muriatic, nitric, * * * and valerianic [Free].

PAR. 687. Sulphuric acid which at the temperature of sixty degrees Fahrenheit does not exceed the specific gravity of one and three hundred and eighty one-thousandths, for use in manufacturing superphosphate of lime or artificial manures of any kind, or for any agricultural purposes: *Provided*, That upon all sulphuric acid imported from any country, whether

ACT OF 1913.

PAR. 387. Acids: * * * chromic, hydrofluoric, hydrochloric or muriatic, nitric, * * * sulphuric or oil of vitriol, and valerianic.

[Mixtures of nitric and sulphuric acids covered by the provision for nitric acid in par. 387 of the free list. *Aetna Explosives Co. v. United States*, 9 Ct. Cust. Appls., 298, of 1919.]

¹Supplies for American Red Cross donated abroad exempted from duty by act of Aug. 31, 1918, chap. 165, until one year after end of war.

ACT OF 1909.

ACT OF 1913.

independent or a dependency, which imposes a duty upon sulphuric acid imported into such country from the United States, there shall be levied and collected a duty of one-fourth of one cent per pound.

PAR. 3. * * * chemical compounds, mixtures, and salts, * * *, not specially provided for in this section, twenty-five per centum ad valorem; * * *. [Covering mixtures of nitric and sulphuric acids.]

[No corresponding provision for anhydrides.]

CHROMIC ACID.

(See Survey A-18.)

Description and uses.—The so-called chromic acid of commerce is chromic anhydride or chromium trioxide. It is a strongly acid substance crystallizing in scarlet needles, used in electric batteries, photography, as an oxidizer in analytical and manufacturing chemical operations, in tanning leather, etching copper, bleaching, and for hardening microscopical preparations.

Production.—Chromic acid is produced by treating sodium or potassium dichromate with concentrated sulphuric acid.

Imports in 1914 were 7,211 pounds, valued at \$1,195, all from Germany. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 9,512 | \$1,857 | \$0.19 |
| 1920..... | 1,100 | 90 | .08 |
| 1921 (9 months)..... | 1,040 | 411 | .39 |

Exports.—Statistics not available.

HYDROFLUORIC ACID.

(See Survey FL-1.)

Description and uses.—Commercial hydrofluoric acid is a solution of the pure acid in water. Its principal use is for etching and marking glass. The raw materials used in its manufacture are fluorspar and sulphuric acid, both produced in this country. It must be shipped in bottles of wax or lead. "Fluoric acid" is an obsolete term for hydrofluoric acid.

Production in 1914 by nine establishments was 7,209,248 pounds, of which 5,373,657 pounds were sold for \$325,540. In 1919 (preliminary figures), 5,675,400 pounds, valued at \$440,200 were produced.

Imports have been less than one-tenth of 1 per cent of the domestic production. Before the war they were mostly from Germany. Imports are not recorded since 1918.

Exports.—Statistics not available.

Important changes in classification.—"Fluoric" in paragraph 387, act of 1913, has been omitted as an obsolete term for hydrofluoric acid.

HYDROCHLORIC OR MURIATIC ACID.

(See Survey FL-1.)

Description and uses.—Commercial hydrochloric acid is a solution of varying percentages of hydrogen chloride and water. When pure it is colorless, but the commercial grades usually contain traces of such impurities as ferric chloride, free chlorine, or organic matter, which colors the acid yellow. Impure hydrochloric or commercial acid is often called muriatic acid. The acid is very corrosive, dissolving metallic oxides and many metals forming chlorides. It is on the market in strengths ranging in density from 18° to 22° Baumé. In Europe it is used for the production of chlorine. In the United States it is employed for the production of chlorides of many metals, purifying bonechar, in dyeing and printing cloth, for preparing carbonic acid, in the manufacture of many coal-tar dyes, in pickling iron and steel, in the production of glue, and for many other purposes.

Production.—Hydrochloric acid is manufactured commercially by four processes: (1) In America, by the action of niter cake on common salt (sometimes modified by the addition of sulphuric acid); (2) in Europe, as a by-product from the manufacture of salt cake (Leblanc soda process); (3) as a by-product in the chlorination of organic materials, chiefly of coal-tar origin; and (4) synthetically, by the combination of hydrogen and chlorine from electrolytic cells. The domestic production in 1918 was about 140,000,000 pounds of 100 per cent acid. In 1919 (preliminary figures) production was 294,260,000 pounds (strength not stated), valued at \$4,312,300.

Imports in 1914 were less than one-tenth of 1 per cent of the domestic production. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 3,450,425 | \$31,330 | \$0.01 |
| 1919..... | 4,029,820 | 44,884 | .01 |
| 1920..... | 5,254,348 | 69,748 | .01 |
| 1921 (9 months)..... | 842,700 | 8,648 | .01 |

Exports.—Statistics not available.

NITRIC ACID.

(See Survey FL-1.)

Description and uses.—Nitric acid is a highly corrosive, inorganic acid. In a concentrated form it rapidly destroys organic matter, while in a dilute state it attacks most metals forming metallic salts. It is sold in several standardized strengths expressed in degrees Baumé (specific gravity), which depend entirely upon the relative proportion of acid and water. The color of the commercial acid varies from water white to deep red. Nitric acid is used in the manufacture of nearly all explosives and coal-tar dyes, sulphuric acid (lead chamber process), pickling liquors, pyroxylin plastics, pyrotechnics, imitation leather, rubber substitutes, insecticides, and the salts of many metals.

Production.—It is made commercially by three distinct processes (1) from nitrate of soda and sulphuric acid, (2) by passing electric sparks through air, and (3) by passing ammonia and air over red-hot platinum. The nitrate-sulphuric acid process is the oldest, and is still the chief domestic source of nitric acid. The second and third processes have resulted from the large war demand for the acid and because of insufficient raw materials (chiefly nitrate of soda, which is imported from Chile). The United States produced 78,589 short tons of nitric acid in 1914 and 634,817 short tons of 100 per cent acid in 1918. In 1919 (preliminary figures) production was 19,440 short tons, valued at \$2,976,100.

Imports for the calendar years 1918 and 1920 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------|----------------|-------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 17,444,895 | \$1,254,572 | \$0.07 |
| 1920..... | 47,754 | 4,180 | .09 |

Exports since 1917 (for calendar years), chiefly to Canada, Mexico, and Cuba have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|----------|----------|------------------|
| Quantity (pounds)..... | 39,584,858 | 501,568 | 716,914 | 119,000 |
| Value..... | \$23,231,892 | \$73,006 | \$96,109 | \$18,131 |

Important changes in classification.—Nitric acid is largely used in the form of "mixed acid," consisting of nitric and sulphuric acids. A mixture of 20.16 of sulphuric acid and 72.28 of nitric acid, the remainder water, was held by the Board of General Appraisers to be a mixture within paragraph 5 (G. A. 8235, T. D. 37927, of 1919), but the Court of Customs Appeals held the proper classification to be under paragraph 387 as nitric acid, the sulphuric acid to be treated as a part of the packing of the goods for shipment. (*Aetna Explosives Co. v. United States*, 9 Ct. Cust. Appls., 298, of 1919.) Affirmed in Supreme Court on writ of certiorari.

In view of this judicial construction, a provision for "mixtures of nitric and sulphuric acids" was added. (Reclassification Report, p. 97.)

SULPHURIC ACID.

(See Survey FL-1.)

Description and uses.—Sulphuric acid is the most important single commodity in the chemical industry. The strong acid is a comparatively heavy (about twice the weight of water), oily liquid, practically colorless and odorless. The strong acid exhibits powerful dehydrating properties and is intensely corrosive. Sulphuric acid may be either "chamber-process acid" or "contact-process acid," according to the method of manufacture. The strengths commonly recognized and dealt in commercially are 50, 60, and 66 per cent, monohydrate, and oleum. The chamber process yields impure acid not over 60 per cent in strength, whereas the contact-process acid is pure and concentrated. Sulphuric acid has diversified uses, but by far the greatest is in the

production of commercial fertilizers. During the war large quantities were consumed in the production of explosives.

Production.—Sulphuric acid is made by oxidizing sulphur dioxide to sulphur trioxide and absorbing the fumes or gases in water or weak sulphuric acid. The sulphur dioxide is obtained as a by-product from zinc and copper smelting, or by burning iron pyrites (sulphur ore) or brimstone. The domestic production was about 4,705,000 short tons of 100 per cent acid in 1918 and 2,400,000 short tons in 1914. The large increase in 1918 was caused by the great demand in the manufacture of explosives. The production in 1919 (preliminary figures), on a basis of 62 per cent acid, was 3,296,270 short tons, valued at \$35,638,200.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 11,374,400 | \$176,223 | \$0.01 |
| 1919..... | 14,746,049 | 116,725 | .01 |
| 1920..... | 10,817,784 | 87,979 | .01 |
| 1921 (9 months)..... | 3,784,320 | 38,874 | .01 |

Exports before the war were less than 0.2 per cent of the domestic production. For the calendar years 1918–1921 they have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|------------|------------|------------------|
| Quantity (pounds)..... | 80,204,643 | 21,295,522 | 28,987,342 | 10,071,432 |
| Value..... | \$1,278,027 | \$480,966 | \$738,188 | \$229,853 |

The countries of destination are chiefly Mexico, Argentina, and Cuba.

VALERIANIC ACID.

(See Survey FL-1.)

Description and uses.—Valerianic or valeric acid is an oily liquid with a disagreeable odor. It is obtained by the oxidation of amyl alcohol or by distillation of oil of valerian. It is used medicinally for hysteria and nervousness.

Imports in 1914 were 1,164 pounds, valued at \$755, all from Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 487 | \$1,469 | \$3.02 |
| 1919..... | 240 | 899 | 3.74 |
| 1920..... | 460 | 1,379 | 3.00 |
| 1921 (9 months)..... | 435 | 1,342 | 3.08 |

Exports.—Statistics not available.

ACID ANHYDRIDES.

Important changes in classification.—As the chromic acid of commerce is in the anhydrous form, the proviso "and all anhydrides of the foregoing," has been added. This change will include all the anhydrides of the acids on the free list as well as the acids and will avoid possible conflict with paragraph 1.

PARAGRAPH 1502.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1502. Aconite, aloes, asafetida, cocculus indicus, ipecac, jalap, manna, marshmallow or althea root, leaves and flowers, maté, and pyrethrum or insect flowers, all the foregoing which are natural and uncompounded and are in a crude state, not advanced in value or condition by shredding, grinding, chipping, crushing, or any other process or treatment whatever beyond that essential to proper packing and the prevention of decay or deterioration pending manufacture: *Provided*, That no article containing alcohol shall be admitted free of duty under this paragraph.

ACT OF 1909.

PAR. 483. Aconite [Free].
 PAR. 503. Asafetida [Free].
 PAR. 538. Cocculus indicus [Free].
 PAR. 559. Drugs, * * * not advanced * * * [Free]. [Covered aloes and pyrethrum or insect flowers.]
 PAR. 594. Ipecac [Free].
 PAR. 597. Jalap [Free].
 PAR. 620. Manna [Free].
 PAR. 623. Marshmallow or althea root, leaves or flowers, natural or unmanufactured [Free].
 PAR. 480. * * * unmanufactured articles, not enumerated * * * ten per centum ad valorem, * * *. [Covered maté.]

ACT OF 1913.

PAR. 388. Aconite [Free].
 PAR. 405. Asafetida [Free].
 PAR. 454. Cocculus indicus [Free].
 PAR. 477. Drugs, * * * not advanced * * * [Free]. [Covers aloes and pyrethrum or insect flowers.]
 PAR. 516. Ipecac [Free].
 PAR. 519. Jalap [Free].
 PAR. 541. Manna [Free].
 PAR. 544. Marshmallow or althea root, leaves or flowers, natural or unmanufactured [Free].
 PAR. 552. * * * vegetable substances, crude or unmanufactured, not otherwise specially provided for in this section [Free]. [Covers maté.]

[For discussion, see paragraph 32, p. 92.]

PARAGRAPH 1503.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1503. Agates, unmanufactured.

ACT OF 1909.

PAR. 485. Agates, unmanufactured [Free].

ACT OF 1913.

PAR. 390. Agates, unmanufactured [Free].

AGATES.

(See Survey N-1.)

Description and uses.—Agate is a variety of quartz which is peculiar in that it consists of bands or layers of blended colors. Certain varieties are distinguished, as ribbon agate, fortification agate, moss agate, star agate, zone agate, clouded agate, etc. Most commercial agate is artificially stained, so that stones naturally unattractive come to be valuable for ornamental purposes. Agates are used in rings, cups, beads, boxes, handles of small utensils, burnishers, pestles, mortars, and trivial ornaments, and in delicate mechanisms, such as bearing-surface pivots and knife edges of weighing apparatus.

Production.—Numerous localities yield agates. They are abundant in trap rocks of the Lake Superior region. Wood agate, or agatized wood, is found in Colorado, California, and elsewhere in the West, the famous "silicified forest," known as Chalcedony Park, in Arizona, being most noted. Foreign agates are found mainly in Uruguay and Brazil; these were formerly sent to Germany, where their polishing was an important industry.

Import values of agate from 1907 to 1914 ranged between \$247 in 1912 and \$934 in 1907. Imports wholly disappeared shortly after the outbreak of the World War, because of the blockade of Germany, whence came the principal supply.

Imports for 1920 (calendar year) were 42,235 pounds, valued at \$1,764; for 9 months of 1921, 192,487 pounds, valued at \$12,962.

Exports.—None recorded.

 PARAGRAPH 1504.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1504. Agricultural implements: Plows, tooth or disk harrows, headers, harvesters, reapers, agricultural drills and planters, mowers, hoes, cultivators, thrashing machines, cotton gins, machinery for use in the manufacture of sugar, wagons and carts, and all other agricultural implements of any kind or description, whether specifically mentioned herein or not, whether in whole or in parts, including repair parts.

ACT OF 1909.

ACT OF 1913.

PAR. 476. Plows, tooth and disk harrows, harvesters, reapers, agricultural drills and planters, mowers, hoes, cultivators, thrashing machines, and cotton gins, fifteen per centum ad valorem: *Provided*, That any of the foregoing, when imported from any country, dependency, province, or colony which imposes no tax or duty on like articles imported from the United States, shall be imported free of duty.

PAR. 391. Agricultural implements: Plows, tooth and disk harrows, headers, harvesters, reapers, agricultural drills and planters, mowers, hoes, cultivators, thrashing machines, cotton gins, machinery for use in the manufacture of sugar, wagons and carts, and all other agricultural implements of any kind and description, whether specifically mentioned herein or not, whether in whole or in parts, including repair parts [Free].

AGRICULTURAL IMPLEMENTS AND MACHINES.

(See Survey FL-3.)

Description and uses.—The articles of this paragraph may be classified as (1) agricultural implements, including cotton gins, (2) machinery for use in the manufacture of sugar, and (3) wagons and carts. The first includes implements used in plowing, planting, reaping, and preparing crops for use in their raw form or for manufacture. The cotton gin, as its function is merely to separate the seeds from the cotton fiber and not to convert either into a more highly developed product, is an agricultural appliance similar to a threshing machine. Sugar machinery belongs to a different category, as its purpose is to refine a raw product into one more highly developed. Wagons and carts, even when used in agricultural operations, obviously form a distinct group.

Production.—The United States leads in the manufacture of agricultural implements. In 1914 the total value (exclusive of cotton gins) was \$164,086,835, divided as follows: Plows and cultivators, \$38,662,037; planters and seeders, \$12,188,757; harvesting implements, \$39,581,286; seed separators, \$13,096,289; all other products, including parts for all classes of implements, \$59,121,201; amount received for repair work, \$1,437,265. The output of cotton gins was valued at \$4,901,680, and of sugar-mill machinery at \$1,971,546. Wagons and carts amounted to 533,601, valued at \$34,506,942, of which farm wagons, including carts and trucks numbering 384,663, were valued at \$19,708,423. In 1919 the country's output was as follows:

| | Number. | Value. |
|--|-----------|--------------|
| Plows, harrows, and cultivators..... | 2,634,000 | \$65,329,000 |
| Planters and seeders..... | 495,000 | 17,490,000 |
| Hayrakes and tedders..... | 104,000 | 4,772,000 |
| Mowers and reapers..... | 379,000 | 40,170,000 |
| Other harvesting implements..... | | 9,283,000 |
| Threshers..... | 20,000 | 16,593,000 |
| Other seed separators..... | 57,000 | 5,772,000 |
| All other agricultural implements and parts..... | | 64,106,000 |
| All other products..... | | 68,500,000 |
| Cotton gins..... | | 8,632,000 |
| Sugar-mill machinery..... | | 13,249,000 |

Imports.—Imports are small compared with exports. They consist, however, of a large number of classes and may be grouped as follows:

| | 1918 (last 6 months). | 1919 | 1920 | 1921 (9 months). |
|------------------------------------|-----------------------------|-------------|-------------|---------------------|
| Cotton gins: | | | | |
| Quantity (number)..... | 50 | | 81 | 2 |
| Value..... | \$6,798 | | \$15,589 | \$7,652 |
| Drills and planters: | | | | |
| Quantity (number)..... | 9 | 54 | 134 | 30 |
| Value..... | \$827 | \$5,671 | \$10,873 | \$3,653 |
| Harrows, tooth and disk: | | | | |
| Quantity (number)..... | 12 | 672 | 1,551 | 150 |
| Value..... | \$417 | \$13,062 | \$60,970 | \$6,970 |
| Headers, harvesters, and reapers: | | | | |
| Quantity (number)..... | 23 | 2,067 | 875 | 7 |
| Value..... | \$3,750 | \$444,229 | \$167,610 | \$8,285 |
| Horse rakes: | | | | |
| Quantity (number)..... | 20 | 11 | 33 | 7 |
| Value..... | \$615 | \$298 | \$2,829 | \$155 |
| Mowers: | | | | |
| Quantity (number)..... | 47 | 37 | 1,744 | 22 |
| Value..... | \$2,617 | \$1,631 | \$141,594 | \$790 |
| Plows and cultivators: | | | | |
| Quantity (number)..... | 867 | 3,414 | 12,094 | 1,762 |
| Value..... | \$18,595 | \$174,744 | \$1,166,461 | \$172,982 |
| Sugar machinery: | | | | |
| Value..... | \$10,240 | \$12,224 | \$100,979 | \$87,885 |
| Threshing machines: | | | | |
| Quantity (number)..... | 40 | 1,314 | 1,026 | 143 |
| Value..... | \$14,483 | \$1,274,053 | \$850,375 | \$121,896 |
| Wagons and carts: | | | | |
| Quantity (number)..... | 76 | 94 | 94 | 65 |
| Value..... | \$4,301 | \$5,966 | \$8,614 | \$3,795 |
| All other agricultural implements: | | | | |
| Value..... | \$412,355 | \$1,423,890 | \$3,181,679 | \$1,183,300 |
| Total agricultural implements: | | | | |
| Value..... | \$472,067 | \$3,355,668 | \$5,716,578 | \$1,597,374 |

During the first six months of 1918 there were imported into the United States agricultural implements and parts of the same to the value of \$255,229. After July 1, 1918, the imports of agricultural implements were divided into 11 classes as tabulated. Canada is almost the only source of supply for all classes of agricultural implements except sugar machinery, which comes principally from France, although also from the United Kingdom, Germany, and Sweden.

Exports.—Exports for the calendar years 1918–1921 may be divided into the following classes:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-------------|--------------|--------------|---------------------|
| Cotton gins and parts of: | | | | |
| Quantity (number)..... | 511 | | | |
| Value..... | \$113,317 | \$295,746 | \$433,589 | \$105,139 |
| Planters and seeders..... | \$849,070 | \$693,698 | \$810,679 | \$421,177 |
| Tractors, except steam: | | | | |
| Quantity (number)..... | | | | 2,134 |
| Value..... | | | | \$1,971,848 |
| Parts of tractors except engines..... | | | | \$870,987 |
| Hay rakes and tedders..... | \$562,664 | \$605,427 | \$755,310 | \$436,980 |
| Mowers and reapers..... | \$5,228,407 | \$10,494,723 | \$10,165,670 | \$5,056,616 |
| Plows and cultivators..... | \$8,705,989 | \$10,511,348 | \$13,003,023 | \$5,575,786 |
| Sugar-mill machinery..... | \$9,468,511 | \$13,805,940 | \$22,786,977 | \$14,135,808 |
| Threshers..... | \$2,034,713 | \$1,660,168 | \$3,280,990 | \$5,420,514 |
| Wagons: | | | | |
| Quantity (number)..... | 6,624 | 7,743 | 10,784 | 8,712 |
| Value..... | \$519,787 | \$750,326 | \$1,222,567 | \$841,131 |
| All other agricultural implements..... | \$8,508,818 | \$9,527,727 | \$10,514,829 | \$7,038,455 |
| Parts of agricultural implements..... | \$9,959,503 | \$7,702,408 | \$7,767,137 | \$7,877,326 |

The principal countries of destination are Canada, Argentina, France, Cuba, the Philippine Islands, British India, and the United Kingdom.

PARAGRAPH 1505.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1505. Albumen, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 257. * * * albumen, * * * blood, three cents per pound; * * * PAR. 302. Albumen, not specially provided for in this section [Free].

PAR. 486. Albumen, not specially provided for in this section [Free].

ALBUMEN.

(See Survey G-11.)

Description and uses.—Albumen belongs to the nitrogenous organic substances known as proteins, constituents of both animals and plants. Egg albumen (par. 713) and blood albumen are the common commercial forms. Blood albumen is a by-product of slaughterhouses (large-scale production). Albumen may also be obtained from milk, and there is a so-called "vegetable" albumen. It is used as a mordant in dyeing and calico printing, in the leather industry, in gums and adhesives, as a clarifying agent for the preparation of photographic papers, and in medical foods.

Imports of albumen in 1914 were 382,589 pounds, valued at \$58,175, about 75 per cent coming from Germany. They declined during the war and amounted to only 671 pounds in the fiscal year 1918. Imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|--------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 1,378 | \$858 | \$0.62 |
| 1919..... | 885 | 288 | .33 |
| 1920..... | 44,331 | 24,984 | .56 |
| 1921 (9 months)..... | 8,503 | 3,395 | ..... |

Exports.—Statistics not available.

PARAGRAPH 1506.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1506. Ambergris, castoreum, civet, and musk, grained or in pods.

ACT OF 1909.

ACT OF 1913.

PAR. 489. Ambergris [Free].

PAR. 528. Castor or castoreum [Free].

PAR. 533. Civet, crude [Free].

PAR. 631. Musk, crude, in natural pods [Free].

PAR. 639. Oils: * * * crude and rectified ambergris, * * * [Free].

PAR. 49. Ambergris, * * * musk, grained or in pods, civet, * * * all the foregoing not containing alcohol and not specially provided for in this section. 20 per centum ad valorem.

PAR. 442. Castor or castoreum [Free].

AMBERGRIS.

(See Survey A-14.)

Description, uses, and production.—Ambergris is supposed to be undigested matter present in the intestines of unhealthy whales. This substance is found floating on the sea, especially in the Southern Hemisphere. It is usually found in small fragments, but sometimes in large pieces, weighing 200 pounds. It was used chiefly in perfume manufacture, but its use has largely decreased in recent years, as synthetic substances have become available at a fraction of the cost of the natural article. The supply of ambergris is irregular and uncertain.

Imports since 1918 have been small, the maximum being 19 pounds during the first nine months of 1921.

Exports.—Statistics not available.

Important changes in classification.—Ambergris is dutiable under paragraph 49, act of 1913.

CASTOREUM.

(See Survey FL-2.)

Description and uses.—Castoreum is a product derived from the beaver. It was formerly used as a drug, and is now chiefly employed in the manufacture of perfumes and cosmetics.

Production.—Castoreum is collected in Canada by fur trappers. Supplies are also furnished by Russia, but have greatly declined in recent years.

Imports of castor or castoreum for 1911-1918 averaged 14,085 ounces, valued at \$5,616. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|---------|-------------|
| | Ounces. | | |
| 1918..... | 24,704 | \$7,985 | \$0.32 |
| 1919..... | 39,306 | 11,779 | .30 |
| 1920..... | 7,720 | 2,491 | .32 |
| 1921 (9 months)..... | 6,700 | 1,533 | .22 |

Exports.—Statistics not available.

CIVET.

(See Survey A-14.)

Description and uses.—Civet is a secretion contained in a pouch of the civet cat of Abyssinia. It is a semiliquid yellow substance, becoming brown on exposure to the air. It has a strong odor and is used exclusively for perfumery. Substances which resemble civet are now produced synthetically and are available in liquid and crystalline form.

Imports of civet in 1913 were 11,269 ounces, valued at \$15,557, and were admitted free of duty. In the fiscal year 1918 the imports

were 9,766 ounces, valued at \$11,877, yielding a revenue of \$2,375. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|-----------|----------|-------------|---------|------------------|
| | Ounces. | | | | Per cent. |
| 1918..... | 9,322 | \$11,560 | \$1.24 | \$2,312 | 20 |
| 1919..... | 17,688 | 19,552 | 1.11 | 3,910 | 20 |
| 1920..... | 11,312 | 18,678 | 1.65 | 3,736 | 20 |
| 1921 (9 months)..... | 4,150 | 5,984 | 1.44 | ..... | 20 |

Important changes in classification.—Civet is dutiable under paragraph 49 of the act of 1913.

Suggested changes.—Change comma to a semicolon after "civet" and strike out "and" before "musk" because musk alone of the articles named in paragraph 1506 comes in as grained or in pods.

MUSK.

(See Survey A-14.)

Description and uses.—Musk is a dried secretion from the preputial follicles of the male musk deer. The chief source of supply is Tibet, China. Musk enters commerce in two forms, either in the dried sacs or pods as taken from the deer, or the pods are opened and the musk removed, when it is known as grain musk. An "American musk," the sacs of the common muskrat, have been used as a substitute. Owing to its high price, musk is one of the most frequently adulterated perfume materials. An imitation musk is prepared from coal tar. Musk is of chief value as an ingredient of perfume and is said to add strength and persistency to vegetable essences.

Production.—The musk deer is a small animal found in the mountains and table-lands of Central Asia. The animal is taken for its hide and musk, chiefly the latter. China, which imports musk from Tibet, consumes about half of the world's total output. Shanghai is the principal export market. The value of the 1915 musk crop was \$266,000, and in 1916 there were shipped 25,160 ounces, valued at \$407,000.

Imports.—France has usually been the largest importer of Chinese musk, but in 1915 the United States stood first, taking about one-fourth of the year's product.

The import of crude musk in natural pods in 1913 was 12,994 ounces, valued at \$124,855; in 1918 (fiscal year) it was 5,516 ounces, valued at \$33,970, and yielded a revenue of \$6,704. The import of grain musk in 1913 was valued at \$7,699 and yielded a revenue of \$769; in 1917 it increased to \$63,304 and yielded a revenue of \$12,660; and in 1918 (fiscal year) declined to \$29,246.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|-----------|--------|-------------|-------|------------------|
|----------------|-----------|--------|-------------|-------|------------------|

MUSK, GRAINED.

| | Ounces. | | | | Per cent. |
|----------------------|---------|---------|--------|-------|-----------|
| 1918..... | | \$3,154 | | \$631 | 20 |
| 1919..... | 891 | 5,596 | \$6.28 | 1,119 | 20 |
| 1920..... | 1,465 | 7,382 | 5.04 | 1,476 | 20 |
| 1921 (9 months)..... | 3,686 | 45,066 | 12.29 | | |

MUSK, IN PODS.

| | | | | | |
|----------------------|--------|-----------|---------|----------|----|
| 1918..... | 7,969 | \$136,610 | \$17.14 | \$27,322 | 20 |
| 1919..... | 10,790 | 156,110 | 14.48 | 31,222 | 20 |
| 1920..... | 13,502 | 242,041 | 17.93 | 48,408 | 20 |
| 1921 (9 months)..... | 2,542 | 29,790 | 11.72 | | |

Important changes in classification.—Musk is dutiable under paragraph 49, act of 1913.

PARAGRAPH 1507.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1507. Any animal imported by a citizen of the United States, specially for breeding purposes, shall be admitted free, whether intended to be used by the importer himself or for sale for such purposes, except black or silver foxes: *Provided*, That no such animal shall be admitted free unless pure bred of a recognized breed and duly registered in a book of record recognized by the Secretary of Agriculture for that breed: *Provided further*, That the certificate of such record and pedigree of such animal shall be produced and submitted to the Department of Agriculture, duly authenticated by the proper custodian of such book of record, together with an affidavit of the owner, agent, or importer that the animal imported is the identical animal described in said certificate of record and pedigree. The Secretary of Agriculture may prescribe such regulations as may be required for determining the purity of breeding and the identity of such animal: *And provided further*, That the collectors of customs shall require a certificate from the Department of Agriculture stating that such animal is pure bred of a recognized breed and duly registered in a book of record recognized by the Secretary of Agriculture for that breed.

The Secretary of the Treasury may prescribe such additional regulations as may be required for the strict enforcement of this provision.

Horses, mules, asses, cattle, sheep, and other domestic animals straying across the boundary line into any foreign country, or driven across such boundary line by the owner for temporary pasturage purposes only, together with their offspring,

H. R. 7456.

SENATE AMENDMENTS.

shall be dutiable unless brought back to the United States within eight months, in which case they shall be free of duty, under regulations to be prescribed by the Secretary of the Treasury: *And provided further*, That the provisions of this Act shall apply to all such animals as have been imported and are in quarantine or otherwise in the custody of customs or other officers of the United States at the date of the taking effect of this Act.

ACT OF 1909.

PAR. 492. Any animal imported by a citizen of the United States, specially for breeding purposes shall be admitted free, whether intended to be so used by the importer himself, or for sale for such purpose: *Provided*, That no such animal shall be admitted free unless pure bred of a recognized breed, and duly registered in the book of record established for that breed: *And provided further*, That certificate of such record and of the pedigree of such animal shall be produced and submitted to the customs officer, duly authenticated by the proper custodian of such book of record, together with the affidavit of the owner, agent, or importer that such animal is the identical animal described in said certificate of record and pedigree: *And provided further*, That the Secretary of Agriculture shall determine and certify to the Secretary of the Treasury what are recognized breeds and pure bred animals under the provisions of this paragraph. The Secretary of the Treasury may prescribe such additional regulations as may be required for the strict enforcement of this provision. Cattle, horses, sheep, or other domestic animals straying across the boundary line into any foreign country, or driven across such boundary line by the owner for temporary pasturage purposes only, together with their offspring, may be brought back to the United States within six months free of duty, under regulations to be prescribed by the Secretary of the Treasury: *And provided further*, That the provisions of this Act shall apply to all such animals as have been imported and are in quarantine, or otherwise in the custody of customs or other officers of the United States, at the date of the passage of this Act.

ACT OF 1913.

PAR. 397. Any animal imported by a citizen of the United States, specially for breeding purposes, shall be admitted free, whether intended to be used by the importer himself or for sale for such purposes: *Provided*, That no such animal shall be admitted free unless pure bred of a recognized breed, and duly registered in a book of record recognized by the Secretary of Agriculture for that breed: *And provided further*, That the certificate of such record and pedigree of such animal shall be produced and submitted to the Department of Agriculture, duly authenticated by the proper custodian of such book of record, together with an affidavit of the owner, agent, or importer that the animal imported is the identical animal described in said certificate of record and pedigree. The Secretary of Agriculture may prescribe such regulations as may be required for determining the purity of breeding and the identity of such animal: *And provided further*, That the collectors of customs shall require a certificate from the Department of Agriculture stating that such animal is pure bred of a recognized breed and duly registered in a book of record recognized by the Secretary of Agriculture for that breed.²

The Secretary of the Treasury may prescribe such additional regulations as may be required for the strict enforcement of this provision.

Horses, mules, and asses straying across the boundary line into any foreign country, or driven across such boundary line by the owner for temporary pasturage purposes only, together with their offspring, shall be dutiable unless brought back to the United States within six months, in which case they shall be free of duty, under regulations to be prescribed by the Secretary of the Treasury: *And provided further*, That the provisions of this Act shall apply to all such animals as have been imported and are in quarantine or otherwise in the custody of customs or other officers of the United States at the date of the taking effect of this Act.

² Par. 15 of the emergency tariff act of 1921 reads: "Cattle and sheep and other stock imported for breeding purposes shall be admitted free of duty."

ANIMALS IMPORTED SPECIALLY FOR BREEDING PURPOSES.

Production.—Swine: In 1919, there were 2,050,000 pure-bred swine in the United States, 3.5 per cent of the total number. Over half were in the Middle Western States. The leading breeds were the Duroc Jersey, Poland China, Chester White, and Hampshire. Cattle: Three per cent of the cattle in 1919, or 1,982,000 were pure bred. Somewhat over half were beef breeds, of which the principal ones were the Hereford, Shorthorn, and Aberdeen Angus. The Holstein Friesian and Jersey breeds made up over 80 per cent of the pure-bred dairy cattle. Sheep: Of the total number of sheep, 1.3 per cent were pure bred, the principal breeds being the Shropshire, Rambouillet, Merino, and Hampshire Down. Horses: Less than 1 per cent of the horses on farms are pure bred, the Percheron and the Belgian being the favorite breeds.

Imports.—Statistics previous to 1914 are available as to the number of pure-bred cattle, sheep, and hogs imported, but as paragraph 619 of the act of 1913 provides for the free entry of all domestic live animals suitable for human food, certificates of pure breeding were not required for these animals until May 28, 1921, when the emergency tariff act became effective. In 1913, 2,024 pure-bred cattle—the Guernsey, Jersey, Shorthorn, and Ayrshire being the principal breeds—806 pure-bred sheep, and 29 pure-bred hogs were imported. The year 1913 was an average one for the importation of pure-bred horses before the war, a total of 2,990 entering. Of these, 1,482 were Percherons, 977 Belgian draft horses, and 185 of the Shire breed. In 1913, 576 pure-bred dogs and 24 pure-bred cats were imported.

Imports declined during the war, only 180 pure-bred horses entering in the fiscal year 1918, as compared with 1,210 during 1914. Certificates of pure breeding were issued for 260 animals in 1918 and 1,860 in 1914. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-----------|-----------|-----------|---------------------|
| Horses for breeding purposes: | | | | |
| Number..... | 387 | 123 | 144 | 135 |
| Value..... | \$350,060 | \$210,469 | \$464,554 | \$285,821 |
| Asses and burros for breeding purposes: | | | | |
| Number..... | 21 | 3 | 7 | |
| Value..... | \$1,765 | \$420 | \$140 | |
| Dogs for breeding purposes: | | | | |
| Number..... | 62 | 189 | 387 | 353 |
| Value..... | \$7,167 | \$36,347 | \$57,497 | \$48,134 |
| All other animals for breeding purposes: ¹ | | | | |
| Number..... | | 29 | 167 | 88 |
| Value..... | \$26,557 | \$752 | \$30,176 | \$956 |

¹ Does not include cattle, sheep, and swine for breeding purposes, imports of which after 1913 were not separately reported.

Exports.—Statistics not available.

Important changes in classification.—Black or silver foxes were specifically exempted in order that the proposed specific duty of \$350 per animal should apply to all foxes, including breeding animals, to insure that none but high-grade breeding stock should come in and that American breeds should be thereby improved.

The free-entry period for domestic animals straying or driven across the boundary into a foreign country for temporary pasturage only has been extended from six to eight months.

Suggested changes.—The exception of black or silver foxes in lines 22 and 23, page 174, of H. R. 7456, would come better after "breeding purposes" in line 20. The final provision, carried down from previous acts, may be eliminated as unnecessary.

PARAGRAPH 1508.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1508. Animals brought into the United States temporarily for a period not exceeding six months, for the purpose of breeding, exhibition, or competition for prizes offered by any agricultural, polo, or racing association; but a bond shall be given in accordance with regulations prescribed by the Secretary of the Treasury; also teams of animals, including their harness and tackle, and the wagons or other vehicles actually owned by persons emigrating from foreign countries to the United States with their families, and in actual use for the purpose of such emigration, under such regulations as the Secretary of the Treasury may prescribe; and wild animals and birds intended for exhibition in zoological collections for scientific or educational purposes, and not for sale or profit.

ACT OF 1909.

PAR. 493. Animals brought into the United States temporarily for a period not exceeding six months, for the purpose of breeding, exhibition or competition for prizes offered by any agricultural, polo, or racing association; but a bond shall be given in accordance with regulations prescribed by the Secretary of the Treasury; also teams of animals, including their harness and tackle and the wagons or other vehicles actually owned by persons emigrating from foreign countries to the United States with their families, and in actual use for the purpose of such emigration under such regulations as the Secretary of the Treasury may prescribe; and wild animals intended for exhibition in zoological collections for scientific and educational purposes, and not for sale or profit [Free].

ACT OF 1913.

PAR. 398. Animals brought into the United States temporarily for a period not exceeding six months, for the purpose of breeding, exhibition or competition for prizes offered by any agricultural, polo, or racing association; but a bond shall be given in accordance with regulations prescribed by the Secretary of the Treasury; also teams of animals, including their harness and tackle, and the wagons or other vehicles actually owned by persons emigrating from foreign countries to the United States with their families, and in actual use for the purpose of such emigration under such regulations as the Secretary of the Treasury may prescribe; and wild animals intended for exhibition in zoological collections for scientific and educational purposes, and not for sale or profit [Free].

ANIMALS FOR EXHIBITION, TEAMS OF IMMIGRANTS, ETC.

Imports.—Separate figures are not available for animals imported temporarily for the purpose of breeding, etc.; they are included in the figures for pure-bred animals given in paragraph 1507. Statistics for animals of immigrants show no steady movement of increase

or decrease. The average number of horses during 1914-1918 was 1,157, valued at \$114,238, and the average of animals of all other kinds was 50, valued at \$3,504.

Wild animals intended for exhibition, etc., imported in the fiscal year 1918 were valued at \$7,052, and the average value for 1914-1918 was \$12,783.

Imports for the calendar years, 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|----------|----------|----------|---------------------|
| Teams of immigrants, etc.—Horses: | | | | |
| Number..... | 329 | 819 | 583 | 294 |
| Value..... | \$67,045 | \$86,995 | \$66,049 | \$28,240 |
| Teams of immigrants, etc.—Asses and burros: | | | | |
| Number..... | 13 | 55 | 60 | 35 |
| Value..... | \$1,215 | \$5,580 | \$7,945 | \$3,500 |
| Teams of immigrants, etc.—All other: | | | | |
| Number..... | 24 | 10 | 15 | 4 |
| Value..... | \$3,040 | \$1,680 | \$1,720 | \$400 |
| Wild animals, etc.: | | | | |
| Number..... | | 191 | 256 | 25 |
| Value..... | \$642 | \$1,466 | \$3,466 | \$3,666 |

Important changes in classification.—Birds are added to the provision for zoological collections because of an interpretation restricting "animals" for tariff purposes to quadrupeds.

PARAGRAPH 1509.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1509. Antimony ore and needle or liquated antimony, but only as to the antimony content.

ACT OF 1909.

ACT OF 1913.

PAR. 173. * * * antimony ore, stibnite and matte containing antimony, but not containing more than ten per centum of lead, 1 cent per pound on the antimony contents therein contained: *Provided*, That on all importations of antimony-bearing ores and matte containing antimony the duties shall be estimated at the port of entry, and a bond given in double the amount of such estimated duties for the transportation of the ores by common carriers bonded for the transportation of appraised or unappraised merchandise to properly equipped sampling or smelting establishments, whether designated as bonded warehouses or otherwise. On the arrival of the ores at such establishment, they shall be sampled according to commercial methods under the supervision of government officers, who shall be stationed at such establishment, and who shall submit the samples thus obtained to a government assayer, designated by the Secretary of the Treasury,

PAR. 144. * * * matte containing antimony but not containing more than 10 per centum of lead, 10 per centum ad valorem; * * *

PAR. 396. Antimony ore and stibnite containing antimony, but only as to the antimony content [Free].

ACT OF 1909.

ACT OF 1913.

who shall make a proper assay of the sample, and report the result to the proper customs officers, and the import entry shall be liquidated thereon, except in case of ores that shall be removed to a bonded warehouse to be refined for exportation as provided by law, and the Secretary of the Treasury is authorized to make all necessary regulations to enforce the provisions of this paragraph; * * *

ANTIMONY ORE AND NEEDLE ANTIMONY.

(See Survey C-17.)

Description and uses.—The most important antimony ore is stibnite or antimony sulphide. Other important commercial antimony metals are (1) valentinite or antimony oxide and a related form, senarmonite; (2) antimony ocher; (3) jamesonite or lead antimony sulphide.

Besides the use of antimony ores as raw materials for the metal antimony, commercial antimony products, such as antimony pigments and liquated antimony sulphide, are obtained in the smelting process, the latter used directly in the manufacture of safety matches.

Crude, or needle antimony, is a product obtained by subjecting natural sulphide ore to a red heat, thereby melting (liquating) the valuable mineral, which is drawn away from the valueless constituents. Antimony is used chiefly in alloys, especially type metal, Britannia metal, and babbitt metal. Needle antimony has military uses, is a common source of the oxide and salts of antimony, and is used in safety matches.

The provision in paragraph 396 of the act of 1913 for stibnite containing antimony was declared to describe a natural product called an ore and was held not to include a product derived from an ore by liquation. Liquation was defined as the extraction of a metal from its ore by heating it enough to fuse the metal but not enough to fuse the other contents; this was adjudged a smelting operation. The merchandise there in issue was found to be commercially known as "antimony crude," and was held to be a matte within the meaning of that expression in paragraph 144 of the act of 1913 and dutiable accordingly under paragraph 144 of the act of 1913 rather than exempt from duty under paragraph 396 as antimony ore or stibnite containing antimony. (*Harshaw, Fuller and Goodwin Co. v. United States*, 11 Ct. Cust. Appls., —; T. D. 38634, of 1921.)

Production.—The production of antimony ore was negligible until the industry was stimulated by extraordinarily high prices during the war. Domestic deposits are widely scattered and of doubtful importance. In 1916 the output was estimated at 4,500 tons, and in 1917 at 1,060 tons. On account of the low price of antimony, the domestic production of the ore has, in recent years, practically ceased. China is the leading producer of antimony ore, furnishing fully 60 per cent of the world's supply. The ore, however, is obtained in many other countries.

Needle antimony, like antimony ore, is also imported in varying amounts. During the war a small antimony smelting industry developed, operated almost wholly on imported ore. The annual requirements of antimony prior to the war were roughly 7,000 tons, of which about one-third was supplied by silver lead smelters and the

remainder from imports consisting chiefly of metal. During the war the consumption of antimony increased to about 20,000 tons, of which slightly more than one-third was derived from antimonial lead and antimony metal smelted here. The production of antimonial lead in 1920 amounted to 12,535 short tons, valued at \$1,963,255. The antimony content was 2,033 short tons.

China dominates the antimony situation by its large and cheaply mined deposits. The Chinese companies, together with a few Japanese smelters who also treat a portion of the Chinese ore, contribute approximately 60 per cent of the world's output.

Imports.—Imports of antimony ore in 1914 amounted to 26 gross tons, valued at \$1,245, practically all of which came from China. Imports for more recent years may be divided into two classes, shown as follows:

| Calendar year. | Quantity. | | Value. | Duty. | Ad valorem rate. |
|--|-----------|-----------|-----------|-------|------------------|
| | Tons. | Pounds. | | | |
| ORE AND STIBNITE CONTAINING ANTIMONY. | | | | | |
| 1918..... | 3,003 | 2,849,728 | \$177,731 | | <i>Per cent.</i> |
| 1919..... | 887 | 818,401 | 54,477 | | |
| 1920..... | 1,526 | 1,303,441 | 70,285 | | |
| 1921 (9 months)..... | 190 | 196,107 | 11,682 | | |

ANTIMONY MATTE CONTAINING NOT MORE THAN 10 PER CENT LEAD.

| | | | | | |
|----------------------|--|-----------|-----------|----------|----|
| 1918..... | | 1,666,111 | \$113,258 | \$11, 26 | 10 |
| 1919..... | | 556,418 | 19,202 | 1,920 | 10 |
| 1920..... | | 2,750,147 | 123,902 | 12,300 | 10 |
| 1921 (9 months)..... | | 325,006 | 9,588 | | |

Exports.—Statistics not available.

PARAGRAPH 1510.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1510. Annatto and all extracts of, orchil or orchil liquid, cochineal, cudbear, gambier, litmus prepared or unprepared, saffron and safflower; all of the foregoing not containing alcohol

ACT OF 1909.

ACT OF 1913.

PAR. 494. Annatto, roucou, rocoa, or orleans, and all extracts of [Free].

PAR. 399. Annatto, roucou, rocoa, or orleans, and all extracts of [Free].

PAR. 539. Cochineal [Free].

PAR. 455. Cochineal [Free].

PAR. 550. Cudbear [Free].

PAR. 469. Cudbear [Free].

PAR. 575. Gambier [Free].

PAR. 492. Gambier [Free].

PAR. 615. Litmus, prepared or not prepared [Free].

PAR. 536. Litmus, prepared or not prepared [Free].

PAR. 642. Orchil, or orchil liquid [Free].

PAR. 564. Orchil, or orchil liquid [Free].

PAR. 663. Saffron and safflower, and extract of,³ and saffron cake [Free].

PAR. 31. * * * saffron and safflower, and extract of,³ and saffron cake, 10 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

PAR. 694. Terra japonica [Free].

PAR. 630. Terra japonica [Free].

³ Extracts of safflower and saffron are not articles of commerce.

ANNATTO.

(See Survey A-8.)

Description and uses.—Annatto (arnotto, rocoa, orleans, roucou) is a natural dye derived from the seed shells of the *Bixa arellana*, a shrub native to Central America, Guiana, East and West Indies, and India; it is also extensively cultivated. Bixin, the important coloring constituent, is soluble in alkaline solutions, partly soluble in water and more soluble in alcohol. Annatto is used as a yellow coloring matter for oils, butter, cheese, and margarine.

Annatto is imported in a partly dried condition in rolls wrapped in Banana leaves weighing 2 to 3 pounds and in cakes weighing 8 to 10 pounds.

Imports during 1910–1918 averaged 629,217 pounds, valued at \$47,163. The following table shows the imports since 1917:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 655,250 | \$68,961 | \$0.10 |
| 1919..... | 356,432 | 19,972 | .06 |
| 1920..... | 1,004,129 | 40,108 | .04 |
| 1921 (9 months)..... | 470,580 | 16,498 | .04 |

ARCHIL AND CUDBEAR.

(See Survey A-8.)

Description and uses.—Archil and cudbear are purple dyes derived by chemical processing from certain lichens (genus, *Rocella*) growing in the Cape of Good Hope, Norway, Sweden, South America, Azores, Cape Verde Islands, and other islands. The red or blue dye is sold in several forms (1) as an archil paste; (2) cudbear, which is archil paste dried and ground fine; (3) archil extract; (4) as "archil liquor" of several degrees of strength.

The lichens contain colorless phenols (orcein being the most important), which by oxidation in alkaline solution give the coloring matter. Archil and cudbear are used for bluish reds on wool, silk, and feathers.

Production.—The shredded lichen is digested with ammonia solution and air at about 60° F. for several days, yielding first blue archil paste, or, if the action is continued, red archil paste. After removal of the lichens from the paste it is known as "archil liquor." By drying and grinding the archil paste prepared from *Lecanora tartarea*, a purple powder results known as "cudbear."

Imports of archil for 1910–1918 averaged \$52,439. Imports of cudbear, 1910–1918 averaged 35,082 pounds, valued at \$3,602. Imports since 1917 are given in the table on the following page.

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| ARCHIL. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | | \$66,284 | |
| 1919..... | 372,606 | 42,065 | \$0.11 |
| 1920..... | 547,384 | 58,682 | .11 |
| 1921 (9 months)..... | 516,194 | 77,664 | .15 |
| CUDBEAR. | | | |
| 1918..... | 54,447 | \$9,411 | \$0.17 |
| 1919..... | 33,391 | 4,150 | .12 |
| 1920..... | 50,170 | 8,463 | .17 |
| 1921 (9 months)..... | 19,470 | 2,890 | |

COCHINEAL.

(See Survey A-8.)

Description and uses.—Cochineal is the only important dye of animal origin. It consists of the dried body of the female insect *Coccus cacti*, which is native to Mexico, Guatemala, the Canary Islands, and Java. The difference in the color of the dye (gray or black) is caused by variation in the method of killing the insect. The ground insects are used directly as a dye which has a small application for scarlets and reds on textiles and for scarlet color lakes. As it is nonpoisonous, it is used as a food dye.

Production.—The insects are collected alive and killed by exposure to the dry heat of an oven or by being inclosed in a bag and immersed in boiling water or steam. After being killed the insects are dried and ground to a powder. There is no domestic supply.

Imports of cochineal for 1910-1918 averaged 205,738 pounds, valued at \$82,222, and came chiefly from Mexico. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 237,402 | \$116,660 | \$0.49 |
| 1919..... | 116,014 | 52,029 | .45 |
| 1920..... | 202,808 | 81,979 | .40 |
| 1921 (9 months)..... | 19,393 | 5,086 | .26 |

CUDBEAR.

(See Archil, p. 1236.)

GAMBIER.

(See Survey A-8.)

Description and uses.—Gambier (yellow cutch, cubical cutch, cube gambier, and, formerly, terra japonica) is the solid extract prepared from the leaves, shoots, and twigs of the Indian shrub *Uncaria gambier*; it is native to the East Indies, Cochin-China, eastern Asia, and is grown in Malacca, Bintang, and Singapore. It contains from 30 to 40 per cent tannin and a coloring matter, and is used both in

tanning and dyeing. It appears in the market as "block gambier" (of 200 pounds each) and "cubed gambier," about three-fourths of an inch in diameter. The liquid extract prepared from the imported block contains 25 per cent tannin.

Production of gambier extract in 1914 was 704,763 pounds, valued at \$26,400; in 1919 (preliminary figures) 1,006,000 pounds, valued at \$87,200. These figures must represent imported solid extract, dissolved and sold as liquid extract, as gambier is not native to the United States.

Imports of gambier for 1910-1918 averaged 16,187,035 pounds, valued at \$880,129. Imports since 1917 are shown below:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 8,755,270 | \$949,971 | \$0.11 |
| 1919..... | 4,744,851 | 432,499 | .09 |
| 1920..... | 10,095,325 | 806,583 | .08 |
| 1921 (9 months)..... | 4,132,306 | 172,187 | .04 |

LITMUS.

(See Survey A-8.)

Description and uses.—Litmus, a coloring matter closely related to archil, is obtained chiefly from the lichens *Lecanora tinctoria*, *L. orinca*, and *Rocella tinctoria*, which occur abundantly in Scandinavia and the French Pyrenees. The commercial product consists of calcium carbonate or sulphate mixed with the coloring matter and pressed into cubes. It is used in chemical laboratories as an indicator in determining the acidity and alkalinity of solutions. It has had application as wine vinegar color.

Production.—Litmus is prepared by fermenting the lichens in the presence of ammonium or potassium carbonate, and mixing the coloring matter obtained with lime or gypsum. There is no domestic production.

Imports of litmus for 1910-1918 averaged \$252. Imports since 1917 are shown below:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 4,252 | \$3,407 | \$0.80 |
| 1919..... | 1,587 | 1,479 | .93 |
| 1920..... | 6,490 | 4,169 | .64 |
| 1921 (9 months)..... | 593 | 420 | .71 |

SAFFRON.

(See Survey A-8.)

Description and uses.—Saffron or saffron valencia consists of the dried petals of a plant (*Crocus sativus*) native to Asia. It contains an aromatic oil known as saffron oil and a yellow and a red

coloring matter. It is cultivated in Spain, France, and Austria. For convenience in shipment it is sometimes pressed into cakes known commercially as "saffron cakes," or sold loose as "hay saffron." Saffron is used to color and flavor foods, especially pastries, and in medicine. An imported article known as "American saffron" is really safflower (see *infra.*). It has been successfully grown in the United States, but was unprofitable on account of high labor cost.

Production.—No domestic production.

Imports.—The average annual import of saffron and safflower during 1913-1918 was valued at \$83,952 and yielded a revenue of \$8,395. Imports since 1917 are shown below:

| Calendar year. | Quantity. | Value. | Duty. | Unit value. | Ad valorem rate. |
|----------------------|----------------|----------|---------|-------------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$70,032 | \$7,003 | | 10 |
| 1919..... | 23,663 | 106,951 | 10,696 | \$4.52 | 10 |
| 1920..... | 21,664 | 127,579 | 12,758 | 5.89 | 10 |
| 1921 (9 months)..... | 22,622 | 42,914 | | 1.90 | |

Important changes in classification.—Saffron and safflower and extracts of saffron and safflower and saffron cake are dutiable under paragraph 31 of the act of 1913. The words "and extract of, and saffron cake," have been omitted from H. R. 7456; the extracts are not articles of commerce and saffron cake is the form in which saffron is usually imported.

Suggested changes.—It is suggested that the words "in any form" be inserted after the word "safflower," so as to include saffron and safflower in any form and remove any doubt as to the inclusion of the extract of either saffron or safflower if it should be imported and of saffron cake.

SAFFLOWER.

(See Survey A-8.)

Description and uses.—Safflower, known as American saffron or false saffron, is the name given to the dried flowers of a thistlelike plant (*Carthamus tinctorius*) native to southern Asia, but cultivated in Europe, China, India, Persia, Egypt, Mexico, and South America. It contains, besides two unimportant yellow coloring matters, a small amount of a red color called carthamin, the only constituent of value. An extract of carthamin is sold as a thin aqueous paste or a dried powder and is called safflower extract, or safflower carmine. Roasted cobalt ores and other cobalt pigments, sometimes called safflower, should not be confused with the vegetable color. Safflower is a weak dye of no importance in textile dyeing. It is used as a red color for cosmetics, toilet articles, artists' colors, artificial flowers, and medicine.

Imports are combined with saffron, *supra.*

Important changes in classification.—Safflower is dutiable under paragraph 31, act of 1913. See also saffron, *supra.*

PARAGRAPH 1511.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1511. Antitoxins, vaccines, viruses, serums, and bacterins, used for therapeutic purposes.

ACT OF 1909.

ACT OF 1913.

PAR. 704. Vaccine virus [Free].
[No corresponding provision for the other commodities.]

PAR. 400. Antitoxins, vaccine virus, and all other serums derived from animals and used for therapeutic purposes [Free].

ANTITOXINS, VACCINES, VIRUSES, SERUMS, AND BACTERINS.

(See Survey FI-2.)

Description and uses.—The sale and propagation of the biological products, antitoxins, vaccine virus, serums, etc., are controlled by the Public Health Service. They are defined in the act of July 1, 1902, as follows: (1) A virus is a product containing the minute living cause of an infectious disease. (2) A serum is the product obtained from the blood of an animal by removing the clot or clot compounds and the blood cells. (3) An antitoxin is a product containing the soluble substance in the serum or other body fluid of an immunized animal which specifically neutralizes the toxin against which the animal is immune. The use of vaccines began with Jenner's discovery in 1796, that the vaccine from cowpox conferred immunity against smallpox. Other important products are diphtheria antitoxin, antityphoid vaccine, and antianthrax, antidysenteric, antitetanus, antipneumonia, anticholera, and antirabic serums.

Production.—There were 98 manufacturers of biological products in 1914, with an output valued at \$6,223,475. In 1919 (preliminary figures) there were 94 plants with an output valued at \$15,876,400.

Imports.—Before the war Germany, France, England, and Switzerland supplied the bulk of imports, in 1914 valued at \$19,019, and decreasing to \$6,009 in the fiscal year 1918. Imports since 1917 were valued at \$5,732, \$6,982, \$10,097, and \$3,027 in the calendar years 1918, 1919, 1920, and in the first nine months of 1921, respectively.

Exports.—Statistics not available.

Important changes in classification.—Bacterins have been mentioned specifically for the first time.

PARAGRAPH 1512.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1512. Arrowroot in its natural state and not manufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 496. Arrowroot in its natural state and not manufactured [Free].

PAR. 402. Arrowroot in its natural state and not manufactured [Free].

ARROWROOT.

(See Survey G-33.)

Description and uses.—Arrowroot is a tuberous plant, which belongs to the family maranta. It yields a fine, easily digested starch, which is used in the bakery trade for pie filling and biscuits, and elsewhere for ice-cream powders, food for infants and invalids, and in the preparation of pharmaceuticals. It is also used in the textile industry for finishing.

Production.—No true arrowroot is produced in this country. A product called Florida arrowroot is produced in the Everglades region of Florida. It is the pith of the stem of the wild sago palm plant generally known as Coonti. In 1919 the annual production of the Florida arrowroot starch was about 850,000 pounds. The true arrowroot tubers are sometimes imported and the starch manufactured from them.

Imports of crude arrowroot in 1914 were 8,615 pounds, valued at \$316. Considerable refined arrowroot starch is imported, amounting in 1914 to 179,056 pounds, valued at \$20,041, of which 106,392 pounds, valued at \$6,377, were of the St. Vincent variety (British West Indies). Statistics for the calendar years 1918-1921 follow:

| Crude arrowroot. | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|----------|----------|------------------|
| Quantity (pounds)..... | 49,392 | 840,600 | 745,142 | 2,540 |
| Value..... | \$10,184 | \$33,699 | \$50,516 | \$368 |

PARAGRAPH 1513.

H. R. 7486.

SENATE AMENDMENTS.

PAR. 1513. Sulphide of arsenic.

ACT OF 1909.

ACT OF 1913.

PAR. 497. Arsenic and sulphide of arsenic, or orpiment [Free].

PAR. 403. Arsenic and sulphide of arsenic, or orpiment [Free].

SULPHIDE OF ARSENIC.

(See Survey FL-6.)

Description and uses.—The chief ores of arsenic are the two sulphides, orpiment (yellow sulphide) and realgar (red sulphide). Orpiment is used in dyeing to reduce indigo, and in leather manufacture for removing the hair from skins. Realgar is used as a pigment, and for making a white (Bengal) fire used as a signal light.

Production.—The production of sulphide of arsenic is included under that of white arsenic (par. 1).

Imports of "arsenic, and sulphide of, or orpiment" were 4,148,928 pounds, valued at \$169,614 in 1914. Considerable yearly variation is shown. Prior to 1914 England, Germany, and Canada supplied most of the imports; since then, Mexico and Canada. Imports consist

chiefly of white arsenic. Imports since 1917, chiefly from Japan, Germany, and Canada, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 9,683,738 | \$840,600 | \$0.09 |
| 1919..... | 4,302,355 | 316,687 | .07 |
| 1920..... | 8,100,089 | 684,016 | .08 |
| 1921 (9 months)..... | 5,447,196 | 455,019 | .08 |

In the classification of imports arsenic and sulphide of, or orpiment, have been confused with arsenious acid or white arsenic (par. 1). Therefore the figures for the one should be considered in conjunction with the other.

Exports of domestic arsenic are not stated. Imported arsenic and sulphide of arsenic, or orpiment, were reexported from the United States in 1918 to the amount of 193,600 pounds, valued at \$27,840.

Important changes in classification.—The provision for “arsenic and sulphide of arsenic, or orpiment,” in the act of 1913 (par. 403), has been changed to “sulphide of arsenic.”

Suggested changes.—Metallic arsenic should be specially provided for in a paragraph following 1509, if exempt from duty, or in a paragraph following 376, if dutiable. It is not the same as, but is manufactured from, white arsenic or arsenious acid, which is provided for in paragraph 1.

PARAGRAPH 1514.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1514. Articles the growth, produce, or manufacture of the United States, when returned after having been exported, without having been advanced in value or improved in condition by any process of manufacture or other means if imported by or for the account of the person who exported them from the United States; steel boxes, casks, barrels, carboys, bags, and other containers or coverings of American manufacture exported filled with American products, or exported empty and returned filled with foreign products, including shooks and staves when returned as barrels or boxes; also quicksilver flasks or bottles, iron or steel drums of either domestic or foreign manufacture, used for the shipment of acids, or other chemicals, which shall have been actually exported from the United States; but proof of the identity of such articles shall be made, under general regulations to be prescribed by the Secretary of the Treasury, but the exemption of bags from duty shall apply only to such domestic bags as may be imported by the exporter thereof, and if any such articles are subject to internal-revenue tax at the

H. R. 7456.

SENATE AMENDMENTS.

time of exportation, such tax shall be proved to have been paid before exportation and not refunded; photographic dry plates and films of American manufacture (except moving-picture films), exposed abroad, whether developed or not, and photographic films light struck or otherwise damaged, or worn out, so as to be unsuitable for any other purpose than the recovery of the constituent materials, provided the basic films are of American manufacture, but proof of the identity of such articles shall be made under general regulations to be prescribed by the Secretary of the Treasury; articles exported from the United States for repairs may be returned upon payment of a duty upon the value of the repairs at the rate at which the article itself would be subject if imported, under conditions and regulations to be prescribed by the Secretary of the Treasury: *Provided*, That this paragraph shall not apply to any article upon which an allowance of drawback has been made, the reimportation of which is hereby prohibited except upon payment of duties equal to the drawbacks allowed; or to any article manufactured in bonded warehouse and exported under any provision of law: *Provided further*, That when manufactured tobacco which has been exported without payment of internal-revenue tax shall be reimported it shall be retained in the custody of the collector of customs until internal-revenue stamps in payment of the legal duties shall be placed thereon: *And provided further*, That the provisions of this paragraph shall not apply to animals made dutiable under the provisions of paragraph 1507.

ACT OF 1909.

ACT OF 1913.

PAR. 500. Articles the growth, produce, or manufacture of the United States, not including animals, when returned after having been exported, without having been advanced in value or improved in condition by any process of manufacture or other means; casks, barrels, carboys, bags, and other containers or coverings of American manufacture exported filled with American products, or exported empty and returned filled with foreign products, including shooks and staves when returned as barrels or boxes; also quicksilver flasks or bottles, iron or steel drums used for the shipment of acids, of either domestic or foreign manufacture, which shall have been actually exported from the United States; but proof of the identity of such articles shall be made, under general regulations to be prescribed by the Secretary of the Treasury, but the exemption of bags from duty

404. Articles the growth, produce, or manufacture of the United States, when returned after having been exported, without having been advanced in value or improved in condition by any process of manufacture or other means; steel boxes, casks, barrels, carboys, bags, and other containers or coverings of American manufacture exported filled with American products, or exported empty and returned filled with foreign products, including shooks and staves when returned as barrels or boxes; also quicksilver flasks or bottles, iron or steel drums of either domestic or foreign manufacture, used for the shipment of acids, or other chemicals, which shall have been actually exported from the United States; but proof of the identity of such articles shall be made, under general regulations to be prescribed by the Secretary of the Treasury, but the exemption of bags from

ACT OF 1909.

shall apply only to such domestic bags as may be imported by the exporter thereof, and if any such articles are subject to internal-revenue tax at the time of exportation, such tax shall be proved to have been paid before exportation and not refunded; photographic dry plates or films of American manufacture (except moving-picture films), exposed abroad, whether developed or not, and films from moving-picture machines, light struck or otherwise damaged, or worn out, so as to be unsuitable for any other purpose than the recovery of the constituent materials, provided the basic films are of American manufacture, but proof of the identity of such articles shall be made under general regulations to be prescribed by the Secretary of the Treasury: *Provided*, That this paragraph shall not apply to any article upon which an allowance of drawback has been made, the reimportation of which is hereby prohibited except upon payment of duties equal to the drawbacks allowed; or to any article manufactured in bonded warehouse and exported under any provision of law: *And provided further*, That when manufactured tobacco which has been exported without payment of internal-revenue tax shall be reimported it shall be retained in the custody of the collector of customs until internal-revenue stamps in payment of the legal duties shall be placed thereon.

[Amended by the act of July 27, 1911 (T. D. 31784), by striking out the words "not including animals" and adding the following proviso:

And provided further, That cattle, horses, sheep, and other domestic animals straying across the boundary line into any foreign country or driven across such boundary line by the owners for temporary pasturage purposes only, together with their offspring, shall be dutiable, unless brought back to the United States within six months, under regulations to be prescribed by the Secretary of the Treasury, in accordance with the provisions of paragraph 492.]

ACT OF 1913.

duty shall apply only to such domestic bags as may be imported by the exporter thereof, and if any such articles are subject to internal-revenue tax at the time of exportation, such tax shall be proved to have been paid before exportation and not refunded; photographic dry plates or films of American manufacture (except moving-picture films), exposed abroad, whether developed or not, and films from moving-picture machines, light struck or otherwise damaged, or worn out, so as to be unsuitable for any other purpose than the recovery of the constituent materials, provided the basic films are of American manufacture, but proof of the identity of such articles shall be made under general regulations to be prescribed by the Secretary of the Treasury; articles exported from the United States for repairs may be returned upon payment of a duty upon the value of the repairs at the rate at which the article itself would be subject if imported under conditions and regulations to be prescribed by the Secretary of the Treasury: *Provided*, That this paragraph shall not apply to any article upon which an allowance of drawback has been made, the reimportation of which is hereby prohibited except upon payment of duties equal to the drawbacks allowed; or to any article manufactured in bonded warehouse and exported under any provision of law: *And provided further*, That when manufactured tobacco which has been exported without payment of internal-revenue tax shall be reimported it shall be retained in the custody of the collector of customs until internal-revenue stamps in payment of the legal duties shall be placed thereon: *And provided further*, That the provisions of this paragraph shall not apply to animals made dutiable under the provisions of paragraph 397 [Free].

ARTICLES RETURNED AFTER EXPORT.

Imports of returned articles in 1914 were valued at \$17,612,711, and for later calendar years as follows: 1918, \$22,771,874; 1919, \$44,779,370; 1920, \$96,797,484; 1921 (9 months), \$47,626,104. About 50 per cent of these returned articles are from Canada, with large amounts also from England, France, and Belgium. To some extent there are imports from practically all countries.

Important changes in classification.—The requirement in lines 10 and 11, page 177, of H. R. 7456, that the importer must also have been the exporter, is new.

PARAGRAPH 1515.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1515. Asbestos, unmanufactured, asbestos crudes, fibers, stucco, and sand, or refuse containing not more than 15 per centum of foreign matter.

ACT OF 1909.

ACT OF 1913.

PAR. 501. Asbestos, unmanufactured [Free].

PAR. 406. Asbestos, unmanufactured [Free].

ASBESTOS.

(See Survey N-20.)

Description and uses.—The term "asbestos," as commonly used, includes half a dozen minerals all having a well-developed fibrous structure but differing in chemical composition and in some physical characteristics. The most important of these minerals commercially is chrysotile, or serpentine asbestos. About 95 per cent of the asbestos used in manufacturing is chrysotile which commands a better price than the other fibrous minerals on the market. Amphibole asbestos is generally found in shorter fibers and its special use is in chemical laboratories and works where resistance to the action of acid is demanded. Crocidolite, or blue asbestos, is a special variety of amphibole asbestos differing from the others in appearance and in that it is more fusible, whereas an important property of other forms of asbestos is that they all resist even very high temperatures.

The fundamental property of any asbestos mineral that distinguishes it from all other minerals is that it is separable into fibers similar in many respects to cotton, wool, and other articles of vegetable or animal origin. The use depends on the length and fineness of the fiber, on its resistance to the action of heat and chemicals, and on its insulating value as a nonconductor of heat and electricity. Suitable asbestos of high grade is spun or woven into ropes and fabrics for safety curtains, mats, mattresses, upholstering, firemen's suits and gloves. Much high-grade asbestos is employed for friction facings in brakes and for packings. Low-grade asbestos is utilized for numerous purposes, which may be classed in three groups—building, insulating, and miscellaneous.

Asbestos is employed in building in many ways: In mixtures with cement to make fireproof shingles or slates; with Portland cement to make a protective surface on metal sheathing; in the form of asbestos paper for weather and sound proofing and also for fire-protection purposes. It is used widely for fireproof plaster, for floor tiling and in the manufacture of paints. Asbestos lumber and millboard are employed for many structural purposes.

Some of the many miscellaneous uses are for boiler and steam pipe coverings, fire brick, acid filters, lead-fume collectors, stove mats, cooking-utensil linings, etc.

"Asbestic," which consists merely of roughly ground serpentine residues, or very finely ground asbestos, commonly called "floats," is suitable for the manufacture of plaster cement, fireproof brick, and similar articles.

"Unmanufactured" asbestos as it comes on the market has been separated from adhering rock and consists of fibers graded according to length. The longer fibers that can be picked out by hand are sold as "crude." Crude asbestos is divided into (1) a high-class material with fibers over three-quarters of an inch long, used for the best grades of materials, and (2) fibers shorter than three-quarters inch but suitable for spinning and weaving. The remaining rock is sent to the mill and mechanically crushed and separated into three grades of "mill stock," according to the length of fiber. Mill stock is rarely suitable for weaving but can be made into pipe coverings, insulating materials, shingles, lumber, paper, and other articles.

Production.—Asbestos is mined in the United States, chiefly in five States—Arizona, California, Georgia, Maryland, and Oregon. Georgia has for many years been the largest producer of asbestos in the United States, although the more important product has come from Arizona. The latter is high grade, containing a large proportion of spinning fiber, and much of the fiber, because of its freedom from iron, is superior for electrical and some other purposes to most of the asbestos found in other countries. The Georgia fiber is valuable only for paints, cements, coverings, and similar articles, and can not be used in spinning.

Canada produces over 85 per cent of the world's total supply of asbestos. In normal times Russia is the second largest in order of production. During the last few years South Africa, including Rhodesia and the Union of South Africa, has produced increasing amounts annually, exceeding, it is believed, the output of Russia since 1916.

Asbestos, unmanufactured—Production in United States.

| Year. | Short tons. | Value. | Year. | Short tons. | Value. |
|-----------|-------------|----------|-------------------------|-------------|-----------|
| 1914..... | 1,247 | \$18,965 | 1918..... | 1,002 | \$124,687 |
| 1915..... | 1,731 | 76,852 | 1919..... | 1,361 | 251,265 |
| 1916..... | 1,479 | 448,214 | 1920 ¹ | 1,710 | 1,154,000 |
| 1917..... | 1,683 | 506,056 | | | |

¹ Estimated.

Asbestos, unmanufactured—Production in principal foreign countries, in short tons.

| Country. | 1916 | 1917 | 1918 | 1919 |
|----------------------------|--------------------|------------------|--------------------|--------------------|
| Canada..... | 133,439 | 135,502 | 141,465 | 153,069 |
| Russia..... | ¹ 9,030 | | ¹ 6,614 | |
| Union of South Africa..... | 4,656 | 6,219 | 3,674 | 3,933 |
| Rhodesia..... | 6,158 | 9,563 | 8,574 | 9,740 |
| Australia..... | (²) | (²) | (²) | 2,005 |
| Cyprus..... | (²) | (²) | (²) | ³ 1,491 |
| India..... | (²) | (²) | (²) | 435 |
| Italy..... | 90 | 94 | 88 | |
| Total..... | 153,373 | 151,378 | 160,415 | |

¹ Estimated.

² Statistics not available.

³ Exports.

Imports.—In 1914 imports of unmanufactured asbestos were 76,524 tons, valued at \$1,678,736, practically all from Canada. Statistics for the calendar years 1918–1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 122,946 | 120,777 | 146,005 | 43,330 |
| Value..... | \$6,337,608 | \$7,366,685 | \$9,120,283 | \$2,201,970 |

Imports are chiefly from Canada, British South Africa, Portuguese Africa, and England.

Exports for the calendar years 1918–1921 are as follows:

| | 1914 | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|---------|----------|-----------|-----------|------------------|
| Quantity (tons)..... | 109 | 622 | 999 | 549 | 401 |
| Value..... | \$5,050 | \$51,063 | \$157,416 | \$141,071 | \$90,587 |

Exports go chiefly to Italy, Germany, Japan, and France.

Important changes in classification.—All the paragraph after “un-manufactured” is new.

Suggested changes.—There is doubt whether the limitation of 15 per centum of foreign matter relates only to the refuse or includes other forms of asbestos. If the intention is to restrict it to refuse, the word “or” should be changed to “and”; if it is intended to relate back to the beginning of the paragraph, the word “and” before and the comma after “sand” should be stricken out, a comma inserted after “refuse,” and “or” changed to “and”; if it is intended to apply to sand and refuse, the comma after “sand” should be stricken out and the “or” changed to “and.”

PARAGRAPH 1516.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1516. Azides, fulminates, fulminating powder, and other like articles not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 434. Fulminates, fulminating powders, and like articles suitable for miners' use, twenty per centum ad valorem; all other not specially provided for in this section, thirty per centum ad valorem.

PAR. 490. Fulminates, fulminating powder, and other like articles not specially provided for in this section [Free].

AZIDES, FULMINATES, AND FULMINATING POWDERS.

(See Survey FL-18.)

Description and uses.—Fulminates, metallic salts of fulminic acid, are violent explosives. The chief commercial product is fulminate of mercury, although fulminate of silver is of some importance. Commercial mercury fulminate is a gray or brown sandlike powder, used as a detonator for high explosives, and to some extent in percussion caps and primers to ignite gunpowder and other low explosives. Fulminate of silver is extremely sensitive to shock when dry, and may be exploded by rubbing when in a moist state. It is, therefore, too sensitive for use as an ignitor or detonator, but is used in small and safe quantities in toy fireworks.

"Unmanufactured" asbestos as it comes on the market has been separated from adhering rock and consists of fibers graded according to length. The longer fibers that can be picked out by hand are sold as "crude." Crude asbestos is divided into (1) a high-class material with fibers over three-quarters of an inch long, used for the best grades of materials, and (2) fibers shorter than three-quarters inch but suitable for spinning and weaving. The remaining rock is sent to the mill and mechanically crushed and separated into three grades of "mill stock," according to the length of fiber. Mill stock is rarely suitable for weaving but can be made into pipe coverings, insulating materials, shingles, lumber, paper, and other articles.

Production.—Asbestos is mined in the United States, chiefly in five States—Arizona, California, Georgia, Maryland, and Oregon. Georgia has for many years been the largest producer of asbestos in the United States, although the more important product has come from Arizona. The latter is high grade, containing a large proportion of spinning fiber, and much of the fiber, because of its freedom from iron, is superior for electrical and some other purposes to most of the asbestos found in other countries. The Georgia fiber is valuable only for paints, cements, coverings, and similar articles, and can not be used in spinning.

Canada produces over 85 per cent of the world's total supply of asbestos. In normal times Russia is the second largest in order of production. During the last few years South Africa, including Rhodesia and the Union of South Africa, has produced increasing amounts annually, exceeding, it is believed, the output of Russia since 1916.

Asbestos, unmanufactured—Production in United States.

| Year. | Short tons. | Value. | Year. | Short tons. | Value. |
|-----------|-------------|----------|-------------------------|-------------|-----------|
| 1914..... | 1,247 | \$18,965 | 1918..... | 1,002 | \$124,687 |
| 1915..... | 1,731 | 76,952 | 1919..... | 1,361 | 251,265 |
| 1916..... | 1,479 | 448,214 | 1920 ¹ | 1,710 | 1,154,000 |
| 1917..... | 1,683 | 506,056 | | | |

¹ Estimated.

Asbestos, unmanufactured—Production in principal foreign countries, in short tons.

| Country. | 1916 | 1917 | 1918 | 1919 |
|----------------------------|------------------|------------------|------------------|---------|
| Canada..... | 133,439 | 135,502 | 141,465 | 153,069 |
| Russia..... | 9,030 | | 16,614 | |
| Union of South Africa..... | 4,656 | 6,219 | 3,674 | 3,933 |
| Rhodesia..... | 6,158 | 9,563 | 8,574 | 9,740 |
| Australia..... | (²) | (²) | (²) | 2,005 |
| Cyprus..... | (²) | (²) | (²) | 1,491 |
| India..... | (²) | (²) | (²) | 135 |
| Italy..... | 90 | 94 | 88 | |
| Total..... | 153,373 | 151,378 | 160,415 | |

¹ Estimated.

² Statistics not available.

³ Exports.

Imports.—In 1914 imports of unmanufactured asbestos were 76,524 tons, valued at \$1,678,736, practically all from Canada. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 122,943 | 120,777 | 140,605 | 43,830 |
| Value..... | \$6,337,068 | \$7,309,865 | \$9,120,263 | \$2,201,970 |

Imports are chiefly from Canada, British South Africa, Portuguese Africa, and England.

Exports for the calendar years 1918-1921 are as follows:

| | 1914 | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|---------|----------|-----------|-----------|------------------|
| Quantity (tons)..... | 109 | 622 | 909 | 549 | 401 |
| Value..... | \$5,050 | \$51,053 | \$157,416 | \$141,071 | \$99,567 |

Exports go chiefly to Italy, Germany, Japan, and France.

Important changes in classification.—All the paragraph after “un-manufactured” is new.

Suggested changes.—There is doubt whether the limitation of 15 per centum of foreign matter relates only to the refuse or includes other forms of asbestos. If the intention is to restrict it to refuse, the word “or” should be changed to “and”; if it is intended to relate back to the beginning of the paragraph, the word “and” before and the comma after “sand” should be stricken out, a comma inserted after “refuse,” and “or” changed to “and”; if it is intended to apply to sand and refuse, the comma after “sand” should be stricken out and the “or” changed to “and.”

PARAGRAPH 1516.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1516. Azides, fulminates, fulminating powder, and other like articles not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 434. Fulminates, fulminating powders, and like articles suitable for miners' use, twenty per centum ad valorem; all other not specially provided for in this section, thirty per centum ad valorem.

PAR. 490. Fulminates, fulminating powder, and other like articles not specially provided for in this section [Free].

AZIDES, FULMINATES, AND FULMINATING POWDERS.

(See Survey FI-18.)

Description and uses.—Fulminates, metallic salts of fulminic acid, are violent explosives. The chief commercial product is fulminate of mercury, although fulminate of silver is of some importance. Commercial mercury fulminate is a gray or brown sandlike powder, used as a detonator for high explosives, and to some extent in percussion caps and primers to ignite gunpowder and other low explosives. Fulminate of silver is extremely sensitive to shock when dry, and may be exploded by rubbing when in a moist state. It is, therefore, too sensitive for use as an ignitor or detonator, but is used in small and safe quantities in toy fireworks.

Lead azide is an important detonator. It is more stable than mercury fulminate. It is generally used with tetryl and trinitrotoluene.

Production.—Mercury fulminate is manufactured from purified metallic mercury, nitric acid, and alcohol. The product is purified by washing with water. Statistics are not available.

Imports of fulminates and fulminating powders suitable for miners' use from 1910 to 1917 ranged from \$226,352 in 1910 to \$21,961 in 1912. Since then imports have been negligible. Imports of other fulminates, fulminating powders, and like articles from 1910 to 1914 were negligible, and from 1915 to 1917 they were between \$110,000 and \$230,000. Statistics for the latter follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$247,940 | |
| 1919..... | 7,340 | 15,705 | \$2.14 |
| 1920..... | 207,298 | 479,418 | 2.31 |
| 1921 (9 months)..... | 18,600 | 37,200 | 2.00 |

Exports.—Statistics not available.

Important changes in classification.—Azides are specifically provided for.

PARAGRAPH 1517.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1517. Bagging for cotton, gunny cloth, and similar fabrics, suitable for covering cotton, composed of single yarns made of jute, jute butts, seg, Russian seg, New Zealand tow, Norwegian tow, aloe, mill waste, cotton tares, or other material not bleached, dyed, colored, stained, painted, or printed, not exceeding sixteen threads to the square inch, counting the warp and filling, and weighing not less than fifteen ounces per square yard; and waste of any of the foregoing articles suitable for the manufacture of paper.

ACT OF 1909.

ACT OF 1913.

PAR. 355. Bagging for cotton, gunny cloth, and similar fabrics, suitable for covering cotton, composed of single yarns made of jute, jute butts, or hemp, not bleached, dyed, colored, stained, painted, or printed, not exceeding sixteen threads to the square inch, counting the warp and filling, and weighing not less than fifteen ounces per square yard, six-tenths of one cent per square yard.

PAR. 644. * * * and waste bagging, and all other waste not specially provided for in this section, including * * * old gunny bags, used chiefly for paper-making [Free].

PAR. 408. Bagging for cotton, gunny cloth, and similar fabrics, suitable for covering cotton, composed of single yarns made of jute, jute butts, seg, Russian seg, New Zealand tow, Norwegian tow, aloe, mill waste, cotton tares, or other material not bleached, dyed, colored, stained, painted, or printed, not exceeding sixteen threads to the square inch, counting the warp and filling, and weighing not less than fifteen ounces per square yard; * * * and waste of any of the above articles suitable for the manufacture of paper [Free].

BAGGING FOR COVERING RAW COTTON.

(See Survey J-7.)

Description and uses.—Cotton bagging is the coarse, loosely woven jute fabric used for covering raw cotton. The best domestic grades are made of yarn spun from jute butts—the ends of the fiber laid aside as being too coarse for the manufacture of burlap. Six yards of the bagging are customarily used in wrapping the bale as it comes from the gin. For export, compress labels—patches of greater weight than ordinary bagging—are added at the time of compression to equal the purchaser's allowance for tare, making an average of seven yards of material for wrapping the average bale. The bulk of the domestic production consists of grades made from jute butts mixed with various proportions of old bagging, cordage, and mill waste; has about two warp threads and two weft threads per square inch; and weighs two pounds to the linear yard of 45-inch width. Second-hand bagging, re woven bagging, and wrapping made by cutting twilled sugar bags, constitute an increasing proportion of the total consumption.

Production of new and re woven bagging, which fluctuates yearly with the size of the cotton crop, amounted in 1919 to 75,205,000 square yards valued at \$3,554,000. The cotton crop, including linters, in 1920 was 13,879,916 bales of 500 pounds each, requiring 97,000,000 yards of material. The proportion of the various types of bagging used in covering the 1920 crop was: New bagging, 48 per cent; imported bagging, 6 per cent; sugar bag cloth, 10 per cent; re woven bagging, 8 per cent; and second-hand bagging, 28 per cent. Consumption of new bagging in 1920 was much lower than usual; this is accounted for by the increased consumption of bagging for wrapping which had been used before. All but two or three per cent of the new bagging produced in the United States is the output of two companies, who are the world's leading manufacturers of bagging.

Imports are small as compared with domestic production. During the fiscal years 1911-1920 they averaged 7,196,000 square yards, valued at \$542,952. In the calendar year 1920 they amounted to 7,261,904 square yards valued at \$730,719. Prior to 1918 the United Kingdom supplied from 60 to 80 per cent annually of imports, and British India practically all the remainder. Since 1918 British India has supplied about two-thirds of the imports. Imports of bagging from India have not been large in the past, because the demand for burlap and sacking bags has claimed the full Indian capacity. They are likely to increase in the near future, however, as the two domestic companies which dominate the American bagging trade are each constructing a mill in India, and each has already moved abroad a part of the machinery formerly operated in this country. Indian bagging is employed for covering the best grades of American cotton and is superior to the bulk of domestic bagging, since it is made entirely from jute butts, and is woven with more threads to the square inch. Bagging imported from the United Kingdom consists to a large extent of second-hand bagging and of old

bagging suitable only for re-manufacture. Imports for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------------|-----------|-----------|-----------|------------------|
| Quantity (square yards)..... | 1,028,717 | 8,799,488 | 7,261,904 | 3,125,722 |
| Value..... | \$146,288 | \$948,234 | \$730,719 | \$284,822 |

Exports are not recorded.

Suggested changes.—This paragraph embraces certain textile materials and concludes with a provision for the waste of any of those materials suitable for the manufacture of paper. As provision is made in paragraph 1641 for waste bagging, and for old gunny cloth and old gunny bags used chiefly for paper making, the words in lines 15 and 16, page 179 of H. R. 7456, "and waste of any of the foregoing articles suitable for the manufacture of paper" should be omitted.

PARAGRAPH 1518.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1518. Barks, cinchona or other, from which quinine may be extracted.

ACT OF 1909.

ACT OF 1913.

PAR. 505. Barks, cinchona or other from which quinine may be extracted [Free].

PAR. 410. Barks, cinchona or other, from which quinine may be extracted [Free].

CINCHONA AND OTHER QUININE BARKS.

(See Survey FI-2.)

Description, uses, and production.—Cinchona bark, from a tropical tree, is used in making quinine and other alkaloids, and also as a crude drug. Its medicinal uses are those of quinine (see par. 1639); the crude bark has considerable vogue in proprietary preparations. Several commercial varieties exist. Barks, other than cinchona, from which quinine may be extracted were formerly of some importance in commerce, but are now rare. Cinchona trees are native to South America, notably Peru, Bolivia, Ecuador, and Colombia, formerly the only commercial sources of the drug. But owing to extensive collection of the wild plant, wasteful methods, insufficient planting, and cultivation on a large scale in Java, those countries now supply only negligible amounts of the drug. War scarcity has renewed interest in South American cinchona, and new supplies of considerable importance are reported to be awaiting exploitation. Cinchona of modern commerce comes almost wholly from Java, where its cultivation is extensive and is fostered by governmental aid. Various commercial grades from different species of cinchona trees are known, the alkaloidal content having been considerably increased by plant breeding and seed selection. Java formerly exported chiefly the crude bark, but has recently developed quinine factories, and exportations of crude quinine now tend to exceed that of cinchona bark. The industry is controlled by an association of planters and producers through commercial agreements with manufacturers and importers.

Considerable plantations of cinchona also exist in India, the product being manufactured into alkaloids by Government factories. Indian supplies are almost wholly consumed within that country or handled by the British Government. Recent experimental cultivation of cinchona in the Philippines is reported as promising satisfactory future results.

Imports of cinchona bark averaged 3,441,991 pounds, valued at \$290,909 for 1909-1913, and 3,447,367 pounds, valued at \$653,837 for 1914-1918. The Netherlands, having control of the island of Java, the principal source of supply, furnish approximately 99 per cent of the imports.

Imports since 1917, chiefly from the Netherlands, England, and the Dutch East Indies, are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 3,366,508 | \$760,777 | \$0.23 |
| 1919..... | 5,981,293 | 1,075,748 | .18 |
| 1920..... | 4,067,746 | 1,526,130 | .38 |
| 1921 (9 months)..... | 1,015,557 | 330,502 | .32 |

PARAGRAPH 1519.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1519. Bells, broken, and bell metal, broken and fit only to be remanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 508. Bells, broken, and bell metal broken and fit only to be remanufactured [Free].

PAR. 413. Bells, broken, and bell metal broken and fit only to be remanufactured [Free].

BELL METAL.

(See Survey C-19.)

Description and uses.—The constituents of bell metal are copper and tin, the tin averaging about 20 per cent, but varying according to the size, tone, volume, and impulse desired. Radical changes have taken place in the kinds of metals used and in the variety of bells manufactured. Among other materials commonly used are amalgam, iron, steel, smoke brass, smoke glass, silver, and silver-plated metal.

Production.—No accurate statistics are available covering only the material mentioned in the paragraph. However, the domestic production of bells in 1914 was valued at \$970,000, and in 1919 at \$985,000.

Imports in the fiscal year 1918 amounted to \$1,689, and for the calendar years 1918-1921 were as follows:

| Bell metal. | 1918 | 1919 | 1920 |
|------------------------|---------|---------|----------|
| Quantity (pounds)..... | | 49,304 | 101,149 |
| Value..... | \$1,485 | \$4,830 | \$18,984 |

Exports.—None recorded.

PARAGRAPH 1520.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1520. Bibles, comprising the books of the Old or New Testament, or both, bound or unbound.

ACT OF 1909.

[No corresponding provision.]

ACT OF 1913.

PAR. 414. Bibles, comprising the books of the Old or New Testament, or both, bound or unbound [Free].

BIBLES.

Description and uses.—The term Bible is sufficiently familiar to make unnecessary any lengthy statement relating to description and uses. As usually understood, it comprises 39 books of the Old Testament, and 13 books of the New Testament, constituting the canon, to which are sometimes added certain Apocryphal books both of the Old and New Testaments.

Production.—The American Bible Society gives the production of Bibles and Testaments in 1912-13 as 2,203,265 volumes.

Imports of Bibles in 1914 were valued at \$135,218. The value of imports in the calendar years 1918-1921 has been as follows: 1918, \$259,305; 1919, \$263,073; 1920, \$345,968; 1921 (nine months), \$226,776.

Exports.—Not segregated.

PARAGRAPH 1521.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1521. All binding twine manufactured from New Zealand hemp, manila, istle or Tampico fiber, sisal grass, or sunn, or a mixture of any two or more of them, of single ply and measuring not exceeding seven hundred and fifty feet to the pound.

ACT OF 1909.

PAR. 507. Binding twine: All binding twine manufactured from New Zealand hemp, manila, istle or Tampico fiber, sisal grass, or sunn, or a mixture of any two or more of them, of single ply and measuring not exceeding six hundred feet to the pound [Free]: *Provided*, That articles mentioned in this paragraph, if imported from a country which lays an import duty on like articles imported from the United States, shall be subject to a duty of one-half of one cent per pound.

ACT OF 1913.

PAR. 415. All binding twine manufactured from New Zealand hemp, manila, istle or Tampico fiber, sisal grass, or sunn, or a mixture of any two or more of them, of single ply and measuring not exceeding seven hundred and fifty feet to the pound [Free].

BINDING TWINE.

Description and uses.—Binding twine is used in the harvesting of wheat and various other cereals. Although manila, New Zealand hemp, istle, sunn, and sisal can be used, an overwhelming portion of binding twine is normally made from Mexican sisal or henequen, the

bulk of which is produced in Yucatan and has been marketed, in the past, under the control of an association of henequen producers known as the Comision del Reguladora del Mercado de Henequen. In the fall of 1919, however, this company was liquidated by order of the Mexican Government. Virtually all the manufacturing of binder twine is by machinery. The long, slender sisal leaf is cleaned by automatic scrapers, and the fiber is extracted mechanically and gill-spun directly from the sliver by a special machine.

Production.—The world's annual consumption of binder twine is over 150,000 tons, about 90 per cent of which is manufactured here and in Canada. Of the domestic output, about 55 per cent is produced by one company, 25 per cent by another, and the remainder by smaller companies and State penitentiaries. Domestic production, not including that of penitentiaries, amounted to 319,236,000 pounds in 1914 and 238,795,000 pounds in 1919. The value of the production in the same years was \$24,195,000 and \$46,256,000, respectively. About 5 per cent of the total in 1914 and 1919 consisted of twine made from manila. Domestic consumption averages 250,000,000 pounds a year.

Imports, as compared with domestic production, consumption, and exportation, are small, ranging normally from 4,000,000 to 10,000,000 pounds annually, that is, from 2 to 3 per cent of the annual production and about 10 per cent of exports. In 1920 imports were twice as large as usual and exports about half their customary size. Canada supplies practically all the imports. The imports of binder twine for the calendar years 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|-------------|-------------|-----------------|
| Quantity (pounds)..... | 10,476,259 | 12,709,592 | 17,045,728 | 4,431,096 |
| Value..... | \$2,308,231 | \$2,696,416 | \$3,143,825 | \$768,254 |

Exports of binder twine in 1914 were 109,418,420 pounds, valued at \$9,426,625; these went chiefly to Canada (34,585,860 pounds), Argentina (13,632,648 pounds—a low year), Russia (29,740,158 pounds), the United Kingdom (7,553,877 pounds), and France (6,979,224 pounds). Canada, with two-thirds of the total, and Argentina, with one-eighth, were the leading consumers of American binder twine in 1920. Exports in the calendar years 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|--------------|--------------|-------------|-----------------|
| Quantity (pounds)..... | 98,311,229 | 68,764,147 | 55,182,843 | 55,232,802 |
| Value..... | \$22,136,268 | \$13,383,847 | \$8,366,699 | \$8,049,783 |

Suggested changes.—Binding twine is usually made from sisal or henequen; manila is the next most important material. The provision with additions and omission of unnecessary words might accordingly be changed to read:

Binding twine manufactured from sisal, henequen, manila, New Zealand hemp, istle, sunn, or other vegetable fiber, or a mixture of any two or more of them, of single ply and measuring not exceeding seven hundred and fifty feet to the pound.

PARAGRAPH 1522.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1522. Bread: *Provided*, That no article shall be exempted from duty as bread unless yeast was the leavening substance used in its preparation.

ACT OF 1909.

ACT OF 1913.

PAR. 244. * * * bread, * * * twenty per centum ad valorem; * * *. [Free].

PAR. 417. * * * bread, * * * [Free].

BREAD.

Description and uses.—This paragraph provides for ordinary commercial bread.

Production.—In the census year 1919 the production of bread and bakery products was valued at \$1,406,145,000.

Imports are not separately stated. They are largely from Canada.

Exports are not separately stated.

Important changes in classification.—The limitation in the proviso is new and is designed to allow free entry of ordinary commercial bread, but not of other baked articles (see par. 734) which enter into an extensive foreign commerce.

PARAGRAPH 1523.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1523. Bismuth.

ACT OF 1909.

ACT OF 1913.

PAR. 511. Bismuth [Free].

PAR. 418. Bismuth [Free].

BISMUTH.

(See Survey FL-6.)

Description and uses.—Bismuth, one of the minor metals, is soft, reddish-white, and highly crystalline. It is a component of many easily fusible alloys which are used in manufacturing automatic fire sprinklers, electric fuses, and solders. Since it expands on solidifying from the molten state, it is used in some form of type and in metal bearings. The principal uses of bismuth, however, are in certain medicines and to some extent in the manufacture of cosmetics.

Production is about 300,000 pounds annually, practically all as a by-product from the smelting of lead, copper, gold, and silver ores in Utah. Bolivia produces most of the bismuth of the world; some ore is also produced in Australia and Tasmania, which is mostly refined in Great Britain. Considerable bismuth ore has been produced in conjunction with tungsten in China which promises to be of increasing importance.

Imports of bismuth were 133,190 pounds, valued at \$241,448 in 1914. Imports come chiefly from Great Britain, but since 1915 some bismuth metal has come from South America, and still more recently China has become a principal source of supply. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|----------|-----------|---------------------|
| Quantity (pounds)..... | 116,999 | 57,607 | 72,771 | 77,915 |
| Value..... | \$344,292 | \$55,179 | \$161,877 | \$90,949 |

Exports.—None recorded.

PARAGRAPH 1524.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1524. Fish sounds, crude, dried or salted for preservation only, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 512. * * * fish sounds, crude, dried or salted for preservation only, and unmanufactured, not specially provided for in this section [Free].

PAR. 419. * * * fish sounds, crude, dried or salted for preservation only, and unmanufactured, not specially provided for in this section [Free].

FISH SOUNDS, CRUDE.

(See Survey A-9.)

Description and uses.—Fish sounds, or the swimming bladders of fish, are used to manufacture isinglass. These are usually obtained from the sturgeon (par. 39).

Imports of crude fish sounds for 1908-1918 averaged 384,990 pounds, valued at \$97,519. Imports since 1917, chiefly from Canada, England, and Hongkong, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 232,804 | \$56,890 | \$0.24 |
| 1919..... | 112,385 | 16,160 | .14 |
| 1920..... | 126,219 | 28,365 | .22 |
| 1921 (9 months)..... | 18,694 | 5,983 | .32 |

Exports.—Statistics not available.

Important changes in classification.—The words "and unmanufactured" are omitted as unnecessary.

PARAGRAPH 1525.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1525. Blood, dried, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 257. * * * dried blood, when soluble, one and one-half cents per pound.

PAR. 420. Blood, dried, not specially provided for in this section [Free].

PAR. 513. Blood, dried, not specially provided for in this section [Free].

DRIED BLOOD.

(See Survey FL-5.)

Description and uses.—Dried blood is used chiefly for its nitrogen content in the manufacture of fertilizers. This slaughterhouse product enters commerce on the basis of its ammonia content.

Production of dried blood, chiefly in the meat-packing industry, was about 40,000 tons in 1914. Figures for 1919 are not available.

Import values of dried blood decreased from \$446,698 in 1911 to \$80,145 in 1913. The value was \$391,816 in 1914 and \$196,600 in 1916. Argentina has provided the principal foreign supply.

Imports since 1917, chiefly from Argentina, Uruguay, and Australia, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$638,670 | ..... |
| 1919..... | 11,004,248 | 379,754 | \$0.03 |
| 1920..... | 14,525,791 | 575,455 | .04 |
| 1921 (9 months)..... | 4,690,427 | 141,968 | .03 |

Exports.—Statistics not available.

PARAGRAPH 1526.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1526. Bolting cloths composed of silk, imported expressly for milling purposes, and so permanently marked as not to be available for any other use.

ACT OF 1909.

ACT OF 1913.

PAR. 514. Bolting cloths composed of silk, imported expressly for milling purposes, and so permanently marked as not to be available for any other use [Free].

PAR. 422. Bolting cloths composed of silk, imported expressly for milling purposes, and so permanently marked as not to be available for any other use. * * * [Free].

BOLTING CLOTHS.

(See Survey L-3.)

Description and use.—Silk bolting cloth is a strong, fine, gauze-woven silk fabric used for sifting flour or other finely pulverized materials. For fine sifting it is absolutely necessary. Flour mills use 75 per cent of the bolting cloth, and kindred industries, or those extracting grit from some chemicals, the remainder.

Production.—Silk bolting cloth is not produced in the United States. It is successfully made only on hand looms, and in Europe its manufacture is a household industry. Switzerland is the chief source of this article.

Imports normally average about \$250,000 in value. In 1914 they were \$266,338. The record value of imports in 1918 was due partly to higher prices and partly to advance purchases looking to a long-continued war. Later statistics for calendar years are shown as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-------------|-----------|-----------|---------------------|
| Quantity (yards)..... | | 150,886 | 228,780 | 123,797 |
| Value..... | \$1,119,543 | \$589,621 | \$868,832 | \$384,563 |

PARAGRAPH 1527.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1527. Bones: Crude, steamed, or ground; bone dust, bone meal, and bone ash.

ACT OF 1909.

ACT OF 1913.

PAR. 463. Manufactures of bone, * * * thirty-five per centum ad valorem; * * *.

PAR. 515. Bones, crude, or not burned, calcined, ground, steamed, or otherwise manufactured, and bone dust or animal carbon, and bone ash, fit only for fertilizing purposes [Free].

PAR. 423. Bones, crude, * * * ground, steamed, * * * and bone dust or animal carbon, bone meal, and bone ash [Free].

BONES, BONE DUST, BONE MEAL, AND BONE ASH.

(See Survey FL-5.)

Description and uses.—Bones contain from 35 to 50 per cent of phosphate of lime and from 4 to 4½ per cent of nitrogen and are valuable as a fertilizer. They yield glue, gelatin, and grease when treated with steam or boiled with water. When highly heated away from the air, bone oil and other volatile products are obtained, and bone char, which is used for decolorizing liquids, especially sirups, remains. When burned in the air, bone ash (principally phosphate of lime) is obtained, and used directly as a fertilizer, in assaying, in china manufacture, and as a source of phosphorus. Bone dust and bone meal as fertilizers are obtained by grinding bones which have had most of the fat extracted.

Production of ground bone in 1914 was 25,139 tons, valued at \$593,226; of raw bones (fertilizer), 64,590 tons, valued at \$1,603,353; of steamed bone fertilizer, 55,067 tons, valued at \$1,178,959. Figures for 1919 are not available.

Imports of bone dust, bone ash, and bone meal in 1914 were 41,450 long tons, valued at \$1,034,636. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|---|----------------|-----------|-------------|
| BONES, CRUDE, BURNED, CALCINED, GROUND, OR STEAMED. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | | \$486,824 | |
| 1919..... | 47,996,545 | 707,720 | \$0.01 |
| 1920..... | 169,564,367 | 2,835,349 | .02 |
| 1921 (9 months)..... | 43,667,343 | 674,891 | .02 |
| BONE DUST OR ANIMAL CARBON, BONE ASH, AND BONE MEAL. | | | |
| | <i>Tons.</i> | | |
| 1918..... | 7,098 | \$153,349 | \$30.08 |
| 1919..... | 6,948 | 182,785 | 30.73 |
| 1920..... | 17,793 | 908,130 | 51.04 |
| 1921 (9 months)..... | 15,607 | 623,864 | 39.97 |

Exports.—Statistics not available.

Important changes in classification.—The words “burned, calcined,” modifying bones (par. 423, act of 1913), were dropped in Committee of the Whole House because of possible conflict with bone black or bone char, paragraph 66.

PARAGRAPH 1528.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1528. Books, engravings, photographs, etchings, bound or unbound, maps and charts imported by authority or for the use of the United States or for the use of the Library of Congress.

ACT OF 1909.

ACT OF 1913.

PAR. 516. Books, engravings, photographs, etchings, bound or unbound, maps and charts imported by authority or for the use of the United States or for the use of the Library of Congress [Free].

PAR. 424. Books, engravings, photographs, etchings, bound or unbound, maps and charts imported by authority or for the use of the United States or for the use of the Library of Congress [Free].

BOOKS, ETC., IMPORTED BY AUTHORITY, ETC.

Description and uses.—The items mentioned in paragraph 1528 are all of a character to be dutiable under paragraph 1310 and become free of duty only because they are to be put to the specific uses mentioned in paragraph 1528.

Imports in 1914 were valued at \$20,698. The values of imports in the calendar years 1918–1921 have been as follows: 1918, \$34,122; 1919, \$63,171; 1920, \$79,472; 1921 (nine months), \$12,699.

PARAGRAPH 1529.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1529. Hydrographic charts and publications issued for their subscribers or exchanges by scientific or literary associations and academies, and publications of individuals for gratuitous private circulation, not advertising matter, and public documents issued by foreign Governments.

ACT OF 1909.

ACT OF 1913.

PAR. 517. * * * hydrographic charts, and publications issued for their subscribers or exchanges by scientific and literary associations or academies, or publications of individuals for gratuitous private circulation, and public documents issued by foreign governments [Free].

PAR. 425. * * * hydrographic charts, and publications issued for their subscribers or exchanges by scientific and literary associations or academies, or publications of individuals for gratuitous private circulation, not advertising matter, and public documents issued by foreign governments [Free].

HYDROGRAPHIC CHARTS, ETC., ISSUED BY SCIENTIFIC ASSOCIATIONS, ETC.

Description and uses.—The items mentioned in paragraph 1529 are of a character in themselves to be dutiable under paragraph 1310. They are to be admitted free only when they fulfil certain specific conditions stated in this paragraph (1529).

Imports.—Paragraph 425 of the act of 1913, in addition to the items enumerated in paragraph 1529 (H. R. 7456), provides for the free admission of "books, maps, music, engravings, photographs, etchings, lithographic prints, bound or unbound, and charts, which shall have been printed more than twenty years at the date of importation." The several items are not segregated, but the total importations under paragraph 425, act of 1913, in the calendar years 1918–1921 have been valued as follows: 1918, \$519,425; 1919, \$1,393,440; 1920, \$1,937,210; 1921 (nine months), \$1,008,866.

Important changes in classification.—The items mentioned above under "Imports" have been dropped from the free list and become dutiable under paragraph 1306 or 1310. (See par. 1685; p. 1480.)

Suggested changes.—Restoration of the provision for engravings, etchings, and lithographic prints is sought by counsel for the American Federation of Arts.

PARAGRAPH 1530.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1530. Books, pamphlets, and music, in raised print, used exclusively by or for the blind; Braille tablets, cubarithms, special apparatus and objects serving to teach the blind, including printing apparatus, machines, presses, and types for the use and benefit of the blind exclusively.

ACT OF 1909.

ACT OF 1913.

PAR. 518. * * * books and music, in raised print, used exclusively by the blind [Free].

PAR. 426. * * * books and music, in raised print, used exclusively by the blind, * * * Braille tablets, cubarithms, special apparatus and objects serving to teach the blind, including printing apparatus, machines, presses, and types for the use and benefit of the blind exclusively [Free].

BOOKS, ETC., USED FOR THE BLIND.

Description and uses.—The items mentioned in paragraph 1530 are of a character in themselves to be dutiable under paragraph 1310 and other paragraphs. They are to be admitted free only when used exclusively by the blind or to teach the blind.

Production.—No data available.

Imports of books in raised print for the blind in 1914 were valued at \$1,452. Imports in the calendar years 1918–1921 have been valued as follows: 1918, \$309; 1919, \$1,689; 1920, \$1,043; 1921 (nine months), \$1,944.

Exports.—Not listed.

PARAGRAPH 1531.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1531. Any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or any college, academy, school, or seminary of learning in the United States, or any State or public library, may import free of duty, not to exceed two copies of any book, map, music, engraving, photograph, etching, lithographic print, or chart, for its own use or for the encouragement of the fine arts, and not for sale, under such rules and regulations as the Secretary of the Treasury may prescribe.

ACT OF 1909.

ACT OF 1913.

PAR. 519. Books, maps, music, photographs, etchings, lithographic prints, and charts, specially imported, not more than two copies in any one invoice, in good faith, for the use and by order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, or seminary of learning in the United States, or any state or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe [Free].

PAR. 427. Books, maps, music, engravings, photographs, etchings, lithographic prints, and charts, specially imported, not more than two copies in any one invoice, in good faith, for the use and by order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, or seminary of learning in the United States, or any State or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe [Free].

FREE IMPORTATIONS OF BOOKS BY SOCIETIES, ETC.

Description and uses.—The items mentioned in paragraph 1531 are of a character in themselves to be dutiable under paragraph 1310. The free admission provided for in the paragraph depends: (1) Upon the character of the importing institution. (It must be for religious, philosophical, educational, scientific, or literary purposes or for the encouragement of the fine arts. Among such institutions are specifically mentioned colleges, academies, schools, seminaries of learning.

State and public libraries.) (2) The number imported. (The concession is limited to two copies.) (3) The use to which the importation is to be put. (It must be for the use of the importer and not for sale.)

Imports under the provisions of the corresponding paragraph in the act of 1913 (par. 427) were valued at \$3,994,869 in 1914. Imports in the calendar years 1918-1921 have been valued as follows: 1918, \$181,027; 1919, \$330,817; 1920, \$338,690; 1921 (9 months), \$378,420.

PARAGRAPH 1532.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1532. Books and libraries of persons or families from foreign countries if actually used abroad by them not less than one year, and not intended for any other person or persons, nor for sale, and not exceeding \$250 in value.

ACT OF 1909.

ACT OF 1913.

PAR. 520. Books, libraries, * * * of persons or families from foreign countries, all the foregoing if actually used abroad by them not less than one year, and not intended for any other person or persons, nor for sale [Free].

PAR. 428. Books, libraries, * * * of persons or families from foreign countries, all the foregoing if actually used abroad by them not less than one year, and not intended for any other person or persons, nor for sale [Free].

BOOKS AND LIBRARIES NOT FOR SALE.

Description and uses.—The items mentioned in paragraph 1532 are of a character in themselves to be dutiable under paragraph 1310, and their free admission is conceded only on the condition that they are (1) imported by persons or families from foreign countries, (2) that they have actually been used abroad by them, for a period not less than a year, (3) that they are not intended for any other person or persons, (4) that they are not for sale, and (5) that they do not exceed \$250 in value.

Import statistics are combined with those of personal effects of citizens of the United States dying in foreign countries, and household and personal effects, etc., of persons emigrating to the United States. They are shown under paragraph 1631, p. 1409.

Important changes in classification.—The provision for "usual and reasonable furniture, and similar household effects," has been omitted. A further limitation is in the value of the books and libraries, which is set at \$250.

PARAGRAPH 1533.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1533. Borax, crude and unmanufactured, and borate of lime, borate of soda, and other borate material, crude and unmanufactured, not specially provided for.

"Usual and reasonable furniture, and similar household effects" dutiable according to materials, or possibly free under pars. 1678, 1685, or 1699 in H. R. 7456.

ACT OF 1909.

PAR. 11. Borax, two cents per pound; borates of lime, soda, or other borate material not otherwise provided for in this section, two cents per pound.

ACT OF 1913.

PAR. 429. Borax, crude and unmanufactured, and borate of lime, soda, and other borate material, crude and unmanufactured, not otherwise provided for in this section [Free].

CRUDE BORAX AND BORATE MATERIALS.

(See Survey A-1.)

Description and uses.—Borax, crude, "tinkal" or biborate of soda, was formerly the main source of borax in California. Borate of lime, or the mineral colemanite, which is now the chief source of borax and boric acid, occurs extensively in California. Other borate materials are boracite, a borate of magnesium from the Stassfurt deposits of Germany; sassolite, a native boracic acid from volcanic springs of Italy and California; ulexite, a borate of lime and soda occurring in California and Nevada; and pricelite, a borate of lime occurring in Death Valley, Calif.

Production of crude borax materials has about doubled in recent years. In 1913 it was 58,051 tons, valued at \$1,491,530; in 1917, 108,875 tons, valued at \$3,609,632. Subsequent figures are not available. Chile, Italy, Turkey, and Germany also are other sources. The United States supplies about one-half and Chile one-third of the world's demand.

Imports of borate materials have been less than 0.01 per cent of domestic production. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 10,000 | \$50 | \$0.005 |
| 1919..... | 550 | 25 | .04 |
| 1920..... | 5,050 | 100 | .02 |
| 1921 (9 months)..... | 4,480,000 | 100,000 | .02 |

Exports of crude and unrefined borax, chiefly to Japan, Canada, and England, in 1920 (first year shown) were 14,325,037 pounds, valued at \$1,206,936, and for the first nine months of 1921, 2,705,392 pounds, valued at \$191,616.

Suggested changes.—Change "and" to "or" between "crude" and "unmanufactured."

PARAGRAPH 1534.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1534. Brass, old brass, clippings from brass or Dutch metal, all the foregoing, fit only for remanufacture.

ACT OF 1909.

PAR. 521. Brass, old brass, clippings from brass or Dutch metal, all the foregoing, fit only for remanufacture [Free].

ACT OF 1913.

PAR. 430. Brass, old brass, clippings from brass or Dutch metal, all the foregoing, fit only for remanufacture [Free].

OLD BRASS AND DUTCH METAL.

(See Survey C-19.)

Description and uses.—Brass is an alloy of copper and zinc, the proportions of which vary, ordinary brass containing 30 to 40 per cent zinc. Dutch metal is a variety of brass with a zinc content of about 20 per cent.

Production.—The brass within the terms of this paragraph is scrap recovered from the many industries employing new brass material. The battle fields of Europe furnish large amounts. Definite figures concerning the country's output are unavailable.

Imports.—Imports of brass in 1914 amounted to 7,220,296 pounds, valued at \$765,319. For later calendar years they were as follows:

| Brass, old brass, and clippings. | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------------------|-------------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 12,228,988 | 15,865,946 | 45,363,942 | 13,572,172 |
| Value..... | \$1,773,789 | \$2,157,043 | \$5,244,715 | \$1,017,459 |

In the fiscal year 1918, 32,731,025 pounds, valued at \$5,643,382, were imported. This large increase was due to war necessities. Until 1912 Germany and the United Kingdom were the chief sources of supply. After 1912 Canada became the principal contributing country.

Exports.—In 1914 exports amounted to 25,738,845 pounds, valued at \$2,714,202. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 4,909,820 | 1,321,767 | 2,060,468 | 4,212,866 |
| Value..... | \$799,318 | \$176,028 | \$254,189 | \$261,111 |

Prior to 1918 exports went chiefly to the United Kingdom, Germany, and France. In 1918 they went chiefly to France, Canada, and Cuba. In 1919 and 1920 the countries of destination were the United Kingdom, Canada, Japan, and Mexico.

PARAGRAPH 1535.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1535. Brazilian pebble, unwrought or unmanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 522. Brazilian pebble, unwrought or unmanufactured [Free].

PAR. 431. Brazilian pebble, unwrought or unmanufactured [Free].

BRAZILIAN PEBBLE.

Description and uses.—Brazilian pebble is a colorless and transparent variety of quartz. Its most valuable application is in spectacle lenses, as it is harder and less easily scratched than glass. In recent years lenses of high-grade optical glass have supplanted those of pebble to a great extent.

Imports of Brazilian pebble in 1907 were valued at \$7,967; in 1917, at \$138; and in 1918, at \$8,642. Later imports have been negligible.

Exports.—None recorded.

PARAGRAPH 1536.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1536. Bristles, crude, not sorted, bunched, or prepared.

ACT OF 1909.

ACT OF 1913.

PAR. 523. Bristles, crude, not sorted, bunched, or prepared [Free].

PAR. 432. Bristles, crude, not sorted, bunched, or prepared [Free].

BRISTLES, CRUDE.

(See Survey N-4.)

Description, uses, and production.—See paragraph 1408, p. 1103.

Imports of bristles, crude, not sorted, bunched, or prepared, in 1914 were 27,036 pounds, valued at \$25,280, nearly all from Germany and Russia. Later statistics for calendar years follow:

| Bristles, crude. | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 31,947 | 75,848 | 124,136 | 14,817 |
| Value..... | \$65,061 | \$102,191 | \$256,467 | \$59,634 |

Imports were chiefly from China in 1918, from Japan and China in 1919, while in 1920 England led in exports to this country, with China and Japan following. Exports from England are transshipments, London being the chief point of distribution of Chinese bristles.

Exports.—None recorded.

PARAGRAPH 1537.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1537. Bullion, gold or silver.

ACT OF 1909.

ACT OF 1913.

PAR. 524. Bullion, gold or silver [Free].

PAR. 436. Bullion, gold or silver [Free].

GOLD AND SILVER BULLION.

(See Survey FL-20.)

Description and uses.—Bullion is uncoined gold and silver bars and plate; it varies in degree of fineness. The name is also applied to uncurrent coin (coin received only at its metallic value). In the United States, however, the term bullion is rarely applied to coin. Gold in bars answers some of the monetary purposes of coined gold.

Production.—The country's output of gold in 1913 amounted to 4,271,562 troy ounces, coining value, \$88,301,023, and in 1920 (preliminary figures) 2,395,017 ounces, coining value, \$49,509,400. The silver production in 1913 was 67,601,111 troy ounces, commercial value, \$40,864,871, and in 1920 (preliminary figures) 56,564,504 troy ounces, commercial value, \$57,420,325.

Imports in 1914 of gold were 1,237,812 ounces, valued at \$24,206,047; and of silver 28,387,924 ounces, valued at \$16,548,213. Imports in later calendar years were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|--------------|--------------|---------------|------------------|
| Gold: | | | | |
| Quantity (troy ounces)..... | 1,906,494 | 1,614,651 | 16,193,577 | 21,002,904 |
| Value..... | \$38,911,037 | \$33,183,373 | \$326,260,835 | \$430,764,187 |
| Silver: | | | | |
| Quantity (troy ounces)..... | 22,836,317 | 7,990,171 | 7,945,711 | 9,400,091 |
| Value..... | \$20,619,195 | \$8,382,030 | \$7,874,136 | \$5,648,726 |

The imports of bullion gold in 1918 came mainly from Canada, Colombia, and Mexico; in 1919 from Canada, the United Kingdom, and Belgium; and in 1920 from the United Kingdom, France, and Canada. The principal contributing countries for silver bullion were Mexico, Canada, and Honduras.

Exports.—Exports of gold in 1914 amounted to 2,101,244 ounces, valued at \$43,058,031, and of silver to 89,813,522 ounces, valued at \$52,180,453. Exports for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|---------------|---------------|--------------|------------------|
| Gold: | | | | |
| Quantity (troy ounces)..... | 390,468 | 5,912,786 | 1,852,974 | 35,779 |
| Value..... | \$8,052,578 | \$122,055,164 | \$38,281,357 | \$736,248 |
| Silver: | | | | |
| Quantity (troy ounces)..... | 240,124,122 | 176,780,153 | 62,519,339 | 58,726,076 |
| Value..... | \$236,411,329 | \$186,533,723 | \$70,223,057 | \$16,846,458 |

The principal countries of destination for our exports of gold were Japan, China, British India, Chile, Mexico, and Peru; and of silver, China, Hongkong, British India, Canada, and the United Kingdom.

PARAGRAPH 1538.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1538. Burgundy pitch.

ACT OF 1909.

ACT OF 1913.

PAR. 525. Burgundy pitch [Free].

PAR. 437. Burgundy pitch [Free].

BURGUNDY PITCH.

(See Survey FL-2.)

Description and uses.—Burgundy pitch is a resinous substance chemically allied to crude gum turpentine. It is used in medicine, chiefly in plasters, for varnish making, coating or lining beer barrels (in Germany), and for other technical purposes.

Production.—It is obtained principally in Finland, the Schwarzwald (Black Forest), Austria, and the Bernese Alps.

Imports.—Before the war the imports of Burgundy pitch averaged about 1,000,000 pounds, valued at about \$40,000. In 1915 imports were 131,987 pounds, valued at \$4,051; in 1917, 25 pounds, valued at \$3; and in 1918, 100 pounds, valued at \$12. In 1919 the value was \$470, and in the first nine months of 1921, \$157.

PARAGRAPH 1539.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1539. Cadmium.

ACT OF 1909.

ACT OF 1913.

PAR. 526. Cadmium [Free].

PAR. 439. Cadmium [Free].

CADMIUM.

(See Survey FL-6.)

Description and uses.—Cadmium is a heavy white metal, resembling tin in many of its properties. Unlike most other metals, it has an extremely low melting point, and forms brittle, but readily fusible, alloys with other metals. Besides its use in fusible alloys, it is employed in dentistry, in glass coloring, and in making cadmium sulphide (cadmium yellow); also as a solder, and, to some extent, as a substitute for tin.

Production.—Cadmium, a by-product of the zinc-smelting industry, is recovered largely from the treatment of various residues and fine dust at zinc and lead smelters. Prior to 1907 Germany was the sole producer, the output in 1913 being 81,993 pounds of metallic cadmium. The domestic output in 1918, with six plants, was 127,164 pounds, valued at \$188,203, and could be largely increased if there were sufficient demand. In 1920 the output was 129,283 pounds, valued at \$151,261. Germany and the United States, with England a small contributor, practically supply the world's cadmium output.

Imports.—Cadmium is imported as metallic stick and as the pigment, cadmium yellow. Cadmium metal is free of duty; the pigment is dutiable under paragraph 63 of the act of 1913. In 1914, imports of metallic cadmium from Germany amounted to 1,543 pounds, valued at \$1,239. There were no imports in 1918, 1919, and 1920. During the first nine months of 1921 imports amounted to 101 pounds, valued at \$216.

Exports.—Statistics are not available, but it is known that domestic cadmium, including the refined metal and crude residues containing cadmium, was exported in large quantities during the war. During the last quarter of 1916, 39,188 pounds, valued at \$61,889 were exported. More than one-half of the metal was shipped to France, and about one-third went to Italy.

PARAGRAPH 1540.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1540. Calcium: Acetate, chloride, crude; nitrate, and cyanamid or lime nitrogen: *Provided*, That when any country, dependency, or other subdivision of government imposes a duty on calcium acetate imported from the United States, an equal duty shall be imposed upon such article coming into the United States from such country.

ACT OF 1909.

- ACT OF 1913.

PAR. 3. * * * all chemical compounds, * * * not specially provided for in this section, twenty-five per centum ad valorem; * * *

PAR. 440. Calcium, acetate of, brown and gray, and chloride of, crude; * * * and calcium nitrate [Free].

PAR. 581. * * * calcium cyanamid or lime nitrogen [Free].

PAR. 499. * * * calcium cyanamid or lime nitrogen [Free].

CALCIUM ACETATE.

(See Survey A-2.)

Description and uses.—Formerly there were two grades, the "brown calcium acetate," made by adding lime to the crude pyroligneous liquor obtained from the distillation of wood, and the "gray calcium acetate," now the only commercial grade, made by adding lime to the acetic-acid solution obtained by purification of the crude liquor formerly used in making brown acetate. The chief use of calcium acetate is in the manufacture of acetic acid and acetone. (See pars. 1 and 3.)

Production of calcium acetate for sale in 1914 was 163,521,577 pounds, valued at \$2,138,909; an additional 2,562,946 pounds was consumed in the plants where produced. In 1919, according to preliminary figures, 152,064,000 pounds were produced, valued at \$2,682,200.

Imports are not shown separately.

Exports were over 40 per cent of the domestic production in 1909 and 1914. Exports in 1914 were 68,160,224 pounds, valued at

\$1,560,933; and because of demands for war purposes decreased to 12,959,222 pounds in 1917. Prewar exports were chiefly to Belgium, Germany, the Netherlands, and Italy. Exports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|------------|------------|------------------|
| Quantity (pounds)..... | 15,682,813 | 16,362,929 | 23,309,499 | 12,971,575 |
| Value..... | \$758,622 | \$410,646 | \$747,284 | \$283,711 |

Important changes in classification.—"Brown and gray" are omitted as unnecessary after "calcium acetate." The proviso is new.

CALCIUM CHLORIDE.

(See Survey FI-8.)

Description and uses.—Calcium chloride is a white, solid substance which dissolves readily in water. The crystalline product when dissolved produces a strong cooling effect. When dry it rapidly absorbs moisture from the air. It is produced principally as a by-product in the manufacture of salt from brine, or from the Solvay soda process, and is one of the cheapest chemicals. It is used in refrigerating and antifreezing solutions, as a drying agent, and for the prevention of dust on roads and drill grounds.

Production of calcium chloride from natural brines increased from 19,403 short tons in 1914 to 30,503 short tons in 1917. Enormous quantities are produced in solution as a by-product in the Solvay process, and the output is greater than the consumption. In 1919, according to preliminary figures, 74,699 short tons, valued at \$1,043,300, were produced.

Imports are not listed separately.

Exports.—Statistics not available.

CALCIUM NITRATE.

(See Survey A-18.)

Description and uses.—Calcium nitrate or nitrate of lime is a nitrate fertilizer material, and is used only for this purpose. It contains 13 per cent of nitrogen as against 15.5 per cent of nitrogen in nitrate of soda, with which it competes. It absorbs moisture readily and deteriorates in quality on exposure to the air, necessitating shipments in casks instead of bags. For these reasons it is not generally favored as a fertilizer material.

Production.—Calcium nitrate is produced by combining nitric acid, produced synthetically from atmospheric nitrogen, with lime. It comes chiefly from one Norwegian company, whose output is about 90,000 tons. Considerable quantities are made in Germany. A calcium nitrate plant in North Carolina, opened in 1912, operated a year or two, but found a more profitable market for its electrical power.

Imports in 1914 were 275 long tons, valued at \$10,773, from Norway. Subsequent import statistics are not available.

Exports.—Statistics not available.

CALCIUM CYANAMID OR LIME NITROGEN.

(See Survey FL-5.)

Description and uses.—Calcium cyanamid or lime nitrogen is a nitrogenous fertilizer material. Its preparation from calcium carbide is one of the successful methods of nitrogen fixation. Prior to the war it was used chiefly as a fertilizer material. It can be converted into ammonia, which in turn is oxidized to nitric acid, a property made use of in our munitions program. It can also be converted into sodium cyanide. (See par. 1654.)

Production.—Cyanamid is produced by passing a current of nitrogen over heated calcium carbide. The crude product is usually known as lime nitrogen. It is then ground, treated with water and a small amount of mineral oil, and packed in bags. Prior to the war we produced no calcium cyanamid. The Government constructed a plant of 220,000 tons capacity at Muscle Shoals, Ala., nearly complete and in operation when the armistice was proclaimed. Canada (plant of American Cyanamid Company, Niagara Falls) produces 64,000 short tons a year, largely exported to this country. The industry has had its greatest development in Europe.

Imports were 29,536 tons, valued at \$1,590,004, in 1914 and 44,146 tons, valued at \$1,951,104, in 1917. Imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|--------------|-------------|-------------|
| | <i>Tons.</i> | | |
| 1918..... | 45,209 | \$2,208,326 | \$48.85 |
| 1919..... | 62,121 | 4,294,058 | 69.12 |
| 1920..... | 71,311 | 4,542,198 | 63.70 |
| 1921 (9 months)..... | 6,798 | 542,102 | ..... |

Exports.—Statistics not available.

PARAGRAPH 1541.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1541. Cash registers, linotype and all typesetting machines, sewing machines, typewriters, shoe machinery, sand-blast machines, sludge machines, and tar and oil spreading machines used in the construction and maintenance of roads and in improving them by the use of road preservatives; all the foregoing whether in whole or in parts, including repair parts.

ACT OF 1909.

ACT OF 1913.

PAR. 197. —Cash registers, * * * linotype and all typesetting machines, * * * sewing machines, typewriters, * * * thirty per centum ad valorem; * * * *Provided, however,* That all * * * tar and oil spreading machines used in the construction and maintenance of roads and in improving them by the use of road preservatives, shall, if imported prior to January first, nineteen hundred and eleven, be admitted free of duty.

PAR. 441. Cash registers, linotype and all typesetting machines, sewing machines, typewriters, shoe machinery, * * * sand-blast machines, sludge machines, and tar and oil spreading machines used in the construction and maintenance of roads and in improving them by the use of road preservatives, all the foregoing whether imported in whole or in parts, including repair parts [Free].

CASH REGISTERS, TYPESETTING, SEWING AND OTHER MACHINES.

(See Survey FI-3.)

Description and uses.—The uses of these machines are well known, except perhaps that of the sludge machine—a device for drying sludge emanating from sewage and for separating the particles—and the sand-blast machine—an apparatus for forcibly projecting sand (by air or steam) for engraving or cutting glass, stone, etc. The United States is the world's greatest producer of these machines.

Production is shown for 1914 and 1919 as follows:

| | 1914 | 1919 |
|--|--------------|--------------|
| Cash registers and parts..... | \$15,935,069 | \$31,038,000 |
| Linotype and other typesetting machines..... | 7,634,631 | 15,197,000 |
| Sewing machines..... | 21,710,643 | 48,946,000 |
| Typewriters..... | 20,516,532 | 48,313,000 |
| Shoe machinery..... | 5,949,300 | 7,459,000 |

Production in 1919 of sand-blast machinery was valued at \$686,000 and of road-making machines at \$13,915,000.

Imports, including cream separators, in 1914 amounted to \$863,627. Imports for later calendar years may be divided into five classes, as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|--------|---------|---------|------------------|
| Cash registers..... | \$800 | \$597 | \$324 | \$3,037 |
| Linotype and all typesetting machines..... | 14,351 | 7,007 | 19,371 | 4,379 |
| Sewing machines..... | 98,245 | 225,541 | 346,519 | 356,500 |
| Typewriters..... | 17,287 | 7,577 | 14,068 | 9,060 |
| Shoe machinery..... | 4,114 | 5,262 | 18,497 | 11,652 |

In addition to these importations there came into the country in 1918 (calendar year) sand-blast machines valued at \$3,630, and in 1920 sludge machines to the value of \$1,590.

Exports for the calendar years 1918-1921 are vastly greater than imports and may be tabulated as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------------|-------------|--------------|--------------|------------------|
| Cash registers: | | | | |
| Number..... | 4,399 | 18,400 | 20,945 | 8,011 |
| Value..... | \$763,317 | \$4,050,588 | \$5,472,620 | \$1,965,907 |
| Cash registers, parts of, value..... | \$101,254 | \$294,938 | \$469,450 | \$237,696 |
| Typesetting machines, value..... | \$1,284,672 | \$3,932,544 | \$4,958,757 | \$2,817,958 |
| Sewing machines, value..... | \$8,138,590 | \$12,774,124 | \$15,581,843 | \$5,764,197 |
| Typewriting machines, value..... | \$7,049,339 | \$17,391,118 | \$25,041,809 | \$9,760,192 |
| Shoe machinery, value..... | \$1,359,955 | \$2,839,828 | \$2,653,039 | \$1,536,644 |
| Road-making machinery, value..... | \$698,522 | \$987,912 | \$1,327,752 | \$765,355 |

The principal countries of destination for these exports are the United Kingdom, Canada, Japan, Argentina, and France.

Important changes in classification.—Cream separators, which were on the free list in the corresponding paragraph of the act of 1913 (441), are omitted and are thus made dutiable (probably under par. 372 for machines) unless they should be held to come within paragraph 1504 as agricultural implements.

PARAGRAPH 1542.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1542. Cerium, cerite or cerium ore.

ACT OF 1909.

ACT OF 1913.

PAR. 530. Cerium, cerite, or cerium ore [Free].

PAR. 445. Cerium, cerite, or cerium ore [Free].

CERIUM AND CERIUM ORE.

(See Surveys C-1 and C-22.)

Description and uses.—Cerium is a soft, steel-gray metal occurring in more than sixty minerals. Of the entire list of cerium-bearing minerals, two may be regarded as commercial sources. These are the phosphate (monazite sand, par. 1616) and the silicate (orthite). Cerite, a hydrous silicate occurring in Sweden, was for some time the only commercial source of cerium compounds. Monazite sand, the most important cerium ore, is mined for its content of thoria, which is used in incandescent gas mantles. Cerium is a by-product and is obtained in excessively large amounts. No commercial use has been found for the pure cerium metal, but certain of its alloys and compounds have a fairly extended range of application. The quantity consumed, however, is only a small fraction of the production. Incandescent gas mantles, besides thoria, contain 1 per cent of ceria. Certain cerium alloys, e. g., pyrophoric alloys, throw off glowing particles when scratched by a hard metal, a property utilized in automatic cigarette and gas lighters. Other alloys are used as reducing agents and as deoxidizers in the manufacture of high-grade iron and steel castings. Cerium fluoride is used extensively in carbon electrodes for "flaming" electric arc lamps. Cerium salts are also used in medicine.

Production statistics of cerium are not available, but consumption of monazite sand indicates an output of at least 250 tons of ceria (cerium oxide). At least 10,000 tons of ceria are estimated to have accumulated at the gas-mantle factories.

Imports of cerium, cerite, and cerium ore are small and of no significance. They were valued at \$10,712 in 1914 and at \$5,260 in 1918 (fiscal year). They came entirely from Austria in 1914. There were no importations in 1919 and only \$30 worth in 1920.

Exports.—None recorded.

PARAGRAPH 1543.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1543. Chalk, crude, not ground, bolted, precipitated, or otherwise manufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 531. Chalk, crude, not ground, bolted, precipitated, or otherwise manufactured [Free].

PAR. 446. Chalk, crude, not ground, bolted, precipitated, or otherwise manufactured [Free].

CHALK, CRUDE.

[For discussion, see par. 18, p. 61.]

PARAGRAPH 1544.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1544. Chromite or chrome ore.

ACT OF 1909.

ACT OF 1913.

PAR. 532. Chromate of iron or chromic ore [Free].

PAR. 448. Chromate of iron or chromic ore [Free].

CHROMITE OR CHROME ORE.

(See Survey FI-28.)

Description and uses.—Chromate of iron, or chromic ore, is more properly called chromite, chrome iron, or chromic iron ore. It is used chiefly in making ferrochrome and is also used in bichromate of potash and sodium. It is of prime military importance.

Production.—In 1918 production was estimated at 79,000 tons from about 350 mines operating mostly in the Western States. About 90 per cent of domestic chromite was produced in California; most of the remainder came from Oregon, with some from Wyoming, Maryland, and other States. Domestic resources are insignificant compared with the large high-grade deposits in New Caledonia, Asia Minor, Rhodesia and Russia. Prior to 1914 only a small fraction of the domestic requirement was produced in the United States; the large war demand, however, and high prices induced an increased output. Owing to the poverty of the domestic deposits, their widely scattered locations, and the long distance of most of them from market, the greater number of the mines can not operate at a profit under normal conditions. Hence the country's output since 1918 has been very small.

Imports of chromite in 1914 were 85,892 tons, valued at \$777,166; in 1918 (fiscal year), 77,863 tons, valued at \$1,555,861. Prior to 1914 imports came chiefly from Portuguese Africa, New Caledonia, and Turkey in Asia; in 1918, mostly from Portuguese Africa, French Oceania, and Canada. For later calendar years they have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 100,224 | 61,404 | 150,275 | 79,335 |
| Value..... | \$2,892,826 | \$1,331,497 | \$1,921,824 | \$590,599 |

Exports.—The lack of manufacturing facilities in the United States caused the export of the entire chrome output to England in the early years. In 1845 domestic works were established for making chromium salts; by 1850 these fully supplied the home market, and exportation of the ore ceased. In recent years no exports have been recorded.

Important changes in classification.—The terminology is changed from "chromate of iron or chromate ore" to "chromite or chrome ore."

PARAGRAPH 1545.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1545. Coal, anthracite, bituminous, culm, slack, and shale; coke; compositions used for fuel in which coal or coal dust is the component material of chief value, whether in briquets or other form: *Provided*, That when any country, dependency, or other subdivision of government imposes a duty on such articles imported from the United States, an equal duty shall be imposed upon such articles coming into the United States from such country.

ACT OF 1909.

ACT OF 1913.

PAR. 428. Coal, bituminous, and shale, forty-five cents per ton of twenty-eight bushels, eighty pounds to the bushel; coal slack or culm, such as will pass through a half-inch screen, fifteen cents per ton of twenty-eight bushels, eighty pounds to the bushel: *Provided*, That the rate of fifteen cents per ton herein designated for "coal slack or culm" shall be held to apply to importations of coal slack or culm produced and screened in the ordinary way, as such, and so shipped from the mine; coke, twenty per centum ad valorem; compositions used for fuel in which coal or coal dust is the component material of chief value, whether in briquettes or other form, twenty per centum ad valorem: *Provided further*, That on all coal imported into the United States, which is afterwards used for fuel on board vessels propelled by steam and engaged in trade with foreign countries, or in trade between the Atlantic and Pacific ports of the United States, and which are registered under the laws of the United States, a drawback shall be allowed equal to the duty imposed by law upon such coal, and shall be paid under such regulations as the Secretary of the Treasury shall prescribe.

PAR. 535. Coal, anthracite, and coal stores of American vessels, but none shall be unloaded [Free].

PAR. 451. Coal, anthracite, bituminous, culm, slack, and shale; coke; compositions used for fuel in which coal or coal dust is the component material of chief value, whether in briquets or other form [Free].

COAL AND COKE.

(See Survey FL-10.)

Description.—Peat is the first stage of coal formation, followed by lignite, subbituminous, bituminous, semibituminous, semianthracite, and anthracite. With this series the percentage of volatile matter declines and that of fixed carbon increases. In 1913 the coal reserves of the world were estimated by the International Geological Congress at 7,397,553,000,000 tons, divided as follows: America, 5,105,528,000,000 tons; Asia, 1,279,586,000,000 tons; Europe, 784,190,000,000

tons; Oceania, 170,410,000,000 tons; and Africa, 57,839,000,000 tons. The bulk of the American reserves was within the United States.

Fine or refuse coal, often constituting one-third of the product, is called culm in the case of anthracite coal, and slack in the case of bituminous. Certain kinds of bituminous coals are termed coking coals, because upon distillation of their volatile matter they yield a hard, strong, coherent, carbonaceous residue called coke. Four tons of good coking coal yield about three tons of coke. Briquets are brick-shaped masses of fine coal with some cementing material.

Uses.—Anthracite is now used for the most part in household heating. Bituminous coal, in addition to this use, is employed largely in manufacturing operations, on railroads, and as bunker coal. Coke is the fuel principally used in the manufacture of pig iron. Lignite is commonly used only when better grades of coal are either not obtainable or are too expensive. In many parts of Europe peat is a domestic fuel. Briquets are manufactured out of fine coal for consumption in the home.

Distribution of bituminous coal, by industry, in 1915 was as follows:

| | Per cent. | | Per cent. |
|-----------------------------------|-----------|----------------------------------|-----------|
| Industrial steam trade..... | 33.0 | Steamship bunker tidewater..... | 2.0 |
| Railroad fuel..... | 28.0 | Used at mines..... | 2.0 |
| Domestic and small steam trade.. | 16.0 | Steamship bunker, Great Lakes... | .3 |
| Manufacture of beehive coke..... | 9.3 | Manufacture of coal gas..... | 1.0 |
| Manufacture of by-product coke... | 4.3 | Special uses..... | .1 |
| Exported..... | 4.0 | | |

Production of coal in the United States in 1913 amounted to 569,960,219 short tons out of an approximate total for the world of 1,478,000,000 tons. Great Britain in the same year produced 321,922,130 tons; Germany, 305,714,664 tons; Austria-Hungary, 59,647,957 tons; France, 45,108,544 tons; and Russia, 37,188,480 tons. During the World War, European production declined, but the domestic output reached 684,710,000 tons in 1918, estimated to be valued at \$1,801,500,000, more than one-half the world's output. In 1920 the country's estimated output of coal was as follows: Anthracite, 89,100,000 short tons; bituminous, 556,563,000 short tons; coke, 51,888,000 short tons; and fuel briquets, 567,192 short tons. Practically all the anthracite coal is mined in Pennsylvania, the bituminous, mostly in Pennsylvania, West Virginia, Illinois, Ohio, Kentucky, Indiana, and Alabama. Nearly half of the coke is produced in Pennsylvania. Other important coke manufacturing States are Ohio, Alabama, Indiana, and Illinois. The workman in American mines increased his annual aggregate output of bituminous coal from 431.53 tons per employee in 1882 to 896 tons in 1916 and nearly 1,000 tons in 1918. His production of anthracite coal rose from 363.55 tons in 1882 to 547 tons in 1916. The output per man of workmen in European mines substantially declined during the war. The relative effectiveness of mine workers in different countries may be stated as follows:

Short tons produced per employe per annum.

| | | | |
|--|-------|-------------------------------|-------|
| United States (bituminous) (1916)..... | 896.0 | Germany (1909)..... | 257.0 |
| United States (anthracite) (1916)..... | 547.0 | Austria (1918)..... | 259.0 |
| Australia (1913)..... | 594.8 | France (1909)..... | 191.0 |
| Dominion of Canada (1913)..... | 566.5 | Belgium (1912)..... | 173.8 |
| Transvaal (1913)..... | 518.9 | Russia (1908)..... | 141.0 |
| New Zealand (1913)..... | 497.5 | British India (1912)..... | 124.2 |
| Orange Free State (1913)..... | 333.3 | Japan (1909)..... | 99.0 |
| Natal (1913)..... | 280.4 | Cape of Good Hope (1918)..... | 78.8 |
| South Rhodesia (1913)..... | 263.3 | | |
| United Kingdom: | | | |
| 1914..... | 262.4 | | |
| 1920..... | 203.0 | | |

Coal and coke are produced more abundantly and cheaper than elsewhere in the world in the Eastern States. Cost of transportation is a large factor in the price, and hence in regions remote from the coal-producing areas (California, for instance) it is often cheaper to import than to use the domestic product, the cost of water transportation being less than that of rail.

Pulverized fuel (coal) is gaining importance and its consumption in the cement industry is estimated at 12,000,000 tons annually. When pulverized the coal is fed to the furnace by blowers adjusted to supply the coal dust and air in the ratios for best combustion; this makes available low grades of coal otherwise unusable. The method is applied in metallurgical and power-plant use, and has been tried experimentally in locomotives.

Coal is bought by large consumers on standard tests, e. g., its heating power (British thermal units), ash, volatility, etc. The best coal will yield about 14,500 British thermal units per pound, but is salable at 10,000 units or lower. Fuel oil averages 18,000 to 19,800 units per pound and is a rapidly increasing alternative for coal. Four barrels may be roughly taken as equaling a ton of coal, and coal producers have shown some concern regarding the competition of this fuel, especially that of the oil imported from Mexico.

Import values in the fiscal year 1918 aggregated \$6,414,218 divided as follows: Anthracite \$18,390; bituminous and shale (1,366,876 tons), \$6,076,048; slack or culm (34,325 tons), \$100,503; coke (29,097 tons), \$218,997; composition coal or coal dust, \$280. Imports for the calendar years 1918-1921 may be divided into the following five classes:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|---------------------|
| Anthracite coal: | | | | |
| Quantity (tons)..... | 33,158 | 73,945 | 28,346 | 7,161 |
| Value..... | \$203,798 | \$529,419 | \$257,835 | \$82,396 |
| Bituminous coal: | | | | |
| Quantity (tons)..... | 1,280,264 | 891,816 | 1,096,649 | 767,275 |
| Value..... | \$6,634,240 | \$4,892,696 | \$6,714,149 | \$5,156,451 |
| Slack or culm coal: | | | | |
| Quantity (tons)..... | 20,815 | 11,354 | 14,950 | 22,379 |
| Value..... | \$60,428 | \$57,990 | \$19,527 | \$123,975 |
| Coke: | | | | |
| Quantity (tons)..... | 26,936 | 14,720 | 36,735 | 17,963 |
| Value..... | \$221,880 | \$140,653 | \$403,175 | \$231,429 |
| Compositions, component material of chief value coal or coal dust: | | | | |
| Quantity (pounds)..... | | 273,200 | 112 | |
| Value..... | \$3,077 | \$1,050 | \$9 | |

* Metric tons.

Nearly all the imported material comes from Canada and enters through the customs districts of Montana and Idaho, Massachusetts, Washington, San Francisco, Maine, and New Hampshire, most of which are within easy reach by water of the Canadian coal fields and remote from our own leading coal areas.

Exports greatly exceed imports. In the fiscal year 1918 exports of anthracite were 4,840,187 tons, valued at \$29,844,947; bituminous, 21,051,979 tons, valued at \$81,980,218; and coke, 1,337,321 tons, valued at \$10,155,047. Exports for the calendar years 1918 to 1921 are divided into three classes as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|--------------|--------------|---------------|---------------------|
| Anthracite: | | | | |
| Quantity (tons)..... | 4,435,543 | 4,443,391 | 4,824,776 | 3,236,282 |
| Value..... | \$29,215,689 | \$36,668,131 | \$45,538,100 | \$35,067,069 |
| Bituminous coal: | | | | |
| Quantity (tons)..... | 19,956,009 | 17,958,514 | 34,300,254 | 17,473,625 |
| Value..... | \$78,664,856 | \$83,708,842 | \$304,273,241 | \$106,755,909 |
| Coke: | | | | |
| Quantity (tons)..... | 1,506,986 | 640,139 | 821,252 | 198,251 |
| Value..... | \$11,861,408 | \$5,128,119 | \$9,993,665 | \$2,115,157 |

The principal country of destination is Canada. Shipments, however, are made to Cuba and Argentina, and in late years have gone to Italy and France.

Important changes in classification.—Proviso is new.

PARAGRAPH 1546.

H. R. 7456.

ACT OF SEPT. 8, 1916, TITLE V.

PAR. 1546. Coal-tar products: Acenaphthene, anthracene having a purity of less than 30 per centum, benzene, carbazole having a purity of less than 65 per centum, cumene, cymene, fluorene, methylanthracene, methyl-naphthalene, naphthalene, which after removing all the water present has a solidifying point less than seventy-nine degrees centigrade, pyridine, toluene, xylene, dead or creosote oil, anthracene oil, pitch of coal tar, pitch of blast-furnace tar, pitch of oil-gas tar, pitch of water-gas tar, crude coal tar, crude blast-furnace tar, crude oil-gas tar, crude water-gas tar, all other distillates of any of these tars which on being subjected to distillation yield in the portion distilling below one hundred and ninety degrees centigrade a quantity of tar acids less than 5 per centum of the original distillate, all mixtures of any of these distillates and any of the foregoing pitches, and all other materials or products that are found naturally in coal tar, whether produced or obtained from coal tar or other source, and not specially provided for in paragraph 25 or 26 of Title I of this Act.

SEC. 500. That on and after the day following the passage of this Act, except as otherwise specially provided for in this title, there shall be levied, collected, and paid upon the articles named in this section when imported from any foreign country into the United States or into any of its possessions, except the Philippine Islands and the islands of Guam and Tutuila, the rates of duties which are prescribed in this title, namely:

FREE LIST.

Group I. Acenaphthene, anthracene having a purity of less than twenty-five per centum, benzol, carbazol having a purity of less than twenty-five per centum, creol, cumol, fluorene, meta-creol having a purity of less than ninety per centum, methylanthracene, methyl-naphthalene, naphthalene having a solidifying point less than seventy-nine degrees centigrade, orthocresol having a purity of less than ninety per centum, paracresol having a purity of less than ninety per centum, pyridin, * * * toluol, xyol, crude coal tar, pitch of coal tar, dead or creosote

H. R. 7456.

ACT OF SEPT. 8, 1916, TITLE V.

oil, anthracene oil, all other distillates which on being subjected to distillation yield in the portion distilling below two hundred degrees centigrade a quantity of tar acids less than five per centum of the original distillate, and all other products that are found naturally in coal tar, whether produced or obtained from coal tar or other source, and not otherwise specially provided for in this title, shall be exempt from duty.

Group II. * * * carbazol having a purity of 25 per centum or more, * * * 15 per centum ad valorem, * * * [and 2½ cents per pound].

[No corresponding provision for the other commodities.]

ACT OF 1909.

PAR. 536. Coal tar, crude, pitch of coal tar, and products of coal tar known as dead or creosote oil, benzol, toluol, naphthalin, xylol, * * * cresol, * * * all the foregoing not medicinal and not colors or dyes [Free].

PAR. 15. * * * all other products or preparations of coal tar, not colors or dyes and not medicinal, not specially provided for in this section, twenty per centum ad valorem. [Covered acenaphthene, carbazole, cumene, cymene, fluorene, methylanthracene, methylnaphthalene, pyridine, anthracene oil, and all other materials or products.]

[No corresponding provision for the other commodities.]

ACT OF 1913.

PAR. 452. Coal tar, crude, pitch of coal tar, * * * or other tar, dead or creosote oil, and products of coal tar known as anthracene and anthracene oil, naphthalin, * * * and cresol [Free].

PAR. 22. Coal-tar distillates, not specially provided for in this section; benzol, * * * toluol, xylol; all the foregoing not medicinal and not colors or dyes, 5 per centum ad valorem. [Covered acenaphthene, carbazole, cumene, cymene, fluorene, methylanthracene, methylnaphthalene, pyridine.]

PAR. 21. All other products or preparations of coal tar, not colors or dyes, not specially provided for in this section, 15 per centum ad valorem.

[No corresponding provision for the other commodities.]

COAL-TAR CRUDES.

(See T. I. S.-6, 11, 22, and 23.)

Description and uses.—In the manufacture of coke in by-product ovens and in the production of coal gas for city lighting and heating, one of the by-products is coal tar, which yields by distillation or other simple methods of treatment (sublimation and washing with acids and alkalies) a class of substances known as coal-tar “crudes.” These substances are included in this paragraph.

The most important crudes are benzene, toluene, naphthalene, and anthracene. Other crudes include xylene, cumene, carbazol, the cresols, and pyridine. These crudes after purification are used in the preparation of coal-tar intermediates (par. 25); the latter, in turn, are used in the manufacture of dyes (par. 26). In addition to the crudes, certain pitches, related to coal tar, are mentioned in this paragraph. Pitch is used chiefly for road making, roofing, shingles, tarred felt, building paper, and for many minor uses, such as compounding with rubber, sealing dry batteries, and as a fuel.

Complex mixtures made from coal tar by fractional distillation appear in commerce under the names solvent naphtha, light oil, dead oil, creosote oil, anthracene oil, and pitch. Solvent naphtha is used mainly as a solvent for paint, rubber cements, and other materials. Creosote oil serves on a large scale for the preservation of wood (telegraph poles, fence posts, railroad ties, and paving blocks).

Production of the coal-tar crudes is given in the Tariff Commission's report, "Census of Dyes and Coal-Tar Chemicals," 1917-20.

Imports of crudes have increased from \$1,241,407 in 1918 to \$5,512,258 in 1920, and for 9 months of 1921 were \$4,371,765.

Exports since 1917 by calendar years are shown in the table below. Exports of benzol have been chiefly to Italy, Belgium, and France, while "all other coal-tar distillates" have gone principally to England, Switzerland, and Japan.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|---------------------|
| Benzol: | | | | |
| Quantity (pounds)..... | 33,204,577 | 14,238,419 | 13,174,268 | 64,161,598 |
| Value..... | \$1,904,360 | \$535,132 | \$927,940 | \$2,744,346 |
| All other coal-tar distillates (value)..... | \$5,887,830 | \$1,103,750 | \$8,962,249 | \$426,255 |

Important changes in classification.—Some of these crudes were dutiable in 1913, but all are exempted from duty in 1916, carbazol and anthracene, however, being limited in 1916 to such as have a purity of less than 25 per cent. (See also par. 25.)

Suggested changes.—Page 183, line 10, of H. R. 7456: Change "removing" to "the removal of" to agree with paragraph 25, page 8, line 20.

PARAGRAPH 1547.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1547. Cobalt and cobalt ore.

ACT OF 1909.

ACT OF 1913.

PAR. 537. Cobalt and cobalt ore [Free]. PAR. 453. Cobalt and cobalt ore [Free].

COBALT AND COBALT ORE.

(See Survey FL-6.)

Description and uses.—Cobalt is a white, malleable, tough metal similar to iron and resembling nickel in many of its properties. In the form of its oxide it imparts a beautiful blue color to pottery and other glazes. Research for developing its uses has opened up a most promising field for the metallic form, especially in the alloy, stellite, and as a valuable component of special high-grade steels.

Production.—Practically the entire world supply comes from the silver ores of Cobalt, Ontario. It is converted in Canada into metal or oxide. There are deposits of low grade associated with the disseminated lead ores of Missouri. These complex ores were worked for nickel and cobalt from 1907 to 1909, and produced 83,394 pounds

of cobalt oxide in the latter year. The plant remained idle until 1917, when it was remodeled for the production of lead, copper, and nickel, cobalt being a by-product. In 1918 cobalt ores were mined in Idaho, the production being 55 tons of concentrates carrying 17.74 per cent of cobalt (19,514 pounds) from 4,000 tons of ore. The annual Canadian production in 1916 and 1917 was slightly in excess of 1,000,000 pounds.

Imports of cobalt and cobalt ore prior to 1919 were grouped with zaffer (roasted speiss or crude oxide). The percentage of metal imports has tended to increase relatively to that of the crude material. In 1914 imports of cobalt and cobalt ore and zaffer amounted to 197,009 pounds. For later calendar years imports are shown as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Cobalt ore: | | | | |
| Quantity (pounds)..... | 1 504,391 | 17,045 | 13,039 | 6,625 |
| Value..... | \$628,099 | \$2,832 | \$4,794 | \$191 |
| Cobalt metal: | | | | |
| Quantity (pounds)..... | | 60,511 | 143,603 | 35,102 |
| Value..... | | \$141,450 | \$326,884 | \$96,859 |

¹ Includes zaffer.

Exports.—None recorded.

PARAGRAPH 1548.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1548. Cocoa or cacao beans.

ACT OF 1909.

ACT OF 1913.

PAR. 540. Cocoa, or cacao, crude, and fiber, leaves,⁶ and shells of [Free].

PAR. 456. Cocoa, or cacao, crude, and fiber, leaves,⁶ and shells of [Free].

COCOA OR CACAO BEANS.

(See Survey G-32.)

Description and uses.—The seeds of the tropical cacao tree are the cacao beans or crude cocoa of commerce, from which are obtained cocoa, chocolate, cocoa butter, and cocoa shells. In the producing countries the seeds or beans are separated from the surrounding pulp of the large pods, cured by several simple processes, and packed in bags of 130 to 160 pounds. The manufacture of cacao products is a technical industry conducted chiefly in America and Europe. Of the content of the bean, the stimulant theobromin constitutes about 2 per cent; fat, over 50 per cent; and albuminoids, starch, and ash, the remainder. (For manufactured products, see par. 776, p. 806.) Cocoa shells, the husks of the seeds, removed in the process of manufacture, are virtually a waste in this country. In Europe they are used as an ingredient in cattle feeds, in the extraction of theobromin and cocoa butter, and in adulterating chocolate-cocoa products.

⁶ Not an article of commerce; possibly confused with coca leaves (par. 33, H. R. 7456).

Production.—No cacao is produced in the continental United States and the insular output is not important. Until 1890 virtually the entire supply was from the American Tropics, but the West-African colonies of Great Britain and Portugal (Gold Coast and San Thome-Principe) produced about 40 per cent of the world crop (650,000,000 pounds) in 1915; of this world supply the United States imported about 30 per cent.

Imports.—During 1914–1920 the value of cacao imports ranged from \$20,000,000 to \$54,000,000. European countries have a large re-export trade. Detailed statistics for the calendar years 1918–1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|------------------|
| Quantity (pounds)..... | 359,853,178 | 391,249,274 | 343,679,841 | 251,127,961 |
| Value..... | \$37,916,035 | \$57,976,644 | \$54,306,612 | \$18,434,065 |

Important changes in classification.—The specific provision for cocoa shells has been omitted. They would probably be classified as a crude vegetable substance (par. 1617). The provision for cocoa leaves has also been dropped, since there is no commerce in such leaves. Apparently these were confused with coca leaves, the source of cocaine, for which provision is elsewhere made (par. 33). The provision for cocoa fiber, likewise has been dropped; here, apparently there was some confusion with the fiber derived from the coconut, commercially termed coir, which is provided for in paragraph 1551. The term "cocoa or cacao, crude," has been changed to the more general commercial term "cocoa or cacao beans."

PARAGRAPH 1549.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1549. Coffee.

ACT OF 1909.

ACT OF 1913.

PAR. 541. Coffee [Free].

PAR. 457. Coffee [Free].

COFFEE.

(See Survey G-31.)

Description and use.—Coffees are characterized as "strong" and "mild," with subclasses. The product of Brazil is strong, and that of all other countries mild. Strong coffees are chiefly consumed in the United States; Europe prefers the mild types.

Production.—In 1919 Porto Rico yielded approximately 53,000,000 pounds and Hawaii about 20,000,000 pounds. Under the most favorable conditions these islands could hardly produce one-fourth of the 1,000,000,000 pounds required for domestic consumption. Most of the Porto Rican product is shipped to Cuba and Europe. American consumers prefer other varieties. Of the world production, about 2,500,000,000 pounds, Brazil supplies over two-thirds. Through valorization the Government of Brazil exercises a controlling influence over the markets of the world.

Imports of coffee, about three-fourths of which come from Brazil, exceed 1,000,000,000 pounds, valued at about \$100,000,000. The bulk of the Colombian and Venezuelan product is exported to this country and used for blending purposes. Imports for the calendar years 1918-1921 are shown below:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------------|---------------|---------------|------------------|
| Quantity (pounds)..... | 1,053,876,247 | 1,333,455,443 | 1,297,439,303 | 985,075,219 |
| Value..... | \$99,476,716 | \$261,248,807 | \$252,450,649 | \$100,968,461 |

Exports of green coffee are almost entirely from Porto Rico. Some Hawaiian coffee moves to Canada and to Asia. Exports of roasted coffees are chiefly to Canada and Mexico, and to markets wherein the United States has preferential treatment—Cuba, the Philippines, and Panama. Exports for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------------|-------------|-------------|-------------|------------------|
| Coffee, green or raw: | | | | |
| Quantity (pounds)..... | 43,031,687 | 23,289,105 | 34,785,574 | 27,174,162 |
| Value..... | \$6,365,160 | \$7,295,511 | \$9,223,966 | \$4,464,674 |
| Coffee, roasted or prepared: | | | | |
| Quantity (pounds)..... | 1,694,928 | 6,062,449 | 1,971,869 | 858,568 |
| Value..... | \$296,642 | \$1,521,070 | \$579,668 | \$228,572 |

PARAGRAPH 1550.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1550. Coins of gold, silver, copper, or other metal.

ACT OF 1909.

ACT OF 1913.

PAR. 542. Coins of gold, silver, copper, or other metal [Free].

PAR. 458. Coins of gold, silver, copper, or other metal [Free].

COINS.

(See Survey FI-20.)

Description and uses.—Coins are stamped pieces of metal used as media of exchange. The metals most commonly used are gold, silver, and copper. As the coins of different peoples usually vary in size, inscriptions, etc., they circulate in international trade to only a limited extent, trade balances between nations being adjusted mainly by gold and silver bullion.

Production.—No statistics.

Imports of coins in 1914 were valued at \$89,064. Prior to 1914 coins came mainly from Germany and England. The imports in the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------------|---------|---------|---------|------------------|
| Copper coins..... | \$2,112 | \$1,130 | \$3,791 | \$5,313 |
| Other coins, except as money..... | 1,354 | 5,650 | 17,590 | 24,783 |

Exports of United States coins in 1914 were valued at \$7,208. Nearly all the exports went to Cuba. No exports are recorded for later years.

PARAGRAPH 1551.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1551. Coir, and coir yarn.

ACT OF 1909.

ACT OF 1913.

PAR. 543. Coir, and coir yarn [Free].

PAR. 459. Coir, and coir yarn [Free].

COIR AND COIR YARN.

(See Survey FI-16.)

Description and uses.—Coir or coconut fiber is a coarse and stiff but elastic fiber obtained from the fibrous shell of the coconut produced in Ceylon, British India, and other tropical or semitropical countries. For the preparation of the fiber, the unripe nuts are steeped in sea water for several months, after which the fruit is beaten and washed away with water. The residual reddish brown fibrous mass is decorticated by tearing and hackling into fibers about 10 inches in length. The coarsest fibers go into brushes; those that are very short and curly are used for packing and upholstery stuffing; the longest are spun (usually by hand) into coir yarn, for use in making mats and cordage.

Production.—Coir is not produced in the United States, as it is a tropical product. Coir yarn is almost wholly imported. British India is the main producer of coir and coir yarn. That country's statistics show, for the year ended March 31, 1920, total exports of unmanufactured coir to have been 789,152 pounds, valued at about \$34,000, of which over half went to the United Kingdom and about 3 per cent to the United States. In the same year British India exported manufactured coir (excluding rope) to the extent of about 38,000 tons, valued at about \$4,156,000, three-fourths of which went to the United Kingdom and about 8 per cent to the United States.

Imports in the fiscal year 1914 of coir or cocoa fiber were 1,095,360 pounds, valued at \$13,114; and of coir yarn 8,554,032 pounds, valued at \$391,496. Imports are largely from British India. Since 1917 they have been as follows:

| Calendar year. | Coir fiber. | | Coir yarn. | |
|----------------------|---------------------------|----------|-----------------------------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| 1918..... | <i>Pounds.</i> 295,630 | \$10,290 | <i>Pounds.</i> 5,685,758 | \$348,579 |
| 1919..... | 327,000 | 4,247 | 2,475,635 | 160,782 |
| 1920..... | 846,720 | 41,173 | 5,634,257 | 355,889 |
| 1921 (9 months)..... | 763,840 | 26,235 | 1,768,790 | 103,336 |

Important changes in classification.—See paragraph 1548, p. 1280.

PARAGRAPH 1552.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1552. Composition metal of which copper is the component material of chief value, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 545. Composition metal of which copper is the component material of chief value, not specially provided for in this section [Free].

PAR. 460. Composition metal of which copper is the component material of chief value, not specially provided for in this section [Free].

COMPOSITION METAL (COPPER CHIEF VALUE).

(See Survey C-19.)

Description and uses.—Composition metal is commonly limited to Muntz's metal. This is a kind of brass made of three parts copper and two parts zinc. It differs from common brass in being malleable when hot. Being cheaper and more easily rolled, it has displaced copper as sheathing for vessels—its chief use. It is also used to an increasing extent in the manufacture of extruded rods and other shapes. Other special alloys of copper have been included under this paragraph.

Production.—No statistics.

Imports of composition metal, n. s. p. f., in 1914 were 1,035,357 pounds, valued at \$169,154. Prior to 1914 imports were mostly from Germany, France, and Cuba; since 1914 they have been chiefly from England and Cuba, although in 1921 Germany again began to be an important source of supply. The importations for recent calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|----------|-----------|------------------|
| Quantity (pounds)..... | 208,170 | 355,982 | 4,235,647 | 902,352 |
| Value..... | \$44,253 | \$64,028 | \$518,171 | \$98,837 |

Exports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 186,260 | 364,089 | 454,306 | 20,188 |
| Value..... | \$90,128 | \$110,032 | \$117,290 | \$4,427 |

The principal countries of destination were the United Kingdom, Brazil, Italy, Philippine Islands, China, Canada, and Japan.

PARAGRAPH 1553.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1553. Copper ore; regulus of, and black or coarse copper, and copper cement; old copper, fit only for remanufacture, copper scale, clippings from new copper, and copper in plates, bars, ingots, or pigs, not manufactured or specially provided for.

ACT OF 1909.

PAR. 544. Copper ore; regulus of, and black or coarse copper, and copper cement; old copper, fit only for remanufacture, clippings from new copper, and copper in plates, bars, ingots, or pigs, not manufactured or specially provided for in this section [Free].

ACT OF 1913.

PAR. 461. Copper ore; regulus of, and black or coarse copper, and copper cement; old copper, fit only for remanufacture, copper scale, clippings from new copper, and copper in plates, bars, ingots, or pigs, not manufactured or specially provided for in this section [Free].

COPPER AND COPPER ORE.

(See Survey C-19.)

Description.—The principal copper-bearing minerals are native copper; cuprite or copper oxide; malachite or green carbonate of copper; azurite or blue carbonate of copper; chalcopyrite or copper pyrite; bornite or peacock copper; chalcocite or copper glance; chrysocolla or silicate of copper; tetrahedrite, a copper-antimony sulphide; enargite, a copper-arsenic sulphide; and covellite or cupric sulphide.

Important terms referred to in production and trade: Black copper, an impure metal made in the blast furnace from oxidized ores. It always contains one or more metals other than copper and generally from 1 to 3 per cent sulphur. Blister copper, the final product of direct copper-ore smelting, copper ranging from 96 per cent upward. Casting copper, made from blister and scrap, analyzing 99 to 99.75 per cent. Cement copper, obtained by precipitating from solutions usually by scrap iron. Copper scale, the oxide or scale formed on the surface of the copper when in the annealing furnace. Concentrate, the valuable mineral product resultant from mechanical treatment of ore. Converting, a special treatment for the oxidation and reduction of matte to blister copper. Electrolytic copper, produced by electrolytic refining methods. Lake copper, from the native copper mines of the Lake Superior district. Matte, the intermediate product resultant from smelting sulphur-bearing ores, consisting of copper, iron, and sulphur, usually running 25 to 55 per cent copper. Refining, the further treatment of blister copper to produce a commercially pure (99.8 per cent) copper. Smelting, the reduction of ores or concentrates in furnaces by heat and fusion. Regulus is practically synonymous with matte, although its meaning is also extended to cover any metallic mass that separates by gravity from supernatant molten slag. Copper in plates, bars, ingots, or pigs is copper cast in various forms in the smeltery or refinery. The common shapes are ingots (for casting), caked (for making sheets), and wire bars (for rolling or drawing into rods and wire).

Uses.—Copper, because of its low cost, high electrical and thermal conductivity, its great tensile strength, and the ease with which it may be worked, is consumed in large quantities in the manufacture of electrical and mechanical apparatus, alloy metals, munitions of

war, coins, shipbuilding, and in architecture and other arts. Its more important alloys are bronze (copper with tin), brass (copper with zinc), and copper nickel alloys (including natural copper nickel or monel and nickel silver, the latter also containing zinc).

Production.—The production of copper may be discussed in its three stages—mining, smelting, and refining. The United States, which produces more than half of the world's copper, mined in 1914, 35,175,541; in 1917, 58,482,694; and in 1918, 62,304,767 short tons. The ore yielded each year an average of about 1.6 per cent copper. Ore deposits in the United States consist mainly of: (1) the so-called porphyries, with horizontal deposits lying near the surface, as in Utah and Nevada, yielding about 1 per cent copper; (2) deep mines, as in Michigan and at Butte, Mont., yielding 2 to 5 per cent; (3) massive but irregular ore bodies located mainly in Arizona; and (4) pyritic ore bodies, as in Tennessee and California, often profitable even when low grade because both the sulphur and the copper are recovered. About 35 per cent of our copper is produced by the first group; 30 per cent by the second; 25 per cent by the third; 5 per cent by the fourth; and 5 per cent by all others. The smelter production from domestic ores in 1914 amounted to 1,150,137,192 pounds; in 1918 to 1,908,533,595 pounds (fine); and in 1920 to 1,209,061,040 pounds, valued at \$222,467,000. In 1918 the principal producing States in order of their importance were Arizona, Montana, Michigan, and Utah. Other States or regions whose smelter production was large were Nevada, New Mexico, Alaska, and California.

Refinery production of new copper in 1920 amounted to 1,182,423,240 pounds, divided as follows: Electrolytic, 1,010,240,867 pounds; lake, 153,483,952 pounds; castings and pig, 18,698,421 pounds. In 1914 the production totaled 1,533,781,394 pounds, of which 1,210,423,189 pounds represented the output from domestic raw materials. The production from domestic raw materials was classified as follows: Electrolytic, 991,573,073 pounds; lake, 158,009,748 pounds; castings and pig, 60,840,368 pounds. The value of the total output of the country in 1914 was \$152,968,000. In addition to the figures given, 256,000,000 pounds of secondary copper were produced.

Organization.—There is a marked tendency toward large scale production in the manufacture of copper. This tendency is most conspicuous in the refining stage and is more pronounced in the smelting than in the mining stage. In 1917, of the 1,000 mines then operating 31 produced over 85 per cent of the total output of the United States. Smelters operated on a larger scale than did the mines, and 10 electrolytic refineries, mainly in the hands of five groups of producers, have a capacity of 2,780,000,000 pounds a year. The advantages of large scale operations are such that no small producer can enter the field.

United States in relation to world production and consumption.—Because of our great refineries and large interests in Canadian, Mexican, and South American mines about one-third as much copper is now imported for refineries as is produced at home. The developed reserves of copper ore in this country stand in about the same relation to the developed reserves in other countries as does American production to foreign production. These reserves insure for the next 10 years at least a copper production in the United States that will maintain its present relative dominance over all foreign countries.

The principal foreign producers and their output in 1918 were as follows: Japan, 94,286 long tons; Chile, 84,493 tons; Mexico, 74,336 tons; Canada, 51,860 tons; Peru, 44,094 tons. The corresponding production of the United States for the same year was 852,678 tons.

The United States is also the largest consumer of copper. In 1913 the American consumption amounted to 1,085,000,000 pounds, and European consumption to 1,514,240,000 pounds, in which Germany led and England and France followed. In 1918 the consumption of new copper in the United States was 1,661,000,000 pounds, and of new and old copper in 1917, 2,083,000,000 pounds.

Imports.—Imports of ore and concentrates in 1914 were valued at \$9,715,426 with copper contents of 84,439,395 pounds. This ore came from Canada, Mexico, Chile, and Cuba. Matte and regulus, coarse metal, and cement were imported in 1914 to the value of \$3,346,452 with copper contents of 23,051,651 pounds, of which more than one-half came from Chile and the remainder mainly from Peru and Canada. The imports of copper in the form of pigs, ingots, bars, and plates in 1914 amounted to 273,124,725 pounds, valued at \$39,551,093. These imports came mainly from Mexico, Peru, Canada, and Spain. For the same year the imports of old or scrapped copper, copper scale, and copper clippings amounted to 6,590,923 pounds, valued at \$815,465 coming mainly from Canada and Cuba. Imports for later calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|--|--------------|--------------|--------------|-----------------|
| Copper ore: | | | | |
| Quantity— | | | | |
| Tons ¹ | 279,455 | 247,029 | 233,557 | 174,756 |
| Pounds ² | 78,149,304 | 50,888,436 | 48,130,489 | 35,568,795 |
| Value..... | \$14,366,912 | \$9,801,282 | \$9,122,660 | \$5,393,793 |
| Copper concentrates: | | | | |
| Quantity— | | | | |
| Tons ¹ | 171,070 | 125,910 | 134,869 | 62,186 |
| Pounds ² | 46,399,047 | 37,173,757 | 46,475,388 | 24,617,469 |
| Value..... | \$11,532,810 | \$6,993,722 | \$8,779,970 | \$3,528,423 |
| Copper, matte, and regulus, coarse metal and cement: | | | | |
| Quantity— | | | | |
| Tons ¹ | 31,153 | | | |
| Pounds ² | 33,487,530 | | | |
| Value..... | \$7,517,893 | | | |
| Copper, black or coarse metal and cement: | | | | |
| Quantity— | | | | |
| Tons ¹ | | 3,303 | 134 | 350 |
| Pounds ² | | 1,067,705 | 40,406 | 809,102 |
| Value..... | | \$225,133 | \$8,334 | \$98,873 |
| Copper, matte, and regulus: | | | | |
| Quantity— | | | | |
| Tons ¹ | | 33,277 | 20,481 | 15,017 |
| Pounds ² | | 41,582,509 | 17,028,200 | 11,018,637 |
| Value..... | | \$7,713,800 | \$3,115,417 | \$1,539,720 |
| Copper, unrefined, blister and converter, copper and black, copper bullion, etc., n. s. p. f., pigs, converter bars and anodes: | | | | |
| Quantity (pounds)..... | 171,694,272 | 267,128,474 | 244,696,324 | 23,083,194 |
| Value..... | \$88,192,916 | \$55,310,001 | \$45,550,221 | \$16,598,645 |
| Copper, refined, unmanufactured, ready for manufacture, ingots, wire bars, cakes, and cathodes: | | | | |
| Quantity (pounds)..... | 37,325,386 | 35,156,189 | 108,743,298 | 50,234,184 |
| Value..... | \$9,062,380 | \$7,996,380 | \$20,394,924 | \$7,894,477 |
| Copper, old or scrapped, fit only for remanufacture, copper scales and clippings: | | | | |
| Quantity (pounds)..... | 1,918,758 | 4,217,310 | 10,950,233 | 2,627,583 |
| Value..... | \$347,475 | \$343,769 | \$1,292,912 | \$187,194 |

¹ Gross weight.² Copper contents.

Exports of copper are chiefly in the refined form ready for manufacture and consist of ingots, plates, wire bars, etc. They greatly exceed imports. For the calendar years 1918-1921 they have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|---------------|--------------|---------------|------------------|
| Copper ore: | | | | |
| Quantity— | | | | |
| Tons ¹ | 29,378 | 2,601 | 1,237 | 1,355 |
| Pounds ² | 2,337,275 | 507,846 | 248,712 | 299,150 |
| Value..... | \$578,193 | \$96,930 | \$48,601 | \$38,708 |
| Concentrates, matte and regulus: | | | | |
| Quantity— | | | | |
| Tons ¹ | 4,220 | 402 | 157 | 389 |
| Pounds ² | 872,564 | 160,821 | 192,194 | 60,970 |
| Value..... | \$211,392 | \$32,611 | \$30,802 | \$8,000 |
| Copper, unrefined, blister and converter copper, etc.: | | | | |
| Quantity (pounds)..... | 14,687,823 | 1,674,411 | 1,843,293 | 109,639 |
| Value..... | \$3,825,606 | \$360,089 | \$362,101 | \$17,321 |
| Copper, refined, unmanufactured, ready for manufacture, ingots, plates, etc.: | | | | |
| Quantity (pounds)..... | 690,027,891 | 438,160,818 | 551,226,793 | 417,553,939 |
| Value..... | \$178,831,041 | \$95,636,546 | \$108,175,735 | \$55,790,475 |
| Copper, old or scrapped, copper scales and clippings: | | | | |
| Quantity (pounds)..... | 257,403 | 449,804 | 577,319 | 332,632 |
| Value..... | \$60,783 | \$74,104 | \$99,564 | \$42,593 |

¹ Gross weight.

² Copper contents.

Prior to the war our exports of copper in the form of pigs, ingots, and bars went mainly to Germany, France, the Netherlands, and England. In 1914 exports in these forms amounted to 864,602,721 pounds, valued at \$128,137,408, of which 274,065,914 pounds went to Germany, 163,586,230 pounds to France, 162,983,424 pounds to the Netherlands, and 130,012,812 pounds to England. During the war period our copper plates went largely to France, the United Kingdom, and Italy. During the years 1920 and 1921 Germany has been taking an increasing proportion of our exported copper.

Important changes in classification.—Copper in rolled plates has been transferred from the dutiable schedule by omission of the specific provision therefor in paragraph 147 of the act of 1913 from paragraph 378 of the bill H. R. 7456.

PARAGRAPH 1554.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1554. Copper sulphate or blue vitriol; copper acetate and subacetate or verdigris.

ACT OF 1909.

ACT OF 1913.

PAR. 9. Blue vitriol or sulphate of copper, one fourth of one cent per pound.

PAR. 3. * * * salts * * * twenty five per centum ad valorem; * * *

PAR. 706. Verdigris, or subacetate of copper [Free].*

PAR. 421. Blue vitriol, or sulphate of copper; acetate and subacetate of copper, or verdigris [Free].

COPPER SULPHATE AND COPPER ACETATE.

(See Survey FL-8.)

Description and uses.—Blue vitriol, or sulphate of copper, is used chiefly as an insecticide, especially in grape culture. It is also used in calico printing and dyeing; to prevent rotting of timbers; for the preparation of copper pigments; in copper plating solutions, in electric batteries; and for destroying algæ growths in public water supplies.

Verdigris is a basic acetate of copper, of a green or bluish green color. It is used principally as a pigment for oil and water colors.

Production of blue vitriol is largely as a by-product from copper refining, the output in 1914 being 37,152,351 pounds, of which 34,411,443 pounds were produced by refineries. Refinery production was 42,086,107 pounds in 1915, 55,622,345 pounds in 1916, and 50,007,856 pounds in 1917. Production in 1919 according to preliminary figures was 35,288,000 pounds, valued at \$2,285,550.

Production statistics for copper acetate or verdigris are not available.

Imports of blue vitriol have been less than 1 per cent of domestic production. Imports of verdigris in 1914 were 19,009 pounds, nearly 95 per cent from France; 81,005 pounds in 1916; 50,216 pounds in 1917.

Imports for the calendar years 1918–1921 are shown below:

| Calendar year. | Quantity. | Value. | Unit value. |
|-------------------------|----------------|-----------|-------------|
| COPPER SULPHATE. | | | |
| | <i>Pounds.</i> | <i>\$</i> | <i>\$0.</i> |
| 1918..... | 28 | 5 | .18 |
| 1919..... | 16,545 | 2,825 | .17 |
| 1920..... | 558,450 | 32,329 | .06 |
| 1921 (9 months)..... | 316,458 | 16,560 | .05 |
| VERDIGRIS. | | | |
| 1918..... | 22,782 | \$8,219 | \$.36 |
| 1919..... | 35,780 | 13,039 | .36 |
| 1920..... | 22,091 | 4,806 | .22 |
| 1921 (9 months)..... | 5,506 | 954 | .17 |

Exports of blue vitriol, principally to European and South American countries, steadily increased from 1910 to 1917, when they amounted to 28,128,190 pounds. Exports for the calendar years 1918–1921, chiefly to Argentina, Canada, and Mexico, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-----------|-----------|------------------|
| Quantity (pounds)..... | 14,477,339 | 9,140,673 | 3,783,400 | 8,110,487 |
| Value..... | \$1,395,946 | \$928,291 | \$306,690 | \$195,030 |

Export statistics for verdigris are not available.

PARAGRAPH 1555.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1555. Coral, marine, uncut, and unmanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 546. Coral, marine, uncut, and unmanufactured [Free].

PAR. 463. Coral, marine, uncut, and unmanufactured [Free].

CORAL, MARINE, UNMANUFACTURED.

(See Survey N-1.)

Description and uses.—Coral is derived from the skeleton of the coral polyps. It is fairly hard, has the brilliancy of agate, and polishes like gems. The principal varieties are red, black, clear white, dull white, and, the most prized, delicate rose, or flesh color.

Production.—The greater portion of the precious coral entering commerce is produced on the shores and islands of the Mediterranean, though considerable quantities are found on the Persian Gulf, in the Philippines, and elsewhere.

Imports of coral in 1914, mainly from Italy, were valued at \$192; for later calendar years they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------|---------|---------|------------------|
| Quantity (pounds)..... | | 265 | 188 | 1,220 |
| Value..... | \$86 | \$1,306 | \$1,389 | \$1,988 |

PARAGRAPH 1556.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1556. Cork wood, or cork bark, unmanufactured, and cork waste, shavings, and cork refuse of all kinds.

ACT OF 1909.

ACT OF 1913.

PAR. 547. Cork wood, or cork bark, unmanufactured [Free].

PAR. 464. Cork wood, or cork bark, unmanufactured, and cork waste, shavings, and cork refuse of all kinds [Free].

CORK BARK AND CORK WASTE.

(See Survey N-4.)

Description and uses.—Corkwood or bark is derived from an evergreen oak common to southern Europe and northern Africa. The trees are stripped at intervals of nine years, each yielding about 45 pounds of commercial bark varying in thickness from one-half inch to 2 inches. Cork waste is the residue from the cutting of natural cork articles, and also the forest waste or refuse remaining after the selection of the commercial bark. (See paragraph 1412 for uses.)

Production.—Portugal leads in cork production, with Spain a close second. The estimated output of the former in 1913 was 100,000

tons, and Spain produced 78,000 tons in 1912. About 85 per cent of the total product of the world is absorbed by the manufactures of France, Great Britain, Germany, and the United States. No cork bark is grown in the United States.

Import values of cork wood, waste, shavings, etc., since 1910 ranged between \$3,000,000 and \$4,000,000, except in 1915 and 1911, when they were \$2,762,895 and \$4,274,810, respectively. Imports during the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|--|-------------|-------------|-------------|-----------------|
| Cork wood or bark, unmanufactured: | | | | |
| Quantity (pounds)..... | 22,560,069 | 23,286,942 | 53,927,976 | 14,711,163 |
| Value..... | \$1,297,036 | \$1,802,506 | \$2,596,600 | \$725,443 |
| Cork waste, shavings and refuse of all kinds: | | | | |
| Quantity (pounds)..... | 72,421,740 | 131,641,699 | 169,549,364 | 59,165,662 |
| Value..... | \$1,233,009 | \$2,558,556 | \$3,741,730 | \$1,066,015 |

Almost all of these imports are from Portugal and Spain.

PARAGRAPH 1557.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1557. Cotton and cotton waste.

ACT OF 1909.

ACT OF 1913.

PAR. 548. Cotton, and cotton waste or flocks [Free].

PAR. 467. Cotton, and cotton waste or flocks [Free].⁷

COTTON AND COTTON WASTE.

(See report on American Raw Cotton Industry.)

RAW COTTON.

Description and uses.—The domestic cottons are short-staple upland, long-staple upland, American-Egyptian, and sea-island. The short-staple upland is under 1½ inches in length and can be spun only into coarse and medium counts, but it is the most widely used cotton grown. Long-staple upland runs from 1½ to 1¾ inches, together with a small amount in longer lengths, and is mainly employed in counts from 40s to 100s. Sea-island cotton is the longest, finest, and silkiest, and the best quality can be spun to 400s or finer. It varies in length from 1¾ to 2½ inches, with an average of about 1¾. American-Egyptian cotton is a recent development of acclimated Egyptian long staple. Production is now confined to the Pima variety, with a staple length of about 1¾ inches; this is used mainly in the manufacture of tire fabrics.

Production.—Cotton ranks second to corn as the most valuable crop grown in this country. The total value of lint cotton produced in the United States was \$591,130,000 in 1914; \$2,030,960,000 in

⁷ Seven cents per pound imposed by par. 16 of the emergency tariff act of May 27, 1921, on cotton having a staple of 1½ inches or more in length.

1919; and \$1,067,240,000 in 1920. The following table gives in bales of 500 pounds net weight the American output and estimated world production of commercial cotton as reported by the Federal Census:

| Year. | World. | | United States. | |
|-----------|------------|--|----------------|-----------|
| | Bales. | | Bales. | Per cent. |
| 1914..... | 23,768,000 | | 16,437,955 | 69.2 |
| 1917..... | 17,343,000 | | 10,812,701 | 62.3 |
| 1918..... | 17,940,000 | | 11,520,367 | 64.2 |
| 1919..... | 19,330,000 | | 10,924,435 | 56.5 |
| 1920..... | 18,810,000 | | 12,859,030 | 68.4 |

The domestic acreage for all varieties was 36,832,000 in 1914; 36,008,000 in 1918; 33,566,000 in 1919; and 35,504,000 in 1920. The acreage and estimated yield for 1921 is the smallest in 20 years; This is due to the fall in the price of cotton, to insect pests, and to unfavorable weather conditions.

Production of short-staple uplands, under 1½ inches in length, constituted 91.2 per cent of the total in 1919 and 90.2 per cent in 1920; as compared with 7.5 per cent and 8.3 per cent, respectively, in the same years for cotton 1½ to 1¾ inches in length; and 1.3 per cent and 1.5 per cent, respectively, for cotton over 1¾ inches in length.

The United States is not only the largest producer of short-staple cotton under 1½ inches in length, but also of long-staple cotton of 1½ inches or more. In 1920 the United States produced 1,317,000 bales of the latter as compared with about 1,000,000 bales in Egypt, the next largest source. Cotton of extra-long staple, such as 1¾ inches and above, is produced most largely in Egypt. The American production of extra-long staple is relatively small; it consists mainly of American-Egyptian and a small amount of long-staple upland. The production of sea-island, which was 117,559 running bales in 1916, was reduced by reason of the boll weevil to 1,868 running bales in 1920.

The production of American-Egyptian cotton, which was inaugurated about 1912, had increased by 1920 to 91,965 bales of 500 pounds each. This cotton was produced on about 240,000 acres of irrigated land in the Southwest. Maricopa County, Arizona, with about 185,000 acres in cotton, was the main center. The Department of Agriculture states:

The market for the 1920 crop of this type of cotton was badly demoralized by the suspension of production of tire fabrics and in part by unprecedentedly large imports of Egyptian cotton early in the year. As a result of adverse marketing conditions the acreage planted to Pima cotton was much reduced. It is now estimated that the acreage in Maricopa County, Arizona, for 1921 will be about 70,000, with possibly 10,000 acres in other irrigated valleys in Arizona and California.

India ranks second in the production of cotton, followed by China, Egypt, Russia, Brazil, Mexico, Turkey, Persia, and Peru.

Imports in 1914 were 246,699 bales (500 pounds gross), valued at \$19,456,565. Imports in later calendar years were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|---------------------------------|--------------|--------------|---------------|-----------------|
| Quantity (500-pound bales)..... | 223,167 | 350,717 | 599,989 | 1,128,090 |
| Value..... | \$41,624,080 | \$71,886,290 | \$138,748,995 | \$14,638,664 |

¹ Includes 6,008 bales, valued at \$754,451, of cotton dutiable under the emergency tariff act because of extra-long staple (1½ inches and above).

General imports in 1921, by months, were as follows:

| Month. | Quantity (equivalent 500-pound bales). | Value. | Month. | Quantity (equivalent 500-pound bales). | Value. |
|---------------|---|-------------|----------------|---|-----------|
| January..... | 24,024 | \$3,397,802 | July..... | 3,452 | \$320,685 |
| February..... | 28,095 | 2,917,069 | August..... | 5,630 | 733,024 |
| March..... | 27,282 | 2,743,354 | September..... | 6,361 | 526,040 |
| April..... | 18,730 | 2,204,697 | October..... | 31,260 | 3,476,655 |
| May..... | 10,105 | 1,152,511 | November..... | 51,440 | 6,039,454 |
| June..... | 10,542 | 1,312,639 | December..... | 61,006 | 8,073,213 |

There are many types of cotton, and in spite of its enormous surplus production the United States finds it necessary to import certain varieties from abroad. These cottons, of special characteristics, are supplementary rather than competitive, and in general are higher in price than the domestic product. They may be classed as (1) Egyptian, (2) Mexican, (3) Chinese and Indian, and (4) Peruvian. Imports, by countries of production, during crop years ended July 31 are recorded by the Bureau of the Census as follows:

[Bales (equivalent 500 pounds).]

| Crop year. | Total. | Produced in— | | | | | |
|------------|---------|--------------|---------|--------|--------|--------|----------------------|
| | | Egypt. | Mexico. | China. | Peru. | India. | All other countries. |
| 1921..... | 226,341 | 87,168 | 88,155 | 14,722 | 22,597 | 8,489 | 5,210 |
| 1920..... | 700,214 | 485,004 | 65,343 | 57,185 | 63,426 | 14,358 | 14,898 |
| 1919..... | 261,585 | 100,006 | 54,434 | 10,871 | 26,230 | 2,895 | 8,151 |
| 1918..... | 221,216 | 114,580 | 35,726 | 38,964 | 19,692 | 7,096 | 5,158 |
| 1917..... | 291,957 | 199,892 | 32,858 | 36,063 | 11,069 | 3,860 | 8,215 |
| 1916..... | 437,574 | 350,796 | 30,098 | 35,792 | 10,909 | 4,214 | 5,765 |
| 1915..... | 382,286 | 252,373 | 85,190 | 25,631 | 10,353 | 7,845 | 904 |
| 1914..... | 260,988 | 138,579 | 80,235 | 29,772 | 12,627 | 7,819 | 876 |

It is seen that Egyptian cotton is normally the main import. This cotton enters chiefly for use in making tire fabrics, probably less than 20 per cent of the total being employed for other purposes, such as the manufacture of thread, lace, knit goods, and fine cloths. The record imports in 1920 were due mainly to the apparently insatiable demand for tire fabrics in the fall of 1919 and early part of 1920.

The Mexican cotton is nearest to the American in its characteristics and is partly good-staple cotton from the Laguna section and partly longer-stapled cotton from the Imperial Valley of California Baja. At a number of border points Mexican cotton is brought into the United States for ginning. This cotton is exported as American cotton or used to supplement our shortage of long-staple cottons.

The Chinese and Indian cottons are harsh and of short staple. They are used as filling in cotton blankets, to which they impart a special feel.

The Peruvian cotton imported is mainly "Rough Peruvian" tree cotton, sometimes called "vegetable wool." This is not used in cotton manufacture, but is imported for mixing with wool, and the price depends on the price of wool and the supply of Rough Peruvian rather than on the price of cotton.

Exports.—Prior to the war, raw cotton was normally the leading export of the United States. Exports in 1914, excluding linters, were 9,521,881 bales (equivalent 500 pounds), valued at \$610,475,301. Later exports for calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------------|---------------|-----------------|-----------------|------------------|
| Quantity (500-pound bales)..... | 4,096,307 | 6,709,972 | 6,310,541 | 4,393,288 |
| Value..... | \$665,242,273 | \$1,135,360,540 | \$1,134,790,044 | \$316,220,673 |

The United Kingdom is the largest purchaser. Japan now ranks second, followed by France, Germany, and Italy, and then by smaller users such as Spain, Belgium, and Canada. Prior to the war exports considerably exceeded domestic consumption; in the years 1915-1919 consumption exceeded exports.

LINTERS.

Description and uses.—Cotton linters are the short fuzz left on cotton seed after the lint is removed by ginning; they are removed by a special machine in the cottonseed oil mills before the seed are crushed. In some cases every vestige of fiber is removed by a third process, the product being called "delinters" or "hull fiber." Linters are used for batting; wadding; stuffing material (in mattresses, comforters, horse collars, and upholstery); absorbent cotton; mixing with shoddy; mixing with wool in hatmaking and in fleece-lined underwear; low-grade yarns (for wicking, twine, rope, and carpets); and cellulose for making artificial silk, paper, and explosives. The demand for the last-named purpose, i. e., making gun-cotton and niter powder, predominated during the World War.

Production, in equivalent 500-pound bales, amounted to 856,900 in 1914, 929,516 in 1918, 607,969 in 1919, and 440,313 in 1920. High war prices made it profitable to scrape this fuzz from the seed most completely, as much as 150 to 200 pounds being obtained from a ton of seed. Ordinary commercial usages require a better grade, hence a lower yield results.

Imports.—None are recorded. The production of linters in other countries is very small. Egyptian seed is clean and flossless after ginning, as are also sea island and some other types. Indian cotton seed has a thinner hull than American upland cotton seed and is fed to cattle or crushed for oil without removal of the linters.

Exports were 225,690 bales, valued at \$3,665,017, in 1915; and in 1917, the maximum year, 473,948 bales, valued at \$24,110,815. Exports were 140,043 bales, valued at \$8,880,517, in 1918; 25,384 bales, valued at \$1,010,712, in 1919; 48,086 bales, valued at \$1,618,872, in 1920; and 59,025 bales, valued at \$943,907, in the first nine months of 1921.

COTTON WASTE.

Description and uses.—Waste is made at every machine process as cotton passes through the mill. A larger percentage of waste is made in the manufacture of fine yarns than of coarse, but the average is estimated at 15 per cent, of which 12 per cent is reworked into inferior products or otherwise utilized and 3 per cent lost in the form of sand and moisture. There are two kinds (1) soft waste, which has no

twist and is made at machines up to the spinning frame, including such types as motes, card fly, flat and cylinder strips, and roving waste; and (2) hard waste, having some twist, which is made at the spinning frame and subsequent machines, including such types as spinning waste, cop bottoms, reel waste, and twister waste. Hard waste must be torn up into its original fibers by a special machine before it can be reworked; soft waste needs only to be cleaned before reworking. Cotton waste is used as filling in making cotton blankets, flannelettes, cheap trousering, towels, etc., and as both warp and filling in making sacks, scrubbing cloths, dishcloths, etc., also for candle and lamp wicks, wadding for surgical purposes, guncotton, etc. Flocks, short fibers removed from cloth during the brushing and napping, are much less important than many other types of waste.

Production of cotton-mill waste in 1914 amounted to 634,396 bales (equivalent 500 pounds), valued at \$14,417,000, and in 1919 to 609,640 bales, valued at \$35,741,000. This is the amount sold and does not include that reworked in mills where produced.

Imports in 1914 were 53,411 bales (equivalent 500 pounds), valued at \$1,288,105. Later imports by calendar years were: In 1918, 2,535 bales, valued at \$94,123; in 1919, 4,249 bales, valued at \$216,878; in 1920, 18,185 bales, valued at \$947,542; and in the first nine months of 1921, 7,364 bales, valued at \$253,239. Imports, mainly of hard thread waste for machine wiping, come principally from England, Canada, Italy, and Japan.

Exports in 1914 were 134,501 bales (equivalent 500 pounds), valued at \$4,566,769. Later exports by calendar years were: In 1918, 93,737 bales, valued at \$9,488,664; in 1919, 114,636 bales, valued at \$12,411,704; in 1920, 115,754 bales, valued at \$12,368,596; and in the first nine months of 1921, 49,830 bales, valued at \$2,155,238. Exports, mainly of soft waste for remanufacture, are sent in largest quantities to England, Germany, Canada, and Italy.

Important changes in classification.—The word "flocks" has been omitted because this is a cotton waste of little importance and is included in the term "cotton waste."

Suggested changes.—Page 184, line 17: Insert a comma between "cotton" and "and."

PARAGRAPH 1558.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1558. Cryolite, or kryolith.

ACT OF 1909.

ACT OF 1913.

PAR. 549. Cryolite, or kryolith [Free].

PAR. 468. Cryolite, or kryolith [Free].

CRYOLITE OR KRYOLITH.

(See Survey FL-24.)

Description and uses.—Cryolite is a natural double fluoride of sodium and aluminum. It is used chiefly in the aluminum industry where it is now being partially displaced by fluorspar. Cryolite is also used to some extent in opalescent glasses and enamels. It was

formerly employed for the manufacture of soda, but this is now made much more cheaply from common salt.

Production.—The entire world's supply of cryolite comes from one deposit in Greenland. It is found in other localities, notably around Pike's Peak, Colo., but not in commercial quantities.

Imports of cryolite in 1914 were 2,157 long tons, valued at \$47,435. There is but one importer in North America. At least one-fourth of the imports are reexported to Canada. Imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|--------------|----------|-------------|
| | <i>Tons.</i> | | |
| 1918..... | 1,950 | \$97,500 | \$50.00 |
| 1919..... | 2,131 | 108,956 | 50.19 |
| 1920..... | 3,864 | 193,638 | 50.11 |
| 1921 (9 months)..... | 3,287 | 208,686 | 63.49 |

PARAGRAPH 1559.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1559. Metallic mineral substances in a crude state, and metals unwrought, whether capable of being wrought or not, not specially provided for.

ACT OF 1909.

PAR. 172. * * * barium, calcium, * * * sodium, and potassium, and alloys of which said metals are the component material of chief value, three cents per pound and twenty-five per centum ad valorem.

PAR. 183. Metallic mineral substances in a crude state, and metals unwrought, whether capable of being wrought or not, not specially provided for in this section, twenty per centum ad valorem; * * *

ACT OF 1913.

PAR. 143. * * * barium, calcium, * * * sodium, and potassium, and alloys of which said metals are the component material of chief value, 25 per centum ad valorem.

PAR. 154. Metallic mineral substances in a crude state, and metals unwrought, whether capable of being wrought or not, not specially provided for in this section, 10 per centum ad valorem; * * *

METALLIC MINERAL SUBSTANCES AND METALS UNWROUGHT.

(See Surveys C-16 and C-22.)

Description and uses.—The terms "metallic mineral substances" and "metals unwrought" apply to metals in their native state or in a crude or raw condition and not elsewhere provided for. The former term has been interpreted to embrace such merchandise as aluminum foundry ashes, zinc dross or galvanizers' skimmings, tin dross, and meteoric iron. At one time considerable doubt existed as to the precise meaning of "metals unwrought" and judicial decisions limited the applicability of the term to metals capable of being wrought or imported for the purpose of being worked up into useful articles commercially profitable. In the acts of 1909 and 1913 the phrase "metals unwrought" was given a wider application by the additional words "whether capable of being wrought or not." In H. R. 7456 this term covers barium, calcium, sodium, and potassium, which are specifically mentioned in paragraph 143, and arsenic metal,

which is specifically mentioned in paragraph 403, of the act of 1913. It also includes alloys not specially provided for, except ferro-alloys (par. 302), nickel silver (par. 377), and those of chief value of aluminum (par. 374), copper (par. 1552), gold (par. 1537), lead (par. 389), magnesium (par. 375), and nickel (par. 385). Natural platinum alloys are provided for, but artificial alloys would come under this designation, as would also pyrophoric alloys when not cut into sizes or classed as ferrocium. In addition to the above, there are about 27 different rare or noncommercial metals that would come under this paragraph, if imported.

Production.—Except for certain white metal alloys, statistics for which are not available, the output of these products is not very large, either in this or foreign countries.

Imports of the alkali metals have been derived mostly from Germany, except sodium, which is also imported from Scandinavian countries. Imports of arsenic metal, mainly from Germany, are included with those of sulphide of arsenic (par. 1513). Of the imports of unspecified metals, white metal in various forms from Canada is the main item. Statistics since 1917 by calendar years are as follows:

| Calendar year. | Quantity. | Value. | Duty. | Equivalent ad valorem. |
|---|----------------|----------|---------|------------------------|
| METALS, UNWROUGHT OR IN CRUDE STATE, N. S. P. F. | | | | |
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | | \$73,514 | \$7,339 | 10 |
| 1919..... | 2,920,530 | 93,670 | 9,365 | 10 |
| 1920..... | 4,886,318 | 178,411 | 17,841 | 10 |
| 1921 (9 months)..... | 3,560,064 | 71,358 | | |
| BARIUM. | | | | |
| 1919..... | 100 | \$163 | \$41 | 25 |
| 1920..... | 51 | 62 | 15 | 25 |
| 1921 (9 months)..... | | 668 | | |
| CALCIUM. | | | | |
| 1919..... | 21,622 | \$3,918 | \$979 | 25 |
| 1920..... | 71 | 60 | 15 | 25 |
| 1921 (9 months)..... | 2,226 | 2,651 | | |
| POTASSIUM. | | | | |
| 1921 (9 months)..... | 15,232 | \$594 | | 25 |
| SODIUM. | | | | |
| 1919..... | 5,600 | \$684 | \$171 | 25 |
| 1921 (9 months)..... | 67,288 | 2,832 | | |

Exports.—None recorded.

Important changes in classification.—The provisions of this paragraph were in dutiable schedules of the acts of 1913 (par. 154), 1909 (par. 183), 1897 (par. 183), 1890 (par. 202), and 1883 (par. 215). Barium, calcium, sodium, and potassium and alloys of which these metals are

the component materials of chief value, are transferred to this paragraph from paragraph 143 of the metal schedule of the act of 1913.

Suggested changes.—This paragraph includes arsenic metal, which is not specifically mentioned, although white arsenic, the raw material from which it is made, is dutiable under paragraph 1 of H. R. 7456. This paragraph, furthermore, exempts from duty metals made dutiable by H. R. 7456, notably tin and antimony, when such metals are alloyed with other metals.

PARAGRAPH 1560.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1560. Cuttlefish bone.

ACT OF 1909.

ACT OF 1913.

PAR. 553. Cuttlefish bone [Free].

PAR. 472. Cuttlefish bone [Free].

CUTTLEFISH BONE.

Description and uses.—Cuttlefish bone, or cuttle bone, is the internal plate of the cuttlefish, a friable, calcareous substance formerly much used in medicine as an absorbent, but now chiefly for polishing wood, paints, varnish, etc., and in tooth powder. It is fed to canaries for the lime it contains.

Imports of cuttlefish bone in 1914 were 309,540 pounds, valued at \$56,051, and during the calendar years 1918–1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 212,298 | 338,875 | 444,565 | 90,512 |
| Value..... | \$55,753 | \$138,932 | \$106,191 | \$19,099 |

Exports.—None recorded.

PARAGRAPH 1561.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1561. Glaziers' and engravers' diamonds, unset; miners' diamonds.

ACT OF 1909.

ACT OF 1913.

PAR. 555. * * * glaziers' and engravers' diamonds not set [Free].⁸

PAR. 474. Glaziers' and engravers' diamonds, unset, miners' diamonds [Free].

PAR. 556. Miners' diamonds, whether in their natural form or broken, * * * any of the foregoing not set, * * * [Free].

⁸ See note, par. 1429, p. 1148.

GLAZIERS' AND ENGRAVERS' DIAMONDS, ETC.

(See Survey N-1.)

Description and uses.—Glaziers' and engravers' diamonds, unset, and miners' diamonds are usually of an amorphous variety, brown, gray, or black in color. Small uncut diamonds, preferably from crystals with a natural curved edge, are employed by glaziers for cutting glass. While bort may be used for engraver's purposes, it usually requires manipulation or advancement. Minute fragments or splinters of bort are also used for making fine drills, employed for drilling small holes in rubies and other hard stones and for piercing china, porcelain, glass, artificial teeth, etc. Rock drilling, in which a rotary drill armed with impure diamonds is used, is the most important industrial application.

Production.—See paragraph 1429, page 1149.

Imports in 1918 of glaziers' and engravers' diamonds, unset, and miners' diamonds, amounted to \$1,049,975. Increases have occurred since 1914 when the imports amounted to \$101,839. Recently the largest imports have come from Brazil; substantial amounts, however, are also received from England, France, and the Netherlands. During the calendar years 1919-1921 imports were as follows:

| | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|---------------|------------------|
| Quantity (carats)..... | 25, 279 | 61, 214 | 10, 838 |
| Value..... | \$984, 381 | \$1, 527, 753 | \$364, 442 |

Exports.—None recorded.

PARAGRAPH 1562.

H. R. 7459.

SENATE AMENDMENTS.

PAR. 1562. Drugs such as barks, beans, berries, buds, bulbs, bulbous roots, excrescences, fruits, flowers, dried fibers, dried insects, grains, herbs, leaves, lichens, mosses, logs, roots, stems, vegetables, seeds (aromatic, not garden seeds), seeds of morbid growth, weeds, and all other drugs of vegetable or animal origin; all of the foregoing which are natural and un-compounded drugs and not edible, and not specially provided for, and are in a crude state, not advanced in value or condition by shredding, grinding, chipping, crushing, or any other process of treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture: *Provided*, That no article containing alcohol shall be admitted free of duty under this paragraph.

ACT OF 1909.

PAR. 559. Drugs, such as barks, beans, berries, * * * buds, bulbs, bulbous roots, excrescences, fruits, flowers, dried fibers, dried insects, grains, * * * herbs, leaves, lichens, mosses, nuts, * * * roots, stems, spices, vegetables, seeds (aromatic, not garden seeds), seeds of morbid growth, weeds, * * * any of the foregoing which are natural and uncompounded drugs and not edible and not specially provided for in this section, and are in a crude state, not advanced in value or condition by any process or treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture [Free]: *Provided*, That no article containing alcohol, or in the preparation of which alcohol is used, shall be admitted free of duty under this paragraph.

PAR. 504. Balm of Gilead [Free].

PAR. 666. Salep, or salop [Free].

ACT OF 1913.

PAR. 477. Drugs, such as barks, beans, berries, buds, bulbs, bulbous roots, excrescences, fruits, flowers, dried fibers, dried insects, grains, * * * herbs, leaves, lichens, mosses, logs, roots, stems, vegetables, seeds (aromatic, not garden seeds), seeds of morbid growth, weeds; any of the foregoing which are natural and uncompounded drugs and not edible and not specially provided for in this section, and are in a crude state, not advanced in value or condition by shredding, grinding, chipping, crushing, or any other process or treatment whatever beyond that essential to the proper packing of the drugs and the prevention of decay or deterioration pending manufacture [Free]: *Provided*, That no article containing alcohol shall be admitted free of duty under this paragraph.

PAR. 409. Balm of Gilead [Free].

PAR. 592. Salep, or salop [Free].

DRUGS, NOT ADVANCED.

[For discussion, see pars. 31 and 32 on pp. 89-96.]

PARAGRAPH 1563.

H. R. 7456.

PAR. 1563. Dyeing or tanning materials: Fustic wood, hemlock bark, logwood, mangrove bark, oak bark, quebracho wood, wattle bark, divi-divi, myrobalans fruit, sumac, valonia, nutgalls or gall nuts, and all articles of vegetable origin used for dyeing, coloring, staining, or tanning, whether crude or treated solely for proper packing or prevention of decay or deterioration pending manufacture; all the foregoing not containing alcohol and not specially provided for.

SENATE AMENDMENTS.

ACT OF 1909.

PAR. 559. * * * woods used expressly for dyeing or tanning; [Free] * * * *Provided*, That no article containing alcohol, or in the preparation of which alcohol is used, shall be admitted free of duty under this paragraph.

PAR. 557. Divi-divi [Free].

PAR. 632. Myrobalans [Free].

PAR. 705. Valonia [Free].

PAR. 499. Articles in a crude state used in dyeing or tanning not specially provided for in this section [Free]. [Covered hemlock bark and logwood.]

[No corresponding provision for sumac.]

ACT OF 1913.

PAR. 624. Tanning material: * * * nuts and nutgalls and woods used expressly for dyeing or tanning, whether or not advanced in value or condition by shredding, grinding, chipping, crushing, or any other process; and articles in a crude state used in dyeing or tanning; all the foregoing not containing alcohol and not specially provided for in this section [Free].

PAR. 475. Divi-divi [Free].

PAR. 553. Myrobalans fruit [Free].

PAR. 618. Sumac, * * * unground [Free].

PAR. 639. Valonia [Free].

DYEING OR TANNING MATERIALS.

(See Survey A-8.)

[The crude dyeing and tanning materials of this paragraph are discussed under Extracts, par. 36, p. 105.]

Important changes in classification.—Dyeing has been added to the heading. The following important tanning materials are mentioned for the first time in this paragraph: Fustic wood, hemlock bark, oak bark, logwood, mangrove bark, quebracho wood, and wattle bark.

Suggested changes.—Many of the dyeing or tanning materials provided for in this paragraph may be imported in different forms. For example, sumac is imported as "ground" and "unground," and the woods, such as quebracho wood and logwood, may be imported in logs or in chips made from the logs. The phrase "whether crude or treated solely for proper packing or prevention of decay or deterioration pending manufacture" might exclude advanced forms from this paragraph. If so excluded, they might come within paragraph 1458 as unenumerated articles. The products in paragraph 1563, whether crude or advanced by chipping and similar processes, are used as raw materials for the manufacture of tanning and dyeing extracts, which are dutiable under paragraph 36. If it is desired to include these articles, when shredded, ground, etc., in this paragraph, the phrase "whether crude or advanced in value or condition by shredding, grinding, chipping, crushing, or any similar process," might be substituted for the words "whether crude or treated solely for proper packing or prevention of decay or deterioration pending manufacture," in paragraph 1563.

NUTGALLS OR GALL NUTS.

(See Survey A-1.)

Description and uses.—The term "galls" includes a variety of plant excrescences caused by the puncture of insects for laying their eggs, or less frequently induced by fungi. Oak galls or oak apples or Aleppo galls are induced on certain species of oak by the gall wasp. The bud swells to the size of a hazel nut. The green galls are of a higher quality, while the white galls, from which the insect has escaped, are inferior. The best oak galls contain 50 to 60 per cent tannin. They are gathered in southern Europe and Asia Minor, particularly in Greece and the Levant.

The Chinese and Japanese galls are produced on the *Rhus semialata*. They are light, distorted, covered by a velvety down, and contain about 70 per cent tannin or tannic acid, which is extracted from them. (See Tannic acid, par. 1, p. 15.)

Production.—No domestic production.

Imports of nuts and nutgalls for 1908-1918 averaged about \$230,000. The imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|-----------|-------------|
| | Pounds. | | |
| 1918..... | | \$632,963 | ..... |
| 1919..... | 579,891 | 135,985 | \$0.23 |
| 1920..... | 4,034,572 | 975,610 | .24 |
| 1921 (9 months)..... | 465,976 | 81,897 | .18 |

Suggested changes.—Nutmalls or gall nuts are not primarily used for dyeing or tanning as are the other articles in this paragraph and might therefore be provided for in a separate paragraph immediately before paragraph 1620.

PARAGRAPH 1564.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1564. Eggs of birds, fish, and insects (except fish roe for food purposes): *Provided*, That the importation of eggs of wild birds is prohibited, except eggs of game birds imported for propagating purposes under regulations prescribed by the Secretary of Agriculture, and specimens imported for scientific collections.

ACT OF 1909.

ACT OF 1913.

PAR. 560. Eggs of birds, fish, and insects (except fish roe preserved for food purposes): *Provided, however*, That the importation of eggs of game birds or eggs of birds not used for food, except specimens for scientific collections, is prohibited: *Provided further*, That the importation of eggs of game birds for purposes of propagation is hereby authorized, under rules and regulations to be prescribed by the Secretary of the Treasury [Free].

PAR. 478. Eggs of * * * birds, fish, and insects (except fish roe preserved for food purposes): *Provided, however*, That the importation of eggs of game birds or eggs of birds not used for food, except specimens for scientific collections, is prohibited: *Provided further*, That the importation of eggs of game birds for purposes of propagation is hereby authorized, under rules and regulations to be prescribed by the Secretary of the Treasury [Free].

PAR. 674. Silkworm eggs [Free].

PAR. 601. Silkworm eggs [Free].

EGGS OF BIRDS, FISH, AND INSECTS.

GENERAL.

This clause prohibits the importation of eggs of wild birds, except for propagation. The purpose of this legislation is to prevent decimation of flocks of migratory birds or fowls; also to check imports of eggs of undesirable or harmful species.

SILKWORM EGGS.

(See Survey L-1.)

Description and uses.—Included in this provision through the elimination of paragraph 601 of the act of 1913, are the eggs of the mulberry butterfly, from which silkworms are artificially hatched after a lapse of about 10 months, during which the eggs are kept in some form of cold storage. These worms feed for about four weeks and then spin the cocoon, the spinning process taking about three days. After 12 to 18 days in the chrysalis stage within the cocoon the adult insect emerges. With most of the races there is but one generation each year.

Imports of silkworm eggs during the period 1911-1917 occurred in only two years and were insignificant; 1911, \$6; 1917, \$353. These imports were made in the course of unsuccessful attempts to establish

the raw-silk industry in the United States. Imports during the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------------------|-----------|---------|---------|------------------|
| Eggs of birds, fish, and insects..... | \$120,131 | \$5,268 | \$9,729 | \$418 |
| Silkworm eggs..... | 26,795 | 8,952 | 1,848 | 851 |

Important changes in classification.—Specific provision for silkworm eggs in the act of 1913 (par. 601) has been dropped because of their unimportance. The proviso combines two provisos in paragraph 478 of the act of 1913; the word "preserved" has been dropped in connection with fish roe, since it has given rise to litigation; the limiting provision regarding eggs has been changed to those of wild birds, and the regulatory work transferred from the Treasury to the Agricultural Department.

PARAGRAPH 1565.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1565. Emery ore and corundum ore.

ACT OF 1909.

ACT OF 1913.

PAR. 561. Emery ore and corundum [Free].

PAR. 479. Emery ore and corundum, * * * [Free].

EMERY ORE AND CORUNDUM ORE.

(See Survey B-3.)

Description and use.—Emery and corundum prior to the invention of artificial abrasives were the most important abrasive materials. Corundum is a natural crystalline mineral composed of aluminum oxide. Emery is an impure form of corundum. They are used in making emery cloth and paper and are manufactured into grinding wheels by mixing with suitable binding materials.

Production.—The chief commercial sources of emery ore are the Greek Island of Naxos and the Province of Smyrna in Asia Minor. Emery is produced in the United States, chiefly in the Peekskill district of New York and in Pittsylvania County, Va. The domestic production in 1914 was 485 tons, valued at \$2,425; in 1917, 16,315 tons, valued at \$173,589; and in 1920, 2,327 tons, valued at \$21,685.

Canada, which was formerly the chief source of corundum, has produced little since 1913. There are important deposits in India and South Africa from which considerable quantities were imported into this country during the war. The crude ore is usually shipped to Glasgow for refining and then reexported to this country. The domestic production in 1917 (all from North Carolina) was 820 tons, valued at \$67,461. In 1918 production increased, but during 1919 and 1920 the domestic output has been practically nil.

Imports.—Imports since 1917, by calendar years, are tabulated as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|-----------|-----------|------------------|
| Emery: | | | | |
| Quantity (tons)..... | 4,956 | 8,302 | 5,396 | 4,781 |
| Value..... | \$148,228 | \$235,506 | \$222,321 | \$168,588 |
| Corundum: | | | | |
| Quantity (tons)..... | 1,721 | 3,099 | 2,828 | 908 |
| Value..... | \$174,382 | \$286,440 | \$297,518 | \$101,974 |

Exports.—None recorded.

Important changes in classification.—“Ore” was added to confine corundum to the ore.

PARAGRAPH 1566.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1566. Enfleurage greases, floral essences and floral concretes: *Provided*, That no article mixed or compounded or containing alcohol shall be exempted from duty under this paragraph.

ACT OF 1909.

ACT OF 1913.

PAR. 639. Oils: * * * jasmine or jasimine, * * * enfleurage grease, liquid and solid primal flower essences not compounded * * * [Free].

PAR. 46. Oils, distilled and essential: * * * jasmine or jasimine; * * * 20 per centum ad valorem: * * *.

PAR. 49. * * * enfleurage greases and floral essences by whatever method obtained; * * * all the foregoing not containing alcohol and not specially provided for in this section, 20 per centum ad valorem.

ENFLEURAGE GREASE AND FLORAL ESSENCES AND CONCRETES.

(See Survey A-14.)

Description and uses.—Enfleurage greases and pomades are greases or fats saturated with the odoriferous essential oils of certain flowers resulting from the enfleurage process in perfume manufacture. This process is described under paragraphs 54 and 56. The pomades contain only a small portion of odorous substances and the greases and fats employed (usually lard or tallow) will turn rancid in time. Such objections have led to improved methods of recovering these delicate essential oils by means of volatile solvents, described under paragraph 54. The so-called flower concretes or floral essences are made by this method in southern France.

Imports of enfleurage grease, not containing alcohol, in 1913 were 92,446 pounds, valued at \$124,195, and were free of duty.

Imports of flower essences, liquid and solid primal, in 1913 were 9,440 pounds, valued at \$470,684, and were free of duty. Floral essences imported in 1917 were valued at \$406,136 and yielded a revenue of \$81,227.

Imports of the above materials since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------------|----------------|-----------|-------------|----------|------------------|
| ENFLEURAGE GREASES. | | | | | |
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 22,737 | \$228,965 | \$9.86 | \$44,793 | 20 |
| 1919..... | 11,836 | 100,296 | 8.40 | 20,060 | 20 |
| 1920..... | 24,330 | 236,090 | 9.70 | 47,206 | 20 |
| 1921 (9 months)..... | 6,073 | 55,319 | 9.11 | | |
| FLORAL ESSENCES. | | | | | |
| 1918..... | | \$99,210 | | \$17,842 | 20 |
| 1919..... | | 50,657 | | 10,131 | 20 |
| 1920..... | | 220,099 | | 44,020 | 20 |
| 1921 (9 months)..... | | 131,298 | | | |

Exports.—Statistics not available.

Important changes in classification.—These products are dutiable under paragraphs 46 and 49, act of 1913. Floral concretes are mentioned specifically for the first time.

PARAGRAPH 1567.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1567. Fans, common palm-leaf, plain and not ornamented or decorated in any manner, and palm leaf in its natural state not colored, dyed, or otherwise advanced or manufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 563. Fans, common palm-leaf, plain and not ornamented or decorated in any manner, and palm leaf in its natural state, not colored, dyed, or otherwise advanced or manufactured [Free].

PAR. 480. Fans, common palm-leaf, plain and not ornamented or decorated in any manner, and palm leaf in its natural state, not colored, dyed, or otherwise advanced or manufactured [Free].

PALM-LEAF FANS AND PALM LEAF.

(See Surveys N-11 and N-21.)

Description.—Palm-leaf fans are made from sections of the spreading leaf of several varieties of tropical palms.

Production data are not separately shown in official sources.

Imports in 1914 of plain and not ornamented or decorated palm-leaf fans were 617,135 dozens, valued at \$57,992, practically all from China, with a few from Hongkong and Japan.

Imports of natural palm leaf were valued at \$14,801 in 1914, mainly from China, Hongkong, Germany, and Cuba. Statistics of imports for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------------|----------|----------|----------|---------------------|
| Fans, common palm leaf: | | | | |
| Quantity (dozen)..... | 112,087 | 230,171 | 273,693 | 269,066 |
| Value..... | \$21,849 | \$38,128 | \$99,835 | \$49,334 |
| Fans, natural palm leaf (value)..... | \$4,621 | \$27,125 | \$22,202 | \$3,450 |

Imports of palm-leaf fans for 1918-1921 are almost wholly from China and Hongkong.

Exports.—None recorded.

PARAGRAPH 1568.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1568. Ferrous sulphate or copperas.

ACT OF 1909.

ACT OF 1913.

PAR. (9) Copperas, or sulphate of iron, PAR. 462. Copperas, or sulphate of fifteen hundredths of one cent per pound. Iron [Free].

FERROUS SULPHATE (COPPERAS).

(See Survey FL-8.)

Description and uses.—Ferrous sulphate or copperas is a by-product obtained by evaporation from the "pickling solutions" used for cleaning iron plates and wires before galvanizing, tinning, or enameling. Copperas is used principally as a mordant in dyeing, for the purification of water, and in the manufacture of black inks and pigments containing iron; also for the production of rouge, for the purification of coal gas, for the precipitation of gold in metallurgical processes, and for refining glycerine.

Production is almost entirely by iron-working companies, and nearly equals consumption. The output in 1914 was 92,478,823 pounds—60,113,880 pounds from wire mills, 13,158,859 from rolling mills, and the remainder from chemical plants. The production in 1919 (preliminary figures) was 119,611,000 pounds, valued at \$1,046,900.

Imports in 1914 were 45,737 pounds from England. No imports are reported for 1916-1921.

Exports.—Statistics not available.

Important changes in classification.—"Sulphate of iron" has been changed to "ferrous sulphate," as this is the chemical designation of copperas, which is the only important sulphate of iron.

PARAGRAPH 1569.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1569. Fibrin, in all forms.

ACT OF 1909.

ACT OF 1913.

PAR. 566. Fibrin, in all forms [Free].

PAR. 482. Fibrin, in all forms [Free].

FIBRIN.

(See Survey FL-15.)

Description, uses, and production.—Fibrin is a protein substance which is formed when blood coagulates. It is obtained by beating blood with sticks to which the fibrin clings. It is also obtained by washing all of the coloring matter out of lean meat. It is not an important article of commerce.

Imports of fibrin have been very small, the maximum being valued at \$54, in 1910. None are shown since 1916.

Exports.—Statistics not available.

PARAGRAPH 1570.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1570. Fishskins, raw or salted.

ACT OF 1909.

ACT OF 1913.

PAR. 568. Fishskins [Free].

PAR. 484. Fishskins [Free].

FISHSKINS.

Description and uses.—Many fishskins have industrial uses. Those of flatfish make excellent gloves and upper leather; sole skins make purses; thornback skins are excellent substitutes for sandpaper in cabinet-making; eelskins make serviceable suspenders; siluroid skins are made into gloves in Canada; salmon skins make a leather as tough as wash leather; while the skins of sharks and skates are used for polishing.

Production statistics are not available.

Imports of fishskins in 1914 numbered 226, weighed 171 pounds, and were valued at \$174. Imports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------|---------|---------|-----------------|
| Quantity (pounds)..... | 65,163 | 204,337 | 328,496 | 154,624 |
| Value..... | \$2,507 | \$4,697 | \$8,020 | \$5,140 |

Exports.—None recorded.

Important changes in classification.—"Raw or salted" is added.

PARAGRAPH 1571.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1571. Flint, flints, and flint stones, unground.

ACT OF 1909.

ACT OF 1913.

PAR. 569. Flint, flints, and flint stones, unground [Free].

PAR. 486. Flint, flints, and flint stones, unground [Free].

FLINT.

(See Survey B-3.)

Description and uses.—Flint, flints, and flint stones are used in pebble and tube mills for grinding minerals, ores, cement, and other materials. Foreign pebbles are crushed and used as "flint" in the ceramic industry.

Production of pebbles for grinding has been stimulated by the war; the supply has been collected along the beach in San Diego County, Calif. Minnesota, Nevada, and Pennsylvania have also been producers. Artificial stones have been produced by mechanically rounding pieces of hard stone. Statistics showing grinding pebbles and tube-mill linings sold by producers in the United States, 1918-1920, are as follows:

| | 1918 | 1919 | 1920 |
|----------------------------|-----------|----------|----------|
| Quantity (short tons)..... | 12,469 | 9,448 | 10,924 |
| Value..... | \$129,485 | \$85,302 | \$77,823 |

Imports of flints and pebbles for grinding have been chiefly from Denmark, France, and Belgium, and values decreased from \$479,146 in 1914 to less than \$200,000 in 1917. Of the 1917 import, 47 per cent was used in grinding gold, copper, and other ores, 25 per cent for grinding cement, and 17 per cent for ceramic materials. Imports for the calendar years 1918-1921 were as follows:

| Flint, flints, and flint stones, unground. | 1918 | 1919 | 1920 | 1921 (9 months) |
|--|-----------|-----------|-----------|-----------------|
| Quantity (tons)..... | | 17,677 | 23,782 | 6,026 |
| Value..... | \$135,636 | \$250,000 | \$338,630 | \$87,800 |

Exports.—None recorded.

PARAGRAPH 1572.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1572. Fossils.

ACT OF 1909.

ACT OF 1913.

PAR. 570. Fossils [Free].

PAR. 487. Fossils [Free].

FOSSILS.

Description and uses.—Fossils refer to traces, remains, or relics of the forms of plants or animals found buried in deposits or impressed on stratified rocks. They are valuable aids in the study and investigations of the sciences of biology, geology, physiography, and paleontology.

Imports of fossils in 1914 were valued at \$1,278, and for the calendar years 1918–1921 as follows: 1918, \$135; 1919, \$85; 1920, \$265; 1921 (nine months), \$155.

Exports.—None.

PARAGRAPH 1573.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1573. Furs and fur skins, undressed.

ACT OF 1909.

ACT OF 1913.

PAR. 573. Furs, undressed [Free].

PAR. 491. Furs and fur skins, undressed

PAR. 574. Fur skin of all kinds not dressed in any manner and not specially provided for in this section [Free].

FURS AND FUR SKINS, UNDRESSED.

(See Survey N-10.)

Description and uses.—The domestic pelts most commonly used in wearing apparel and other manufactures of fur are muskrat, skunk, opossum, and raccoon. Others used in large quantities are fox, wild cat, lynx, otter, beaver, badger, mink, and civet cat (a skunk species). Many furs are so finished and dyed as to retain little of their original appearance. Wholesale prices vary widely; ordinary muskrat or skunk skins often sell for 50 cents each, while silver-fox skins have sold for \$1,000, and Russian sable as high as \$1,200 each.

Production.—The value of furs sold at the New York and St. Louis sales (including many imported furs) during 1919 was about \$35,000,000; this sum is a conservative estimate of domestic production values. Furs of the smaller fur-bearing animals marketed annually are very large in number. The settlement of the country has not tended to decrease these animals, although the larger animals are quickly exterminated. The total number of seals killed in the Pribilof Islands in the whole period from 1867 to 1909 numbered nearly 4,000,000; in the period from 1910 to 1918, 88,770 was the total number killed; in 1918, 34,890; in 1919, about 26,000. The Government has encouraged projects of fur farming, which are, however, not yet yielding extensively.

Imports.—Some of the most important furs imported are muskrat, marten, fisher (similar to the marten), otter, beaver, and wolf, from Canada; sable, ermine (from the stoat), kolinsky (similar to our mink), wolf, and squirrel (sought because of its large pelt and thick fur), from Russia; rabbits in large quantities from Australia and New Zealand, the fur used for fur-felt hats, and the "nutria" (from the coypu), for the same purpose, from South America; the marmot fur from northern Europe; chinchilla from South America

(now temporarily prohibited from Chile); and skins of lynxes, leopards, bears, wolves, etc., from many parts of the world. Imports by countries show the fur markets rather than the sources, most furs coming here indirectly. The largest prewar import of furs and fur skins, undressed, was in 1912, valued at \$17,339,198, and was only slightly less in 1913. During 1914 and 1915 imports declined 50 per cent. The sources, in order of importance in 1913, were Germany, England, Canada, Belgium, France, and Russia. During later calendar years imports were as follows:

| Furs and fur skins, undressed. | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------|--------------|--------------|--------------|---------------------|
| Quantity (number)..... | | 144,255,022 | 130,370,538 | 53,902,693 |
| Value..... | \$32,077,182 | \$69,289,379 | \$84,300,218 | \$28,708,416 |

England, Canada, and Australia were the leading countries of origin for later years. In 1920 the values of imports from the leading sources were, England, \$16,221,385; Canada, \$13,096,720; Australia, \$12,196,461; France, \$3,397,765; China, \$10,566,781; Japan, \$5,307,387.

Export values of raw furs, mostly common varieties of small pelts, were \$7,866,242 to the United Kingdom and \$2,099,925 to Canada, in 1918, the total for that year being \$10,799,532. Exports in 1917 about equaled those of 1911. The largest were in 1913—sealskins, \$188,700; all others, \$17,276,203. Later statistics for calendar years are: 1918, \$9,214,067; 1919, \$16,313,726; 1920, \$26,273,307; 1921 (nine months), \$8,831,549. England, Canada, France, and Germany are the leading countries of destination, England in 1920 taking \$13,795,433 and Canada \$6,188,406.

Suggested changes.—Inasmuch as silver or black fox skins, undressed, are specifically provided for in paragraph 1420, the words “and not specially provided for” might be added to this paragraph.

PARAGRAPH 1574.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1574. Goldbeaters' molds and goldbeaters' skins.

ACT OF 1909.

ACT OF 1913.

PAR. 579. Goldbeaters' molds and goldbeaters' skins [Free].

PAR. 496. Goldbeaters' molds and goldbeaters' skins [Free].

GOLDBEATERS' MOLDS AND SKINS.

(See Survey N-19.)

Description and uses.—Goldbeater's skin is the outer coat of the cæcum of the ox when such membrane has been prepared for the goldbeater. A goldbeater's mold is a collection of about 850 leaves of parchment, vellum, and goldbeater's skins, each of a double thickness, fixed on a metal mold, and between which flattened pieces of gold are placed to be hammered out to the full size of the leaf.

Production.—None.

Imports of goldbeater's molds and skins in 1914 were valued at \$26,634, nearly all from England and Germany. Later statistics follow: (Calendar years) 1918, \$16,024; 1919, \$11,050; 1920, \$41,086; 1921 (nine months), \$47,351.

PARAGRAPH 1575.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1575. Grasses and fibers: Istle or Tampico fiber, jute, jute butts, manila, sisal grass, sunn, and all other textile grasses or fibrous vegetable substances, not dressed or manufactured in any manner, and not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 578. Grasses and fibers: Istle or Tampico fiber, jute, jute butts, manila, sisal grass, sunn, and all other textile grasses or fibrous vegetable substances, not dressed or manufactured in any manner, and not specially provided for in this section [Free].

PAR. 497. Grasses and fibers: Istle or Tampico fiber, jute, jute butts, manila, sisal grass, sunn, and all other textile grasses or fibrous vegetable substances, not dressed or manufactured in any manner, and not specially provided for in this section [Free].

PAR. 540. Cocoa, or cacao * * * fiber * * * [Free].

PAR. 456. Cocoa, or cacao * * * fiber * * * [Free].

ISTLE.

(See Survey FL-16.)

Description, uses, and production.—Istle, otherwise known as Tampico fiber, a hard fiber, is obtained from the leaves of several plants found chiefly in the tablelands of northern Mexico, but also in the West Indies, Central America, and British Guiana. The fiber is extracted from the leaf stems by a crude method of stripping and scraping. The filaments are hard and stiff, and smooth and yellowish white in appearance. They are an admirable substitute for animal bristles in brushes, and are also used in basketwork, in the cheaper grades of twine (e. g., lath twine), and in baling rope. Mexican cotton is usually baled with hand-woven istle bagging of wide mesh. During the war, on account of the difficulty in obtaining jute butts from British India, an American company developed yucca—one of the group of istle plants growing in New Mexico and Arizona—and used it extensively in the production of bagging for covering the domestic cotton crop. With the close of the war, this company discontinued the manufacture of yucca, as jute butts could be imported at lower cost.

Imports, exclusively from Mexico, in 1914, were 10,658 tons, valued at \$1,032,417. Imports for 1918-1921 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|---------------------|
| Quantity (tons)..... | 32,015 | 20,840 | 23,555 | 6,741 |
| Value..... | \$3,714,401 | \$2,523,330 | \$3,334,526 | \$662,894 |

JUTE AND JUTE BUTTS.

(See Survey FL-16.)

Description and uses.—Jute produced exclusively in British India, is the cheapest and, next to cotton, the most extensively used commercial fiber. Unsuitable climatic conditions and lack of cheap labor have rendered ineffective the attempts made to grow jute in other countries. A pound of woven jute burlap prior to 1914 commanded about two-thirds the price of a pound of raw cotton. The causes for its low price are: (1) Heavy production per acre; (2) exclusive cultivation in a part of the world where labor is cheap; and (3) the ease with which the fiber can be prepared for spinning. The fiber is relatively weak and is difficult to bleach, but because of its abundance and cheapness it has become the world's leading wrapping and sacking material. Jute cloths are used in sacking grain, coffee, raw sugar, nitrates, etc.; and in covering raw cotton; as a foundation for linoleum, floor oilcloths, and asphalt roofing; for tarpaulins, coat paddings, wall decorations, and carpeting. Inferior grades of rope and twine also are made from jute. After the crop has been either pulled or cut the fiber is produced by retting, heating, stripping, washing, and drying. It is then sorted according to quality into bundles of rejections (the lowest grade); cuttings or jute butts, employed for the manufacture of cotton bagging; and into several grades of long jute, used in producing burlap.

Production in British India of jute (including jute butts) averages per annum about 8,000,000 bales of 400 pounds each. The production in 1920 was 8,292,184 bales from 2,508,673 acres. A constantly greater portion of the raw material is consumed yearly by Indian mills and exported as burlap and twilled bags. Calcutta, the greatest manufacturing center, exports about half the world's consumption of jute fabrics. Dundee, Scotland, which ranks second, produces materials of a higher grade.

Imports in 1914 were 49,036 tons of jute, valued at \$3,923,225, and 41,112 tons of jute butts, valued at \$1,933,796. Imports for 1918-1921 have been as follows:

| Calendar year. | Jute. | | Jute butts. | |
|----------------------|--------------|-------------|--------------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Tons.</i> | | <i>Tons.</i> | |
| 1918..... | 53,579 | \$5,700,791 | 17,835 | \$761,868 |
| 1919..... | 44,428 | 7,448,335 | 17,906 | 938,144 |
| 1920..... | 49,443 | 7,880,290 | 46,596 | 1,812,515 |
| 1921 (9 months)..... | 32,833 | 4,146,507 | 13,936 | 437,429 |

MANILA.

(See Survey FL-16.)

Description, uses, and production.—Manila or abaca, the world's leading raw material for rope making, is obtained from the leaf stalks of a plantain tree native to the Philippines. The plants are cut near the ground, the overlapping leaf sheaves are stripped off, and the strips are drawn by hand under a knife held by a spring

against a piece of wood. The knife scrapes away the pulp, leaving the fiber clean and white. After drying, it is bunched and is then ready for export. Because of its great lightness, strength, and durability (especially in water) manila has become the chief material for making hawsers, ships' cables, and other marine cordage; and for well-drilling cables, hoisting and transmission ropes. In 1919, the domestic output of manila rope and cable amounted to 130,419,000 pounds, or 60 per cent of all the rope and cable manufactured in that year. About 5 per cent of the domestic output of binder twine is made from manila. In the Philippines, manila is used to some extent for weaving fabrics for clothing. Manila paper is made from disintegrated manila rope.

Imports of manila in 1914 were 49,685 tons, valued at \$9,779,539. The Philippines are practically the only source, shipments of manila constituting from 24 to 49 per cent of the total value of exports from the islands during 1914-1920. Imports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|--------------|--------------|--------------|---------------------|
| Quantity (tons)..... | 78,470 | 68,536 | 67,406 | 27,228 |
| Value..... | \$29,223,787 | \$19,255,282 | \$20,515,491 | \$5,271,245 |

SISAL.

(See Survey FL-16.)

Description and uses.—Sisal is a name given to a number of related tropical fibers. The Mexican variety, known as henequen, is produced almost exclusively in Yucatan and, prior to the fall of 1919, was marketed under the control of an association of producers known as the Comision del Reguladora del Mercado de Henequen. At that time, however, the assets of this company were ordered liquidated by the Mexican Government. In early 1922, Yucatan enacted legislation imposing a production tax on henequen, and limiting the planting areas for 1922. Henequen fiber is extracted from the leaves of the henequen by special decorticating machines which scrape the fiber clean of its pulpy covering and wash it in running water. It is hung in the air several days to dry and then baled for the market. It is used in twines, cordage, and low-grade rope. Approximately 80 per cent of the world's supply of binder twine is made from Yucatan henequen and about 90 per cent of the Yucatan crop is shipped to this country. In binder twine only slight competition is offered by manila (see above), New Zealand flax, and maguey. The two last named are either too costly or are limited in available supply.

Production.—The large measure of dependence of wheat and other grain production of the world upon a raw material coming almost exclusively from one small state has led to energetic measures to extend cultivation to other countries, with the result that sisal is now being raised commercially in British East Africa (the former German East Africa), the Philippines (where production of maguey, a similar plant, is increasing), Hawaii, Java, India, the Bahamas, and Cuba. The Secretary of Agriculture stated in 1916 that there is no other fiber in large quantities suitable for binder twine and that the increas-

ing production in the Bahamas and Hawaii is chiefly in grades too good for economic use in twine.

Imports in 1914 were 215,654 tons, valued at \$25,860,729. Later imports for calendar years are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|--------------|--------------|--------------|------------------|
| Quantity (tons)..... | 152,001 | 144,542 | 180,759 | 96,598 |
| Value..... | \$54,932,062 | \$39,553,701 | \$33,535,294 | \$12,059,645 |

Suggested changes in classification.—Since the term "sisal grass" is seldom employed in the trade to designate the fiber from which binding twine is made, it is suggested that the word "grass" be eliminated and the word "henequen," preceded by a comma, be inserted after "sisal." Both sisal and henequen are members of the agave family, used for similar purposes, and are difficult to distinguish from each other. They are, however, sometimes distinguished in statistics. The insertion of the word "henequen" would assure inclusion of both in the paragraph.

NEW ZEALAND FLAX.

(See Survey FL-16.)

Description and uses.—This fiber is obtained from the leaves of a swamp lily (*Phormium tenax*) native to New Zealand. It is also cultivated on a small scale in Australasia and in some European countries. The fiber is white, soft, lustrous, and tougher than either flax or hemp, but resists water poorly. It is used principally in cordage, twine, and to a small extent for floor matting, although the best fiber can be woven into a cloth resembling linen duck. When employed in binder twine, baling rope, and cordage it is usually mixed with sisal or manila.

Production.—This fiber is not produced in the United States. In New Zealand in 1919 there were 49,867 acres devoted to its cultivation. Exports from that country during 1910-1919 ranged per annum between 20,000 and 35,000 tons, about half of which went to the United Kingdom. Exports in 1919 were 22,347 tons of fiber and 3,262 tons of tow.

Imports in 1914 were 6,171 tons, valued at \$716,953, over one-half direct from New Zealand, and most of the remainder via transshipment from the United Kingdom. Imports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 13,912 | 6,720 | 6,032 | 879 |
| Value..... | \$4,867,576 | \$1,640,755 | \$1,034,407 | \$146,951 |

SUNN.

(See Survey FL-16.)

Description and uses.—Sunn, sometimes called sunn hemp, while not a true hemp, closely resembles soft hemp; it comes from southern

Asia and tropical Australasia. The fiber, obtained from the stalk by a system of retting similar to that employed for flax, is lighter in color, stronger and more durable under exposure than jute, but not so strong as hemp. It is used mainly in cordage and to some extent for calking ships.

Imports in 1914 amounted to only 16 tons, valued at \$1,388; the average for three previous years, however, was 131 tons, valued at \$9,896. Imports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|-----------|-----------|------------------|
| Quantity (tons)..... | 3,903 | 1,758 | 1,036 | 226 |
| Value..... | \$650,280 | \$290,249 | \$138,897 | \$20,534 |

KAPOK.

(See Survey FL-16.)

Description and uses.—Kapok is a vegetable down procured from the seed pods of a tree—the kapok—indigenous to Java. The fiber is soft, silky, and lustrous, but too brittle for spinning. The natives gather the pods, separate the fiber from the seed, dry it, and export it to countries where, owing to its resilience, it is used for filling mattresses, pillows, cushions, and for upholstering; and because of its low specific gravity, for the stuffing of life preservers. The demand for this use has greatly increased, especially during the war. The bark of the kapok tree is used for tanning purposes, and kapok seed is crushed for oil to be used in soap, the residue being a stock feed.

Production.—The bulk of the world supply of kapok is from Java, with 68,129 producing acres in 1911. Annual exports during 1914-1918 ranged between 9,107 and 10,836 tons, with the Netherlands and the United States receiving the bulk.

Imports in 1914 were 1,825 tons, valued at \$441,109. Imports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 9,576 | 10,972 | 9,881 | 6,486 |
| Value..... | \$2,820,474 | \$3,673,285 | \$3,847,610 | \$1,930,225 |

RAMIE.

(See Survey FL-16.)

Description and uses.—Ramie, often called China grass, is a stem fiber extracted from the ramie plant of Asia, particularly China, by decortication (scraping away the gum which holds the fibers together), a very laborious hand process. The fiber can not be separated from the woody tissue by a simple retting as in the case of flax or hemp, but only by means of elaborate mechanical treatment. It has, in general, the same uses as flax and hemp, often being mixed with them, but is more tenacious, has greater elasticity than flax, and a luster almost equal to silk. Ramie lacks the elasticity of wool and silk, and the flexibility of cotton. While the strongest and most durable of vegetable fibers, its use has been curtailed by the cost of

degumming satisfactorily, and by the difficulty of spinning fine counts, owing to the fibers' lack of coherence. These difficulties are gradually being overcome. The leading use of ramie in the United States and in the United Kingdom is in manufacture of gas mantles. In the United States ramie fabrics have appeared on the market in the form of blouses and upholstery materials.

Production.—Ramie is grown in large quantities in Africa, India, and in China, the finest qualities coming from China. American imports have been largely from Formosa (prior to the war, via Hamburg). Ramie can be produced here, but the labor cost, even with special decorticating and degumming apparatus, makes economic production impossible in competition with the Far East.

Imports in 1914 were 55 tons, valued at \$10,745. Imports for the calendar years 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|-----------|----------|------------------|
| Quantity (tons)..... | 3,204 | 759 | 156 | 161 |
| Value..... | \$612,244 | \$225,960 | \$44,351 | \$50,500 |

CRIN VEGETAL.

(See Survey FL-16.)

Description and uses.—Crin vegetal, sometimes called vegetable fiber, or vegetable horsehair, is made from the leaves of a wild dwarf palm. Algeria and Madagascar are the leading sources, exporting about 50,000 tons annually. The leaves grow abundantly and are picked by natives, treated and slightly dried, and sold to export firms on the seacoast. After a few days' exposure to the sun they are packed into bales weighing 200 to 265 pounds. The leaves are separated by a comb into long, flexible filaments, which are twisted into a rope. The fiber is used chiefly for stuffing furniture and mattresses. It is also used to some extent for brushes and brooms.

Imports were not separately stated in 1914. In 1912 they were 334 tons, valued at \$12,960; in 1915, 220 tons, valued at \$4,333. Imports for the calendar years 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|---------|---------|---------|------------------|
| Quantity (tons)..... | 33 | 30 | 80 | ..... |
| Value..... | \$9,180 | \$7,081 | \$9,462 | \$21 |

BROOM ROOT.

(See Survey FI-16.)

Description and uses.—Broom root, a fiber of great strength, is obtained from a number of plants growing wild in eastern Mexico and in Central and South America. The broom root used in this country comes chiefly from Mexico, and is often called Mexican whisk. Mexico has recently withdrawn its export duty on broom. The wavy roots of the grass—some 9 to 12 inches long, and, when cleaned, a pale yellow—are used in brushes and brooms, especially clothes-

brushes, carpet, and velvet brushes. The greatest defect of this fiber is a tendency to become brittle and break.

Imports of broom root in 1914 were 144 tons, valued at \$36,035. *Imports* for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|-----------|-----------|------------------|
| Quantity (tons)..... | 777 | 1,610 | 1,197 | 161 |
| Value..... | \$211,582 | \$697,263 | \$546,048 | \$94,152 |

OTHER FIBERS, N. S. P. F.

(Not specially provided for in paragraph 497 and not usually stated separately in import statistics.)

Maguey is a term used for a number of varieties of agaves, but more specifically for the so-called century plants that grow wild and abundantly in Mexico, and are now cultivated successfully in the Philippines. The fiber is produced by macerating leaves in water, rubbing, scraping, and drying. Maguey is fine, elastic, and of special value for rope subject to sudden strain. It is used in Europe and America for ships' ropes and cables, brooms, and mats. Exports from the Philippines, which have increased in recent years, totaled in 1920 10,638 tons, valued at \$1,363,750, with shipments to the United States amounting to 1,667 tons, worth \$190,657.

Mauritius hemp, a hard fiber of the aloe family, is produced chiefly on the island of Mauritius (Indian Ocean) and in Africa. It is softer and whiter than other hard fibers, and is used chiefly for mixing with manila and sisal in medium grades of cordage. The annual output of the island of Mauritius is about 2,500 tons.

Piassava is a very elastic fiber, extracted from a species of palm, chiefly in Brazil and Liberia. The finest fibers are used for cordage, for which purpose they are excellent because of their resistance to water; the coarser fibers are used for brooms, baskets, and brushes. The world production has been as high as 5,000 tons.

There are a number of other fibers imported on a small scale. Kittul, often confused with piassava, is of special value in machine brushes for polishing linen and cotton yarns, brushing velvets, etc.

Imports in 1914 of other textile grasses or fibers, unmanufactured, not specifically enumerated in import statistics, were 9,125 tons, valued at \$845,260. *Imports* for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-----------|-----------|------------------|
| Quantity (tons)..... | 6,473 | 2,889 | 4,595 | 3,568 |
| Value..... | \$1,435,004 | \$564,643 | \$561,980 | \$596,455 |

GENERAL NOTES ON PARAGRAPH.

Suggested changes.—To secure (1) an arrangement in the approximate order of importance of the fibers and grasses falling under this classification, and (2) to give specific mention to certain fibers heretofore not specified, but which should be separated in statistics, it is suggested that this paragraph be changed to read as follows:

Grasses and fibers: Jute, jute butts, manila, sisal, henequen, istle, New Zealand hemp, sunn, kapok, ramie, crin vegetal, maguey, Mauritius, piassava, and all other textile grasses or fibrous vegetable substances, not dressed or manufactured in any manner, and not specially provided for.

PARAGRAPH 1576.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1576. Guano, basic slag, ground or unground, manures, and all other substances used chiefly for fertilizer, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 581. Guano, manures, and all substances used only for manure, including basic slag, ground or unground, * * * [Free].

PAR. 499. Guano, manures, and all substances used only for manure, including basic slag, ground or unground, * * * [Free].

GUANO AND MANURES.

(See Survey FL-5.)

Description and use.—Guano is the decomposed excrement and carcasses of marine birds mixed with the remains of fish. It is used as a fertilizer and contains both nitrogen and phosphoric acid and an appreciable amount of potash.

Production.—The principal deposits were on the Chincha Islands off the coast of Peru. These original deposits, estimated at 10,000,000 tons, became exhausted about 1868. In recent years shipments have been made from new deposits on the same islands. Other important commercial sources have been Patagonia and the Ichaboe Islands, off the coast of Africa.

Imports in 1910 were 52,330 long tons, valued at \$845,765; in 1917 3,563 long tons, valued at \$73,398. In 1917 and 1918 the imports were chiefly from Mexico.

Imports of all other substances used only for manures were 197,165 tons, valued at \$4,241,285 in 1914. Import figures for 1918-1921 are shown below:

| Calendar year. | Quantity. | Value. | Unit value. |
|--|--------------|-------------|-------------|
| GUANO. | | | |
| | <i>Tons.</i> | | |
| 1918..... | 8,206 | \$280,544 | \$34.19 |
| 1919..... | 7,017 | 255,995 | 36.48 |
| 1920..... | 53,790 | 4,583,313 | 85.21 |
| 1921 (9 months)..... | 1,320 | 72,299 | 54.77 |
| ALL OTHER SUBSTANCES USED ONLY FOR MANURE. | | | |
| 1918..... | 48,039 | \$1,810,158 | \$37.68 |
| 1919..... | 72,558 | 2,716,060 | 37.43 |
| 1920..... | 141,510 | 6,762,140 | 47.78 |
| 1921 (9 months)..... | 49,692 | 1,985,478 | 39.98 |

Imports of guano are chiefly from Norway, Chile, and England.

BASIC SLAG.

(See Survey FL-5.)

Description and uses.—Basic slag is a by-product obtained in the manufacture of steel from phosphatic pig iron by the basic process. It is used as a fertilizer material for its phosphoric-acid content, which is from 15 to 19 per cent. Its trade names are "basic cinder," "basic slag meal," "Thomas slag," or "Thomas phosphate powder."

Production.—Large quantities are produced in Germany, France, Belgium, and England; the European production in 1913 exceeded 4,000,000 long tons, Germany producing about 50 per cent of the total. Very little is produced here because of the comparatively low phosphorus content of American iron ores.

Imports, prior to the war, reached a maximum of 15,124 tons, valued at \$146,477 in 1913; then decreased to 2 tons, valued at \$54 in 1918, and have been negligible since then.

Exports.—Statistics not available.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—"Used only for manure" has been dropped and "used chiefly for fertilizer" and "not specially provided for" have been added.

PARAGRAPH 1577.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1577. Gums and resins: Amber and amberoid, arabic or senegal, damar, kauri, and other copals; dragon's blood, kadaya, sandarac, tragacanth, tragacanth, and other gums, gum resins, and resins, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 488. Amber, and amberoid unmanufactured, or crude gum, gum Kauri, and gum Copal [Free].

PAR. 20. Drugs, such as * * * gums and gum resin, * * * one-fourth of one cent per pound, and in addition thereto ten per centum ad valorem: *Provided,* That no article containing alcohol, or in the preparation of which alcohol is used, shall be classified for duty under this paragraph.

PAR. 559. Drugs, such as * * * gums, gum resin, * * * not advanced * * * [Free].

PAR. 558. Dragon's blood [Free].

PAR. 36. Gums: Amber, and amberoid unmanufactured, or crude gum, not specially provided for in this section, \$1 per pound; arabic, or senegal, $\frac{1}{2}$ cent per pound; * * *

PAR. 500. Gum: Amber in chips valued at not more than 50 cents per pound, copal, damar, and kauri [Free].

PAR. 27. Drugs, such as * * * gums, * * * advanced * * * 10 per centum ad valorem.

PAR. 477. Drugs, such as * * * gums, gum resin, * * * not advanced * * * [Free].

PAR. 476. Dragon's blood [Free].

AMBER AND AMBEROID.

(See Survey A-9.)

Description and uses.—Amber, a fossil resin occurring in small lumps, is found principally in East Prussia. It is picked up along the shore of the Baltic, and is obtained by mining. It varies in color from pale yellow to red, brown, or even black, and may be transparent, translucent, or opaque.

Amberoid is produced from small bits of amber, with or without other resins, such as copal and camphor, by heating them and forcing into a solid cake by hydraulic pressure.

The finest amber and amberoid are made into beads and ornaments and mouthpieces for pipes and cigar holders. Bits and chips make a high grade but expensive varnish.

Amber is now being replaced for ornamental articles by artificial products resembling amber in appearance and properties, but differing greatly in chemical nature. These so-called "synthetic phenolic resins" (par. 26) are made by the chemical combination of phenol with formaldehyde or hexamethylenetetramine. They are chemically more stable than amber. "Bakelite," "Condensite," and "Redmanol" are such substances. Their domestic manufacture has increased greatly in recent years, with the claim that they are equal to or better than amber for most purposes. One variety is plastic and used largely for electrical insulators and various molded articles; the other is nonplastic, is the more expensive, and alone competes with amber. They are dutiable at 30 per cent plus 5 cents per pound under the act of September 8, 1916.

Production.—The United States produces no amber, though small, but not commercial, quantities of fossil gum resembling amber appear in Maryland, New Jersey, and Marthas Vineyard.

Imports come from the Baltic. In 1913 they were 35,645 pounds; in 1914, 22,485 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|--------|-------------|--------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 25 | \$222 | \$8.88 | \$25 | ..... |
| 1919..... | 768 | 4,278 | 5.57 | 768 | 17.95 |
| 1920..... | 15,013 | 41,556 | 2.77 | 15,013 | 36.13 |
| 1921 (9 months)..... | 2,425 | 16,798 | 6.93 | ..... | ..... |

Important changes in classification.—Amber and amberoid unmanufactured, or crude gum, is dutiable under paragraph 36, act of 1913. H. R. 7456 exempts from duty all amber and amberoid. The words "or crude gum" in the act of 1913 have been omitted as amber is not known under this name.

ARABIC OR SENEGAL.

(See Survey A-9.)

Description and uses.—Gum arabic is a natural exudation obtained from several species of trees of Africa and Asia. It is used for sizing fabrics, in calico printing, water paints and calcimines, mucilage and match manufacture, water colors and confectionery. The finest grades are used in pharmacy and medicine. Materials serving similar purposes include dextrin, starch, gelatin, and glue. A somewhat similar mucilage is derived from Irish moss. Another class of gum used in part for similar purposes includes tragacanth, tragasol, and kadaya.

Imports in 1914 were 2,867,544 pounds; in 1916, 7,613,880 pounds. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|-------------|-------------|----------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent</i> |
| 1918..... | 6,115,190 | \$1,237,379 | \$0.20 | \$30,576 | 3.47 |
| 1919..... | 7,076,663 | 950,859 | .13 | 35,383 | 3.72 |
| 1920..... | 6,764,199 | 787,574 | .12 | 33,521 | 4.20 |
| 1921 (9 months)..... | 5,959,214 | 524,588 | .09 | | |

Important changes in classification.—Arabic or senegal gum is dutiable under paragraph 36 of the act of 1913.

GUMS, COPAL, DAMAR, KAURI.

(See Survey FL-17.)

Description and uses.—Copal is a class name commercially applied to several widely distributed gum resins capable of use in the manufacture of oil varnishes. The most important copals for this use are damar, kauri, Congo, sandarac, and Manila. Other gums of lesser importance are pontinak and East Indian. There are three kinds of commercial copal, classified according to hardness: (1) Hard or true, which includes Zanzibar, Mozambique, and Madagascar copals; (2) medium hard, which comprises the West African copals; and (3) soft, which includes American animé, kauri, Manila, and Borneo copals.

A true copal is a hard resin of high melting point exuded from several varieties of trees indigenous to the East Indies and the East Coast of Africa. The fossil gum is found in irregular lumps buried in the ground or it is sometimes taken directly from the tree. Hard copal is the hardest of all resins, except amber, and is the most valuable for varnish making. Damar is the term applied to all gums and resins which exude from trees and solidify rapidly on exposure to air. The resin derived from the true damar of the botanists is the varnish-maker's Manila copal. Commercial damar, so-called, is derived mostly from Dipterocarpus trees, Shorea, Hopea, Vatica, Drybalonops, Vateria, Doone, and other species, and is called Batavian, Borneo, or Singapore damar, depending upon its origin. Kauri is a resin obtained from the *Dammara australis*, a yellow pine indigenous to the northern island of New Zealand. Of the three varieties, fossil, bush, and recent, the fossil is the best grade. It is a white resin, softer than true copal, but harder than rosin, used in the manufacture of varnish.

Imports for 1914-1918 averaged as follows: Copal, 18,369,252 pounds, valued at \$1,185,454; damar, 7,182,848 pounds, valued at \$635,500; kauri, 7,915,759 pounds, valued at \$1,196,889. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| DAMAR. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 6,508,707 | \$701,488 | \$0.11 |
| 1919..... | 4,772,059 | 578,915 | .12 |
| 1920..... | 10,702,188 | 2,162,313 | .20 |
| 1921 (9 months)..... | 1,916,757 | 297,544 | .15 |

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|------------|-------------|-------------|
| KAURI. | | | |
| 1918..... | 5,960,795 | \$905,025 | \$0.15 |
| 1919..... | 4,474,441 | 674,642 | .15 |
| 1920..... | 11,679,529 | 1,720,982 | .15 |
| 1921 (9 months)..... | 2,241,715 | 457,780 | .20 |
| COPAL. | | | |
| 1918..... | 21,260,769 | \$1,635,894 | \$0.08 |
| 1919..... | 11,079,693 | 829,419 | .07 |
| 1920..... | 47,052,548 | 5,712,308 | .12 |
| 1921 (9 months)..... | 7,582,612 | 728,998 | .09 |

DRAGON'S BLOOD.

(See Survey FL-17.)

Description and uses.—Dragon's blood is a red, resinous substance exuded from the ripe fruit of several species of small palms growing in Siam, the Molucca Islands, and the East Indies. It is marketed either in the form of small oval drops or in long cylindrical sticks, and is used in pharmacy, but principally in coloring varnishes.

Production.—Dragon's blood is separated from the fruit by rubbing, by shaking in bags, or by exposure to the vapor of boiling water. It is collected by the natives.

Imports of dragon's blood varied between 12,034 pounds, valued at \$5,513 in 1911, and a maximum of 48,026 pounds, valued at \$19,137 in 1917. Subsequent imports are given below.

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 27,260 | \$10,167 | \$0.37 |
| 1919..... | 13,328 | 10,420 | .78 |
| 1920..... | 18,938 | 12,649 | .67 |
| 1921 (9 months)..... | 16,564 | 6,534 | .37 |

KADAYA, SANDARAC, TRAGACANTH, TRAGASOL, AND OTHER GUMS AND RESINS.

Description and uses.—Sandarac is a resin obtained from a small evergreen tree which is indigenous to Northwestern Africa. It is also obtained in Australia from a similar tree and is known as "white pine resin." Sandarac is used chiefly as a varnish resin and to some extent in dental cements and as an incense. Tragacanth is a gum exudation obtained from various species of *Astragalus*. Commercial supplies are obtained from this tree in the mountainous regions of Asia Minor, Syria, Armenia, Kurdistan, and Persia. It is used chiefly for sizing textiles. Kadaya and tragasol are other important gums which are imported in large quantities.

Imports of tragacanth during the period 1910-1916 ranged between 1,000,000 and 1,500,000 pounds annually, and increased greatly in

1917. Imports of tragasol in 1910-1917 were between 800,000 and 1,200,000 pounds annually. Since 1917 imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|----------------------|----------------------|-----------|-------------|----------|
| TRAGACANTH. | | | | |
| | <i>Pounds.</i> | | | |
| 1918..... | ¹ 73,540 | \$80,746 | \$1.10 | ..... |
| | ² 237,277 | 135,311 | .57 | \$13,531 |
| 1919..... | 1,479,133 | 1,589,811 | 1.08 | ..... |
| 1920..... | 943,776 | 1,342,985 | 1.42 | ..... |
| 1921 (9 months)..... | 186,557 | 221,293 | 1.19 | ..... |

| TRAGASOL. | | | | |
|----------------------|-----------|----------|-------------|-------|
| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
| 1918..... | 711,644 | \$14,502 | \$0.06 | ..... |
| 1919..... | 179,930 | 10,458 | .06 | ..... |
| 1920..... | 627,314 | 26,139 | .04 | ..... |
| 1921 (9 months)..... | 561,194 | 18,845 | .03 | ..... |

¹ July 1-Dec. 31, free. (Abstract 42058.)

² Jan. 1-June 30, dutiable.

Imports of kadaya and sandarac are shown for 1914, only, when they were: Kadaya, 866,535 pounds valued at \$42,703; and sandarac, 55,365 pounds, valued at \$9,332.

Imports of other gums and gum resins in a crude state increased to 4,963,000 pounds in 1916 valued at \$259,000. In 1917 they amounted to about 1,290,000 pounds. Since then imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. |
|----------------------|------------------------|-----------|-------------|----------|
| | <i>Pounds.</i> | | | |
| 1918..... | ¹ 619,047 | \$111,557 | \$0.17 | ..... |
| | ² 3,126,678 | 452,053 | .14 | \$15,205 |
| 1919..... | ¹ 4,208,290 | 721,722 | .17 | ..... |
| | ² 1,066,437 | 169,877 | .16 | 16,988 |
| 1920..... | ¹ 5,887,586 | 957,378 | .16 | ..... |
| | ² 321,286 | 16,761 | .05 | 1,676 |
| 1921 (9 months)..... | ¹ 8,836,430 | 519,188 | .06 | ..... |
| | ² 33,675 | 8,922 | .03 | ..... |

¹ Free.

² Dutiable at 10 per cent. (T. D. 36548.)

Important changes in classification.—Kadaya, sandarac, tragacanth and tragasol are mentioned specifically for the first time. As the provision for gums in paragraph 27, act of 1913, has been omitted, a provision for "other gums, gum resins, and resins, not specially provided for" has been added to this paragraph. (Reclassification Report, p. 50.)

Suggested changes.—As the words "and other copals" embrace none of the gums or resins preceding "damar," it is suggested that a semicolon be substituted for the comma after "senegal."

PARAGRAPH 1578.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1578. Gunpowder, and all other explosive substances, used for mining, blasting, or artillery purposes, not specially provided for.

ACT OF 1909.

PAR. 435. Gunpowder, and all explosive substances used for mining, blasting, artillery, or sporting purposes, when valued at twenty cents or less per pound, two cents per pound; valued above twenty cents per pound, four cents per pound.

ACT OF 1913.

PAR. 501. Gunpowder, and all explosive substances, not specially provided for in this section, used for mining, blasting, and artillery purposes [Free].

EXPLOSIVES.

(See Survey FI-18.)

GENERAL.

Explosives are used principally for blasting, signaling, pyrotechnics, and for military and sporting purposes.

Blasting explosives include mainly black powder, nitroglycerin preparations, and the so-called "permissible explosives," which have passed certain tests of the Bureau of Mines and are regarded as safe for use with proper precautions in coal mines.

Military explosives include propellants (smokeless powder), primers, high explosives for filling shells, torpedoes, hand grenades, etc.

Ammonium nitrate (par. 7) is extensively used as a constituent of both blasting and military explosives.

BLACK POWDER.

Description and uses.—Black powder consists of an intimate mixture, usually 75 per cent potassium nitrate, 15 per cent charcoal, and 10 per cent sulphur. It is used principally for mining, blasting, and sporting purposes; also to some extent in fireworks.

Production of blasting powder in 1914 was 207,423,675 pounds, valued at \$8,459,113, not far from the average since 1900. The black blasting powder used in 1917 was 277,118,525 pounds. Other high explosives for blasting purposes, exclusive of permissible explosives, amounted to 262,316,080 pounds; permissible explosives were 43,040,722 pounds. Production in 1919 (preliminary figures) was as follows: Blasting powder, 184,675,000 pounds, valued at \$12,168,500; gunpowder, black, 11,730,000 pounds, valued at \$2,096,600; permissible explosives, 26,496,000 pounds, valued at \$4,736,000.

Imports were not shown separately in 1917, but since that time those of gunpowder and all explosive substances, n. s. p. f., for blasting, mining, or artillery purposes have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|--------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 25,690,394 | \$12,586,196 | \$0.50 |
| 1919..... | 12,420,796 | 6,336,518 | .51 |
| 1920..... | 22,564 | 8,404 | .24 |
| 1921 (9 months)..... | 20,321 | 2,826 | .14 |

Exports of gunpowder, including smokeless powder, prior to 1915 averaged about 1,000,000 pounds annually, and for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------------|-------------|--------------|---------------------|
| Quantity (pounds)..... | 229,377,058 | 6,751,799 | 43,907,793 | 694,980 |
| Value..... | \$179,648,156 | \$5,990,744 | \$38,368,157 | \$373,491 |

Countries of destination are chiefly France, Colombia, and Canada.

SMOKELESS POWDER.

Description and uses.—Nitrocellulose, or guncotton, is the base of all smokeless powders. It is prepared by treating cotton under certain conditions with a mixture of nitric and sulphuric acid. In making smokeless powder the nitrocellulose is mixed with alcohol, ether, and a stabilizer. After these are thoroughly incorporated the mixture is pressed into the desired shape by hydraulic pressure and when dried is ready for use. Cordite is a smokeless powder made from a mixture composed of nitrocellulose, nitroglycerin, acetone, and vaseline. Smokeless powder is used almost entirely for military purposes, and to some extent for sporting purposes.

Production of smokeless powder in 1914 (including that by the Government) was 12,684,072 pounds, increasing enormously during the war. In 1919 according to preliminary figures smokeless powder was the item of chief value in "all other" explosives, the output of which was 53,476,700 pounds, valued at \$24,164,200.

Exports far exceed imports. During the war large quantities were supplied the Allies. Figures are combined with gunpowder, *supra*.

NITROGLYCERIN AND DYNAMITE.

Description and uses.—Nitroglycerin is a heavy, oily liquid, obtained by treating glycerin with a mixture of nitric and sulphuric acids. It is very sensitive to shock and is a violent poison. Dynamite is made by absorbing nitroglycerin in some porous substance, such as infusorial earth, sawdust, or powdered mica. Nitroglycerin is used at present in the liquid state only for "shooting" gas or oil wells. Its greatest use is in making dynamite and other high explosives. It is sometimes used in medicine as a heart stimulant.

Production in 1914 of dynamite was 223,667,630 pounds, valued at \$20,553,653. In the same year 65,302,883 pounds of nitroglycerin were produced, of which 3,785,474 pounds were sold as such for \$950,611. In 1919, according to preliminary figures, 220,995,500 pounds of dynamite, valued at \$38,763,400, and 56,361,200 pounds of nitroglycerin were produced, of which an amount valued at \$3,439,000 was sold as such.

Imports.—Statistics not available.

Exports of dynamite in 1914 were 14,464,601 pounds, valued at \$1,587,184; in 1916, 19,561,654 pounds, valued at \$3,656,653. Statistics for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------------|---------------|---------------|-----------------|
| Quantity (pounds)..... | 18, 204, 644 | 11, 173, 528 | 15, 641, 981 | 5, 648, 774 |
| Value..... | \$4, 845, 888 | \$2, 370, 016 | \$3, 210, 481 | \$1, 141, 714 |

Countries of destination are chiefly Mexico, Chile, and Peru.

NITROSTARCH.

Description and uses.—Nitrostarch is used as a constituent of some high explosives. It is made in much the same way as nitrocellulose, by the treatment of starch with nitric and sulphuric acids. Tapioca starch and cornstarch are the ones most used. During the war nitrostarch was used largely in hand grenades. It can also be used with good results for blasting purposes.

Production, imports, and exports.—Statistics are not available.

PARAGRAPH 1579.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1579. Hair of horse, cattle, and other animals, cleaned or uncleaned, drawn or undrawn, but unmanufactured, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 583. Hair of horse, cattle, and other animals, cleaned or uncleaned, drawn or undrawn, but unmanufactured, not specially provided for in this section; * * * [Free].

PAR. 503. Hair of horse, cattle, and other animals, cleaned or uncleaned, drawn or undrawn, but unmanufactured, not specially provided for in this section [Free].

HAIR OF HORSE, CATTLE, AND OTHER ANIMALS.

(See Survey N-12.)

Description and uses.—The long hair from the manes and tails of horses is used as a filling, usually with a cotton warp, in making haircloth. (Haircloth dutiable under par. 1426.) It is also used in making fishlines, straining cloths, and for violin bows. The short hair (and that from the tails of cattle) is curled and used in upholstery work. (Curled hair dutiable under par. 1425.) The hair of cattle and other animals is a tannery by-product, used in felt for roofing and for covering steam pipes. Mixed with wool waste or cotton, it is made into coarse yarns for carpets, horse blankets, and the cheapest grade of tweeds. Cattle hair is also used as binding for mortar and plaster.

Production statistics are not available. Most of the cattle hair required is of domestic production; the horsehair is largely imported.

Imports of horsehair for bows of violins are shown separately. These amounted in 1914 to \$8,279, and to \$13,473 in 1916. Imports of other horsehair were smallest in 1914 and 1915, being, respectively, 3,776,227 pounds, valued at \$1,668,484, and 3,543,358 pounds, valued at \$1,501,085. In prior years the average was about 4,000,000 pounds,

and in 1916 and 1917 imports reached more than 6,000,000 pounds. Cattle and other animal hair in 1914 amounted to 15,506,745 pounds, valued at \$1,051,874. Imports have decreased since then. Horsehair came chiefly from Argentina, with large amounts also from China, Canada, Italy, England, Uruguay, and Mexico. Cattle and other animal hair comes from practically the same countries, with Canada leading. Later statistics of imports for calendar years are tabulated below:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|------------------|
| Horsehair for bows of violins and other instruments, value..... | \$74 | \$24,829 | \$17,661 | \$1,796 |
| Horsehair, all other: | | | | |
| Quantity (pounds)..... | 2,900,913 | 3,993,405 | 4,893,247 | 2,417,503 |
| Value..... | \$1,010,172 | \$1,618,683 | \$2,184,603 | \$907,281 |
| Cattle and other animal hair: | | | | |
| Quantity (pounds)..... | 3,464,447 | 4,546,791 | 6,770,368 | 2,667,126 |
| Value..... | \$304,268 | \$543,699 | \$1,218,099 | \$365,114 |

Argentina continued to lead in shipments of horsehair, but Germany, in 1920, led in cattle and other animal hair, with Argentina second and Canada third.

Exports of horse, cattle, and other animal hair are combined in the trade statistics. These were valued in 1914 at \$1,085,038. The United Kingdom was the largest purchaser, with Germany, Belgium, and Canada following in the order named. Later statistics for calendar years follow: 1918, \$680,766; 1919, \$1,551,276; 1920, \$1,327,546; 1921 (9 months), \$437,694.

PARAGRAPH 1580.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1580. Hide cuttings, raw, with or without hair, ossein, and all other glue stock.

ACT OF 1909.

ACT OF 1913.

PAR. 584. Hide cuttings, raw, with or without hair, and all other glue stock [Free].

PAR. 504. Hide cuttings, raw, with or without hair, and all other glue stock [Free].

GLUE STOCK.

(See Survey A-9.)

Description and uses.—This paragraph includes all kinds of hide cuttings and all other material used as glue stock. Most hide stock is produced by tanners as waste pieces or trimmings, fleshings from the flesh side of the hide, and "skivings," or scrapings from the hair or grain side of the hide.

Green or packer bone and country bone, chiefly butchers' offal and junk bone, are used as glue stocks. Ossein is the bone residue after the mineral matter has been dissolved out by acid. Sinews come into markets from slaughterhouses as fresh or green salted. The

bones, skins, and heads of fish are also used for preparing glue (par. 39).

Production.—Statistics not available.

Import values of hide cuttings and other glue stock increased from \$1,605,432 in 1910 to \$2,158,514 in 1914, chiefly from Europe. Imports for the calendar years 1918-1921, chiefly from Argentina, Uruguay, and England, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-----------|------------|-------------|-----------------|
| Quantity (pounds)..... | 9,106,446 | 13,780,637 | 36,868,101 | 23,000,135 |
| Value..... | \$448,165 | \$978,514 | \$2,238,958 | \$1,336,409 |

Exports.—Statistics are not available.

Important changes in classification.—Ossein is mentioned specifically for the first time.

PARAGRAPH 1581.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1581. Rope made of rawhide.

ACT OF 1909.

ACT OF 1913.

PAR. 585. Hide rope [Free].

PAR. 505. Hide rope [Free].

RAWHIDE ROPE.

(See Survey N-18.)

Description and uses.—Rope made of rawhide is composed of strips of untanned hide, twisted into cords and ropes. It is very hard and tough. It is the material from which rawhide or so-called "cowhide" riding whips are made.

Production data are not separately shown in official sources.

Imports of hide rope in 1914 amounted to \$10. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------|-------|------|-----------------|
| Quantity (pounds)..... | | 2,411 | 810 | 225 |
| Value..... | \$2,505 | \$857 | \$10 | \$43 |

Exports.—None recorded.

Important changes in classification.—The phraseology of this paragraph has been changed so as to restrict its provisions to rope actually made from rawhide. The provision in former acts for "hide rope" has been held not limited to rope made from hides, but inclusive of rope known as hide rope made from material other than hides, and used for tying hides. (G. A. 8336; T. D. 38390, 1920.)

PARAGRAPH 1582.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1582. Hides of cattle, raw or uncured, or dried, salted, or pickled.

ACT OF 1909.

ACT OF 1913.

PAR. 450. Hides of cattle, raw or uncured, whether dry, salted, or pickled, shall be admitted free of duty: * * *.

PAR. 506. Hides of cattle, raw or uncured, or dry, salted, or pickled [Free].

HIDES OF CATTLE, RAW OR DRIED, ETC.

(See Survey FL-19.)

Description and uses.—Cattle hides are employed principally in shoe leathers and in belting, harness, upholstery, case, bag, and strap leathers. The tanning and finishing processes give a wide variety of leathers. Hides vary greatly in character, depending upon the condition under which the animal is reared, its breeding, age, sex, and many other factors. Animals raised without shelter, obtaining their subsistence largely from roughage, produce tough, close-grained hides. Cattle of good breeding, given good care and concentrated feeds furnish fine-grained, but frequently weak, hides. Domestic hides are commonly "packer" or "country," the former taken off at the stockyards, the latter at small slaughterhouses. Packer hides, as a rule, command the higher price because of greater care in the removal. Kips are usually young cattle hides, weighing from 15 to 25 pounds, but East Indian kips are small cattle hides.

Production of cattle hides numbers about 12,000,000 annually, averaging about 50 pounds each.

Imports.—In 1913 we imported 268,042,390 pounds of cattle hides (green and dry)—about 82,000,000 pounds from Europe, 86,500,000 pounds from South America, 77,300,000 pounds from North America, 15,200,000 pounds from Asia, and 7,200,000 pounds from Australasia and Africa. The imports are classified into (1) dry cattle hides and (2) green or pickled cattle hides. During the war imports of dry cattle hides rapidly increased, but Argentina remained the chief source of supply. Russia was practically eliminated by 1917, and shipments from China and South American countries, especially from Brazil and Colombia, increased.

Imports of green or pickled cattle hides also increased rapidly, but not in the ratio of the dry hides. In 1913 our principal sources for green or pickled cattle hides were Argentina, Canada, France, Russia in Europe, and Mexico. One result of the war was to cause South American hides to find an increased market in this country.

Imports of cattle hides for the calendar years 1918-1921 are shown in the following tables:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|--------------|--------------|--------------|---------------------|
| Dry (12 pounds and over): | | | | |
| Quantity (pounds)..... | 35,155,106 | 96,175,601 | 59,150,408 | 9,326,213 |
| Value..... | \$10,254,045 | \$34,360,222 | \$21,002,121 | \$1,741,718 |
| Green or pickled (25 pounds and over): | | | | |
| Quantity (pounds)..... | 185,432,280 | 310,965,319 | 216,174,099 | 134,642,852 |
| Value..... | \$41,708,075 | \$91,223,542 | \$64,383,203 | \$17,360,629 |

In 1920 the imports of dry cattle hides from Argentina were 24 per cent of the total; those from Colombia were 14 per cent; China, 8 per cent; British India, 7 per cent. The bulk of cattle hides, green or pickled, came from Argentina (46 per cent); those from Uruguay amounted to 12 per cent; Canada, 11 per cent; and Brazil, 6 per cent.

Exports of cattle hides in the fiscal year 1918 were valued at \$1,953,700, Canada, the only country to which we exported cattle hides in any quantity, taking an amount to the value of \$1,497,454. The table below shows exports during the calendar years 1918-1921:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 2,338,147 | 16,996,932 | 11,485,466 | 12,181,705 |
| Value..... | \$681,951 | \$6,290,356 | \$3,761,142 | \$1,361,803 |

In 1920 China received 50 per cent of the exports; Japan, 17 per cent.

Suggested changes.—If all hides are to remain on the free list, this paragraph might be combined with par. 1653.

PARAGRAPH 1583.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1583. Hones and whetstones.

ACT OF 1909.

ACT OF 1913.

PAR. 586. Hones and whetstones [Free].

PAR. 507. Hones and whetstones [Free].

HONES AND WHETSTONES.

(See Survey B-3.)

Description and uses.—Hones and whetstones, formerly made only from natural quarried rocks, are now made from artificial abrasives (par. 1415), which are fast replacing the natural stones.

Production of oilstones (including hones and whetstones) and scythestones from natural rock decreased from \$207,352 in 1913 to \$115,178 in 1915, and then increased to \$168,704 in 1917. Arkansas is the chief producer of oilstones, whetstones, and hones; Ohio leads in scythestones; but New Hampshire, Vermont, and Michigan also contribute important quotas.

Oilstones and scythestones sold by producers in the United States, 1918-1920.

| | 1918 | 1919 | 1920 |
|----------------------------|-----------|-----------|-----------|
| Quantity (short tons)..... | 1,010 | 1,463 | 1,144 |
| Value..... | \$189,033 | \$235,943 | \$231,747 |

Imports for the calendar years 1918-1921 are shown in the following table:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------|---------|----------|----------|------------------|
| Number..... | | 149,375 | 641,353 | 208,787 |
| Value..... | \$6,075 | \$12,199 | \$58,416 | \$29,025 |

Exports.—None recorded.

PARAGRAPH 1584.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1584. Hoofs, unmanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 587. Hoofs, unmanufactured
[Free].

PAR. 508. Hoofs, unmanufactured
[Free].

HOOFS, UNMANUFACTURED.

(See Survey FL-5.)

Description and uses.—The hoofs of neat cattle yield a pale yellow oil, called "neat's-foot oil," almost wholly olein, the liquid part of fat, as distinguished from stearin, the solid portion. It is a fine lubricant and is extensively employed by manufacturers as a leather dressing. Hoofs are used in making buttons and novelties.

Imports are combined in official statistics with horns and parts of, shown under the succeeding paragraph (1585). They come principally from Argentina, Canada, and Uruguay.

Exports are shown combined with horns and parts of.

PARAGRAPH 1585.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1585. Horns and parts of, including horn strips and tips, unmanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 589. Horns and parts of, including horn strips and tips, unmanufactured
[Free].

PAR. 511. Horns and parts of, including horn strips and tips, unmanufactured
[Free].

HORNS AND PARTS OF.

(See Survey N-21.)

Description and uses.—Horns and horn strips and tips are used principally for making combs, knife handles, buttons, and various novelties, such as napkin rings, etc.

Production statistics are not available. The domestic output comes largely from the packing plants. They are sorted in three grades for sale to the button trade.

Imports are shown under the classification, "Hoofs, horns, and parts of, unmanufactured." In 1914 these were valued at \$254,872. They are chiefly from Argentina, Uruguay, England, and Norway. Imports for the calendar years 1918-1921 are shown below:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|------------------------|-----------|-----------|------------|-----------------|
| Quantity (pounds)..... | | 2,451,826 | 11,190,838 | 1,712,001 |
| Value..... | \$109,958 | \$133,127 | \$540,597 | \$94,051 |

Exports of hoofs and horns were valued at \$102,705 in 1913 and at \$61,180 in 1914. In later statistics (calendar years) exports, including bones, have been as follows: 1918, \$307,671; 1919, \$370,634; 1920, \$270,146; 1921 (nine months), \$80,634. Japan is the chief purchaser.

PARAGRAPH 1586.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1586. Ice.

ACT OF 1909.

ACT OF 1913.

PAR. 590. Ice [Free].

PAR. 512. Ice [Free].

ICE.

(See Survey FL-6.)

Description and uses.—Ice, natural or manufactured, as a refrigerating and preserving agent has extended the market for perishable foodstuffs, stimulating their production and stabilizing prices as between the seasons of plenty and of scarcity.

Production of manufactured ice in 1914 amounted to 21,043,063 tons, valued at \$62,192,413, an increase of more than 150 per cent over the output of 1904. Over 50 per cent was reported by New York, Pennsylvania, Missouri, Illinois, Ohio, Texas, and California. In 1919 the value of production was \$136,873,000.

Imports of ice in 1914 were 32,093 tons, valued at \$16,340, coming wholly from Canada. Imports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|----------------------|----------|----------|----------|-----------------|
| Quantity (tons)..... | 60,709 | 66,627 | 55,092 | 8,063 |
| Value..... | \$33,956 | \$94,272 | \$40,503 | \$6,382 |

Exports in 1914 were 14,183 tons and in 1917 were 17,642 tons, valued at \$29,795 and \$37,965, respectively, going to Canada and Mexico. Exports for later years are not recorded.

PARAGRAPH 1587.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1587. India rubber and gutta-percha, crude, including jelutong or pontianak, guayule, gutta balata, and gutta siak, and scrap or refuse india rubber and gutta-percha fit only for remanufacture.

ACT OF 1909.

ACT OF 1913.

PAR. 591. India rubber, crude, and milk of, and scrap or refuse India rubber, fit only for remanufacture, and which has been worn out by use [Free].

PAR. 513. India rubber, crude, and milk of, and scrap or refuse india rubber, fit only for remanufacture [Free].

PAR. 582. Gutta-percha, crude [Free].

PAR. 502. Gutta-percha, crude [Free].

INDIA RUBBER, JELUTONG OR PONTIANAK, AND GUAYULE.

(See Survey FL-17.)

Description and uses.—Milk of india rubber, or latex, is a white or cream colored, more or less viscous, liquid obtained by "tapping" various tropical trees, creepers, and shrubs. Crude india rubber is coagulated from this milk of rubber by exposure to smoke, by heating, or by treatment with organic acids. Many trade names describing crude india rubber according to botanical source or country of origin are employed in commerce. The physical properties giving rubber its value are its pale color, high tensile strength, strong adhesion and cohesion values, great elasticity, pliability, impermeability to water and gases, high insulating powers, ability to take up powdered minerals and form a homogeneous mass, and its low specific gravity.

Jelutong or pontianak is a low-grade rubber coming chiefly from Borneo. It is obtained from the latex of *Dyera costulata*. When the prices of crude rubber were high the rubber content of pontianak was extracted and large quantities of it were utilized.

Guayule is a Mexican rubber which has come into use in recent years. It is obtained from the cells of the bark of a shrub peculiar to the arid regions of northern Mexico and southern Texas. It is practically the only rubber found in the United States.

Production.—The chief crude-rubber producers are Brazil, Ceylon, the Malay Peninsula, Africa, Mexico, Central America, and the Indies. Rubber is obtained both from wild forests and from cultivated trees. In 1913 one-half and in 1918, 90 per cent of the production came from plantations. The world's annual production of crude rubber has increased from 54,000 tons in 1900 to 290,000 tons in 1918.

Imports of india rubber, crude, and milk of, have increased from 110,101,091 pounds, valued at \$92,956,013, in 1912 to 390,338,533 pounds, valued at \$203,122,748, in 1918 (fiscal year). Imports of india rubber, scrap or refuse, fit only for remanufacture, decreased from 44,479,429 pounds, valued at \$3,675,824, in 1913 to 10,584,494 pounds, valued at \$827,778, in 1915; the maximum import since 1915

was 17,665,403 pounds, valued at \$1,187,113 in 1917. Imports of the above materials since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------------|---------------|---------------|--------------------|
| India rubber: | | | | |
| Crude and milk of— | | | | |
| Quantity (pounds)..... | 326,844,645 | 535,942,721 | 566,546,136 | 257,254,986 |
| Value..... | \$146,693,308 | \$215,821,132 | \$242,795,773 | \$50,895,241 |
| Scrap or refuse— | | | | |
| Quantity (pounds)..... | 8,143,157 | 9,916,506 | 12,060,531 | 1,947,094 |
| Value..... | \$533,462 | \$882,929 | \$821,478 | \$77,097 |
| Reclaimed— | | | | |
| Quantity (pounds)..... | 420,117 | 890,719 | 603,216 | 175,406 |
| Value..... | \$99,068 | \$142,690 | \$68,128 | \$16,510 |

In recent years the imports of crude india rubber have been chiefly from the British Straits Settlements and the Dutch East Indies; and those of scrap or refuse india rubber mostly from England, Canada, and France.

Annual imports of jelutong or pontianak from 1910 to 1914 ranged between 45,000,000 and 50,000,000 pounds, valued at more than \$2,000,000. During the period 1914-1918 they decreased to between 15,000,000 and 30,000,000 pounds. Later statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|-------------|-------------|---------------------|
| Jelutong or pontianak: | | | | |
| Quantity (pounds)..... | 10,210,364 | 18,662,702 | 12,705,923 | 1,613,437 |
| Value..... | \$399,510 | \$2,213,964 | \$2,068,501 | \$171,628 |

Annual imports of guayule during 1909-1913 ranged from 10,000,000 to 20,000,000 pounds, with a value between \$3,000,000 and \$10,000,000. During 1914-1918 they have ranged from 1,475,804 pounds in 1914 to 5,116,165 pounds in 1915. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Guayule: | | | | |
| Quantity (pounds)..... | 314,986 | 3,204,224 | 1,698,859 | 130,170 |
| Value..... | \$111,305 | \$760,690 | \$345,935 | \$26,946 |

Exports of india rubber, scrap and old, have varied in value from \$598,287 in 1914 to \$235,811 in 1918 (fiscal years). Exports from 1918-1921, calendar years, follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-----------|-----------|------------|------------------|
| Scrap and old india rubber: | | | | |
| Quantity (pounds)..... | 2,931,929 | 8,292,053 | 10,468,538 | 5,191,080 |
| Value..... | \$287,883 | \$806,993 | \$788,097 | \$276,568 |
| India rubber, reclaimed: | | | | |
| Quantity (pounds)..... | 2,904,234 | 5,070,632 | 4,909,214 | 774,786 |
| Value..... | \$502,178 | \$839,938 | \$828,094 | \$100,365 |

Exports in 1920 of scrap india rubber were chiefly to Japan, Canada, and France and of reclaimed india rubber chiefly to Canada, Scotland, and England.

Important changes in classification.—Jelutong or pontianak and guayule have been mentioned specifically for the first time.

GUTTA-PERCHA, BALATA AND SIAK.

(See Survey FL-17.)

Description and uses.—Gutta-percha is the product obtained by coagulating the latex of certain species of trees (*Paladium* and *Payena*) native to the Malay Peninsula and Archipelago. It is a grayish white substance possessing great suppleness, but little elasticity. In many of its properties gutta-percha resembles india rubber and is often mixed with it. When vulcanized with sulphur it forms a very hard substance. It is used chiefly as an insulator for underground electrical wiring; in golf balls; temporary fillings for teeth; driving belts; rings, valves, and washers for pumps and hydraulic presses; boot soles; acid cements; tissue for mending clothing and for surgical work; and also for other minor purposes. Gutta balata and gutta siak are similar to gutta-percha in properties and use.

Production.—The latex is removed from the trees by making incisions in the bark. It coagulates on exposure to the air, and is then removed and purified by washing. It is also extracted by mechanical processes from the leaves and twigs, but this product is a poorer quality.

Imports of gutta-percha, crude, increased from 181,294 pounds, valued at \$95,690 in 1908, to 2,751,839 pounds, valued at \$327,039 in 1916. Imports of gutta balata during 1910-1914 averaged about 1,500,000 pounds annually, valued approximately at \$800,000. From 1915 to 1918 they have exceeded 2,500,000 pounds annually. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-----------------------------|-----------|-------------|-------------|-----------------|
| Gutta-percha, crude: | | | | |
| Quantity (pounds)..... | 963,256 | 6,495,818 | 7,129,127 | 1,592,024 |
| Value..... | \$213,589 | \$1,068,698 | \$1,520,309 | \$251,313 |
| Balata, crude: | | | | |
| Quantity (pounds)..... | 1,552,038 | 1,628,134 | 2,384,114 | 1,165,504 |
| Value..... | \$838,545 | \$377,038 | \$1,260,043 | \$708,233 |

Imports since 1918 of gutta-percha have been chiefly from the British Straits Settlements, the Dutch East Indies, and England; and those of balata almost wholly from Mexico.

Important changes in classification.—Gutta balata and gutta siak have been mentioned specifically for the first time.

PARAGRAPH 1588.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1588. Iodine, crude.

ACT OF 1909.

ACT OF 1913.

PAR. 593. Iodine, crude [Free].

PAR. 515. Iodine, crude, * * * [Free].

[For discussion of iodine, see par. 42, p. 127.]

PARAGRAPH 1589.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1589. Iridium, osmium, palladium, rhodium, and ruthenium and native combinations thereof with one another or with platinum.

ACT OF 1909.

ACT OF 1913.

PAR. 595. Iridium, osmium, palladium, rhodium, and ruthenium and native combinations thereof with one another or with platinum [Free].

PAR. 517. Iridium, osmium, palladium, rhodium, and ruthenium and native combinations thereof with one another or with platinum [Free].

THE PLATINUM METALS.

(See Survey FL-20.)

IRIDIUM.

Description and uses.—Iridium is found in platinum ores; as osmiridium, a native alloy of iridium and osmium, in varying proportions; and in the form of native alloys with the other platinum metals. It is a white, steel-like metal, brittle when cold, and somewhat malleable at white heat. The principal sources of these ores are the Ural Mountains, Australia, Colombia, and Borneo. Platinum iridium alloys, which are harder and more resistant to acids than platinum, are used in the manufacture of standard weights, knife edges of balances, and in other articles to preserve them from atmospheric corrosion. Osmiridium is used in the manufacture of the iridium tips for gold pen points.

Production increased from 193 ounces in 1914 to 10,042 ounces in 1917, and decreased to 3,875 ounces in 1918 and to 418 ounces in 1920.

Imports of iridium were 3,619 troy ounces in 1917. For the calendar years 1918 to 1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-----------|-----------|-----------|---------------------|
| Quantity (troy ounces)..... | 1,106 | 5,908 | 4,718 | 1,181 |
| Value..... | \$126,282 | \$975,174 | \$726,502 | \$264,513 |

Exports.—None recorded.

OSMIUM.

Description and uses.—Osmium, one of the metals of the platinum group, is found native, alloyed with platinum and iridium. It is the heaviest known substance, having a specific gravity of 22.48. Formerly it was used in filaments of electric lamps, but has now been replaced by tungsten. It is used slightly in medicine and silk dyeing.

Production.—No statistics.

Imports in 1917 were 400 troy ounces of osmium and 259 troy ounces of osmiridium. Later statistics follow:

| Calendar year. | Osmium. | | Osmiridium. | |
|----------------------|----------------|-----------|----------------|----------|
| | Quantity. | Value. | Quantity. | Value. |
| | Ounces (troy). | | Ounces (troy). | |
| 1918..... | | | 427 | \$46,321 |
| 1919..... | 2,339 | \$132,097 | 1,374 | 112,403 |
| 1920..... | 563 | 39,517 | 4,473 | 450,241 |
| 1921 (9 months)..... | 129 | 8,738 | 1,789 | 222,124 |

Exports.—None recorded.

PALLADIUM.

Description and uses.—Palladium is the lightest metal of the platinum group. While found native alloyed with small amounts of platinum and iridium and 5 to 10 per cent of gold and silver, the chief supply comes from the nickel-copper ores of Ontario and the electrolytic refining of copper. Alloyed with gold and silver, palladium has found considerable use as a substitute for platinum in the manufacture of laboratory ware, in jewelry, and for dental and various industrial purposes. It is also added to platinum to make a lighter alloy capable of receiving a brilliant polish. Palladium is used for coating various surfaces, e. g., reflectors of searchlights and divided scales on various scientific instruments.

Production was 4,024 ounces in 1918 and 4,309 ounces in 1920.

Imports in the fiscal year 1918 were 1,317 ounces. For calendar years 1918 to 1921, inclusive, they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|----------|-----------|-----------|---------------------|
| Quantity (troy ounces)..... | 240 | 3,739 | 6,944 | 7,787 |
| Value..... | \$36,858 | \$250,777 | \$612,248 | \$446,847 |

Exports.—None recorded.

RHODIUM.

Description and uses.—Rhodium occurs with the other metals of the platinum group and as an alloy with gold as rhodium gold or rhodite, a mineral found in Mexico. It is a white, hard, malleable metal. With platinum it forms an alloy used in making thermocouples, crucibles, dishes, and as a catalyst.

Production was 48.5 troy ounces in 1917.

Imports were 32 troy ounces in the fiscal year 1914 and 49 ounces in 1918. For the calendar years 1918-1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|------|----------|-----------|------------------|
| Quantity (troy ounces)..... | | 222 | 2,053 | 609 |
| Value..... | | \$30,474 | \$217,385 | \$53,359 |

Exports.—None recorded.

RUTHENIUM.

Description and uses.—Ruthenium, a hard, brittle, infusible metal, is associated with metals of the platinum group. It is very rare and has not been used commercially to any great extent although employed occasionally in dyeing solutions for silks.

Imports in 1915 were 90 troy ounces. For the calendar years 1918-1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|------|------|---------|------------------|
| Quantity (troy ounces)..... | | | 20 | 152 |
| Value..... | | | \$2,640 | \$4,268 |

Exports.—None recorded.

PARAGRAPH 1590.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1590. Iron ore, including man-
ganiferous iron ore, and the dross or
residuum from burnt pyrites.

ACT OF 1909.

ACT OF 1913.

PAR. 117. Iron ore, including man-
ganiferous iron ore, and the dross or
residuum from burnt pyrites, fifteen
cents per ton: *Provided*, That in levying
and collecting the duty on iron ore no
deduction shall be made from the weight
of the ore on account of moisture which
may be chemically or physically com-
bined therewith.

PAR. 518. Iron ore, including man-
ganiferous iron ore, and the dross or
residuum from burnt pyrites; * * *
[Free].

IRON ORE.

(See Survey FL-2.)

Description.—Commercial iron ore contains from 25 to 70 per cent of iron. The American iron ore as mined averages over 50 per cent. Manganiferous iron ores are either those which contain iron greatly in excess of manganese and which are smelted directly to a manganese cast iron containing 1 to 4 per cent manganese, or those in which manganese equals or is in excess of the iron and which, with other iron ores, are smelted to a similar product or low-grade ferroman-

ganese. The waste cinder of pyrite burners is also a source of iron. After the iron pyrites have been used by sulphuric-acid manufacturers the calcined residue is collected, the copper removed, and the material sintered for reclamation of the iron.

Production of iron ore in 1913 amounted to 61,980,437 long tons, or approximately 40 per cent of the estimated world total. In 1917 it was 75,288,851 long tons, and in 1920, 67,604,465 long tons. Minnesota, Michigan, Alabama, New York, and Wisconsin are the principal producers, Minnesota yielding over half the output.

Next to the United States the leading sources of iron ore in 1913 were Germany (26,771,598 gross tons), France (21,572,835), and the United Kingdom (15,997,328), production materially declining during the war. With the transfer of Lorraine to France after the close of the World War that country now ranks next to the United States as the world's greatest producer of iron ore.

The greatest iron-ore fields of the world are (1) the Lake Superior district; (2) the Lorraine ore field of northeastern France, Luxemburg, and southern Belgium; (3) the magnetite deposits of northern Sweden; (4) the ore fields of Oriente, Cuba; (5) the ores of Bell Island, Newfoundland; and (6) the ore region of southern Brazil. In each of these fields the potential yield of iron is estimated to exceed 1,000,000,000 gross tons. The Lorraine field is advantageously situated with reference to coal and limestone and is near some of the most important markets of the world. The iron content of Lorraine ore, however, is only about 30 to 35 per cent, while that of Lake Superior ore averages over 50 per cent. Brazilian and Swedish iron ores have a high iron content, averaging from 55 to 65 per cent, but are mined in countries with a very limited supply of coal. The Brazilian field contains the most extensive known deposit of "low phosphorus" ore, used largely in the manufacture of ordnance material.

Imports in the fiscal year 1913 amounted to 2,246,861 gross tons, valued at \$7,035,185. In the fiscal year 1918 imports aggregated 871,854 gross tons valued at \$3,144,072. For the calendar years 1918 to 1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 789,375 | 476,461 | 1,273,456 | 295,710 |
| Value..... | \$3,488,921 | \$2,335,689 | \$4,963,654 | \$999,720 |

Over half of the imported iron ore comes from Cuba and the remainder largely from Spain and Sweden. A large proportion of the imported ore enters the United States through the customs district of Maryland.

Exports of iron ore in the fiscal year 1913 amounted to 1,221,387 gross tons, valued at \$3,684,443. In the fiscal year 1918 these exports amounted to 1,185,769 gross tons valued at \$4,877,380. Exports for the calendar years 1918-1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 1,256,383 | 996,569 | 1,145,037 | 230,228 |
| Value..... | \$5,535,090 | \$4,308,746 | \$6,198,927 | \$1,194,806 |

The bulk of the exported ore goes to Canada. In 1920 some exported ore moved to Mexico and Sweden.

Important changes in classification.—In H. R. 7456 iron ore, including manganese iron ore and the dross or residuum from burnt pyrites, has been retained on the free list as in the act of 1913, but separated from "iron in pigs, iron kentledge, spiegeleisen," etc., which have been placed on the dutiable list.

PARAGRAPH 1591.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1591. Ivory tusks in their natural state or cut vertically across the grain only, with the bark left intact.

ACT OF 1909.

ACT OF 1913.

PAR. 596. Ivory tusks in their natural state or cut vertically across the grain only, with the bark left intact, * * * [Free].

PAR. 369. Ivory tusks in their natural state, or cut vertically across the grain only, with the bark left intact, 20 per centum ad valorem; * * *.

IVORY TUSKS.

(See Survey N-21.)

Description and uses.—Ivory tusks are mainly those of the African elephant, these constituting the best part of commercial ivory. Other sources are the tusks of fossil elephants found in Russia, Siberia, and Alaska, and the teeth of the whale, walrus, and hippopotamus. The latter are inferior to elephant tusks, which are considered true ivory.

Imports in 1914 amounted to \$480,516, valued at \$1,315,325. They were chiefly from Belgium and England, the chief markets for African ivory. Later statistics follow:

| Calendar year. | Quantity. | Value. | Duties. | Unit value. | Ad valorem rate. |
|----------------------|----------------|-----------|-----------|-------------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 376,908 | \$758,106 | \$151,630 | \$2.01 | 20 |
| 1919..... | 347,531 | 862,010 | 172,402 | 2.48 | 20 |
| 1920..... | 615,845 | 2,184,164 | 436,833 | 3.55 | 20 |
| 1921 (9 months)..... | 85,700 | 273,065 | ..... | ..... | ..... |

In the later years large quantities were shipped direct from the Belgian Congo and Egypt, although England and Belgium remained the chief markets.

Important changes in classification.—Transferred from the Sundries schedule (par. 369) of the act of 1913.

PARAGRAPH 1592.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1592. Jet, unmanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 598. Jet, unmanufactured [Free]. PAR. 520. Jet, unmanufactured [Free].

JET, UNMANUFACTURED.

(See Survey N-1.)

Description and uses.—Jet is a compact, soft, light coal of a lustrous black color, hard and solid enough to be turned in a lathe and made into various ornamental articles. It occurs here in many localities, but is not systematically worked. It is found in Austria-Hungary, France, Germany, Spain, and England. It has been displaced by black-colored chalcedony and anthracite. Owing to the high polish taken, it finds use as material for dress trimming, mourning jewelry, toys, buttons, and personal ornaments.

Imports of jet are small and irregular, having been recorded from 1907 to 1918 in three years only. In 1907 they were valued at \$27 and later statistics for calendar years are as follows: 1918, \$316; 1919, \$1,199; 1920, \$371; 1921 (nine months), \$992.

PARAGRAPH 1593.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1593. Joss stick or joss light.

ACT OF 1909.

ACT OF 1913.

PAR. 599. Joss stick or Joss light [Free]. PAR. 521. Joss stick or joss light [Free].

JOSS STICK AND LIGHT.

(See Survey N-8.)

Description and uses.—Joss sticks are reeds covered with paste made from the dust of odoriferous woods, or cylinders made wholly of the paste. They are used by the Chinese to burn before their idols, as slow matches in measuring time at night, and for lighting pipes, and are widely used by other peoples as deodorizers.

Imports of joss sticks in 1914 were valued at \$6,888, nearly half from Japan and the rest from China and India. Later statistics for calendar years follow: 1918, \$29,510; 1919, \$32,328; 1920, \$41,089; 1921 (nine months), \$17,015.

Suggested changes.—See paragraph 1656, page 1438.

PARAGRAPH 1594.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1594. Junk, old.

ACT OF 1909.

ACT OF 1913.

PAR. 600. Junk, old [Free].

PAR. 522. Junk, old [Free].

OLD JUNK.

Description.—"Junk" in the ordinary meaning consists of worn-out and discarded material (in general) that may be turned to some use. It consists principally of old rope, chain, iron, copper, parts of machinery, and bottles gathered or bought up by tradesmen known as "junk dealers."

Production.—No statistics.

Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|-----------|----------|------------------|
| Quantity (pounds)..... | | 2,834,501 | 637,967 | 606,203 |
| Value..... | \$48,059 | \$46,175 | \$21,742 | \$11,328 |

Exports.—None recorded.

PARAGRAPH 1595.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1595. Kelp.

ACT OF 1909.

ACT OF 1913.

PAR. 601. Kelp [Free].

PAR. 523. Kelp [Free].

KELP.

(See Survey A-16.)

Description and uses.—The name kelp, originally applied to the ash obtained by burning seaweed, has now been extended to the seaweeds themselves, particularly to those yielding potash, iodine, and other valuable products. Kelp is used principally for the production of potash salts and iodine, although acetic acid and acetone may be thus obtained. Dried and ground kelp is sometimes used as fertilizer.

Production.—Little kelp was used here until 1914, when the shortage of potash salts caused large quantities along the Pacific coast to be utilized. There were 10 plants manufacturing potash and other products from kelp during 1917 and 1918, and their output was about 4,300 tons per year. Most of these plants have now shut down, owing to the lower price of potash.

Imports of kelp have been small and irregular and probably refer to the ash.

Exports.—Statistics not available.

PARAGRAPH 1596.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1596. Kieserite.

ACT OF 1909.

ACT OF 1913.

PAR. 602. Kieserite [Free].

PAR. 524. Kieserite [Free].

KIESERITE.

(See Survey FL-22.)

Description and uses.—Kieserite is a natural mineral composed of magnesium sulphate combined with one molecule of water of crystallization. It is slowly soluble in water, which property serves as a means of separating it from the other salts naturally occurring with it. Kieserite is found chiefly at Stassfurt in Germany and Hallstatt and Kalusz in Galicia. It is used mainly as a raw material in the production of Epsom salts (par. 47), from which it differs only in the amount of water contained.

Production.—At Stassfurt, kieserite is found along with other salts. The latter are readily soluble in water and therefore on washing are removed. Kieserite is packed in molds and by purification is converted into Epsom salts.

Imports of kieserite for 1910-1914 averaged annually 6,455 tons, valued at \$21,043, entirely from Germany. No imports are recorded since 1918.

PARAGRAPH 1597.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1597. Lac, crude, seed, button, stick, or shell.

ACT OF 1909.

ACT OF 1913.

PAR. 605. Lac * * * crude, seed, button, stick, and shell [Free].

PAR. 526. Lac * * * crude, seed, button, stick, and shell [Free].

LAC, CRUDE, SEED, BUTTON, ETC., AND SHELLAC.

(See Survey FL-17.)

Description and uses.—Crude lac is probably another term applied to stick lac, the crudest form of lac resin. The lac-encrusted twigs are dried and cut into sticks, in which form the lac is sometimes supplied to the consumer.

Seed lac or grain lac consists of stick lac which has been ground and crushed, and which has had the wood twigs removed. It may be in two grades, (1) seed lac containing the lac dye, and (2) washed or bleached seed lac from which the lac dye has been taken by bleaching or by extraction with water. Seed lac is used as a raw material in the manufacture of the best grades of shellac.

Button lac is a form of shellac made by allowing melted and strained lac to drop onto a flat surface, forming large rounded cakes.

Shell lac, or shellac, is seed lac which has been cooked, cooled, and rolled into thin sheets. Commercial grades may contain orpiment or rosin, which is added to impart certain properties to the shellac. Rosin present in quantities exceeding 3 per cent is usually considered an adulterant. Shellac is used as a binder in the manufacture of such composition goods as buttons, dominoes, poker chips, and phonograph records; as an insulator in electrical work; in sealing wax and shoe dressing; and, when dissolved in alcohol, as a quick-drying varnish (spirit varnish), and in paints for ship bottoms. We produce about one-half the shellac varnish of the world and are the chief consumer.

Production is restricted to the preparation of bleached lac from the imported products. The domestic output of bleached lac in 1914 was 8,654,514 pounds, valued at \$1,806,802, and in 1919 (preliminary figures), 8,799,190 pounds, valued at \$5,955,700.

Imports of crude lac, seed, button, and stick, before 1913 averaged less than 500,000 pounds. These greatly increased during the war—in 1915, 1,126,167 pounds, valued at \$88,293; in 1916, 3,485,975 pounds, valued at \$291,176; in 1917, 5,473,174 pounds, valued at \$637,846. Imports of shellac for 1908–1918 averaged about 21,000,000 pounds, valued at about \$4,000,000.

Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------------------|-------------|--------------|--------------|---------------------|
| Lac, crude, seed, button and stick: | | | | |
| Quantity (pounds)..... | 571,972 | 1,813,537 | 2,636,096 | 250,551 |
| Value..... | \$153,336 | \$382,713 | \$993,268 | \$76,553 |
| Shellac: | | | | |
| Quantity (pounds)..... | 18,657,717 | 24,426,403 | 28,587,107 | 19,490,483 |
| Value..... | \$9,029,139 | \$11,899,246 | \$23,088,576 | \$9,717,756 |

Imports are chiefly from British India, England, and Japan.

Exports.—Statistics not available.

Important changes in classification.—Lac dye has been omitted since it is no longer an article of commerce.

PARAGRAPH 1598.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1598. Lactarene or casein.

ACT OF 1909.

ACT OF 1913.

PAR. 607. Lactarene, or casein [Free].

PAR. 527. Lactarene or casein [Free].

CASEIN OR LACTARENE.

(See Survey FI-15.)

Description and uses.—Casein is a white, ashless, nitrogenous substance found in the milk of mammals as a colloidal suspension or emulsion in combination with calcium. It is soluble in concentrated acid and alkalies. About 3 per cent of the solid matter of cow's milk

is casein and represents about 80 per cent of the entire milk protein. Casein has a great many commercial applications, including the manufacture of waterproof and coated paper, paints and artists' colors, plastics, electric insulators, foods, medicines, paint remover, shoe polish, photographic plates, mucilage and cement, and dressing and color-fixing mediums in textiles.

Production.—It is prepared commercially from skimmed milk by precipitating the protein with a dilute mineral acid and filtering, washing, and drying to a powder. The powder is packed in air-tight containers, with formaldehyde added to prevent decomposition. Milk sugar is obtained as a by-product. Casein is also made by precipitation with ferments, such as rennet. In 1914 about 18,600,000 pounds were produced in the United States and were valued at approximately \$1,000,000. Since then domestic production has decreased somewhat, owing to a smaller available supply of skimmed milk, together with higher wages, increased freight rates, and other causes. In 1919 (preliminary figures) 16,615,076 pounds were produced, valued at \$2,188,787.

Imports of casein for 1910–1918 averaged about 10,000,000 pounds, valued at about \$1,000,000. Before the war it came chiefly from France, but during the war Argentina furnished the bulk. Imports since 1917 by calendar years, chiefly from Argentina, England, and Brazil, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-------------|-------------|---------------------|
| Quantity (pounds)..... | 7,083,976 | 17,076,936 | 21,238,822 | 7,978,393 |
| Value..... | \$964,766 | \$2,009,791 | \$2,431,666 | \$742,225 |

Exports.—Statistics not available.

PARAGRAPH 1599.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1599. Lava, unmanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 608. Lava, unmanufactured
[Free].

PAR. 529. Lava, unmanufactured
[Free].

LAVA, UNMANUFACTURED.

(See Survey B-3.)

Description and uses.—Lava, rock of volcanic origin, varying greatly in composition and texture, has some specific uses, e. g., for making millstones and for filtering acids. Basaltic lava of vesicular texture is used for beater rolls and bedplates, which compete with steel or bronze rolls in the preparation of paper pulp. The largest use of such rocks is for crushed stone.

Production.—A small amount, used for beater rolls, is produced in the extreme Northwestern States. (See par. 235, p. 350.)

Imports of lava average about 50 tons a year, and are used for beater rolls. (See par. 235, p. 350.)

PARAGRAPH 1600.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1600. Leather: All leather not specially provided for; harness, saddles, and saddlery, in sets or parts, except metal parts, finished or unfinished; leather cut into shoe uppers, vamps, soles, or other forms suitable for conversion into manufactured articles; and leather shoe laces, finished or unfinished.

ACT OF 1909.

PAR. 450. * * * *Provided*, That on and after October first, nineteen hundred and nine, grain, buff, and split leather shall pay a duty of seven and one-half per centum ad valorem; * * * that harness, saddles and saddlery, in sets or in parts, finished or unfinished, composed wholly or in chief value of leather, shall pay a duty of twenty per centum ad valorem.

PAR. 451. Band, bend, or belting leather, rough leather, and sole leather, five per centum ad valorem; dressed upper and all other leather, calfskins tanned or tanned and dressed, kangaroo, sheep and goat skins (including lamb and kid skins), dressed and finished, other skins and bookbinders' calfskins, all the foregoing not specially provided for in this section, fifteen per centum ad valorem; * * * skins for morocco, tanned but unfinished, five per centum ad valorem; patent, japanned, varnished, or enameled leather weighing not over ten pounds per dozen hides or skins, twenty-seven cents per pound and fifteen per centum ad valorem; if weighing over ten pounds and not over twenty-five pounds per dozen, twenty-seven cents per pound and eight per centum ad valorem; if weighing over twenty-five pounds per dozen, twenty cents per pound and ten per centum ad valorem; * * * leather shoe laces, finished or unfinished, fifty cents per gross pairs and ten per centum ad valorem; * * * *Provided*, That leather cut into shoe uppers or vamps or other forms, suitable for conversion into manufactured articles, and gaufrage leather, shall pay a duty of ten per centum ad valorem in addition to the duty imposed by this paragraph on leather of the same character as that from which they are cut.

PAR. 461. Harness, saddles, saddlery, in sets or in parts, finished or unfinished, thirty-five per centum ad valorem.

ACT OF 1913.

PAR. 530. All leather not specially provided for in this section * * * leather cut into shoe uppers or vamps or other forms suitable for conversion into boots or shoes; * * * leather shoe laces, finished or unfinished; harness, saddles, and saddlery, in sets or in parts, finished or unfinished [Free].

BELTING AND SOLE LEATHER.

(See Survey N-15.)

Description and uses.—Belting and sole leather are produced from cattle hides by processes identical up to the finishing process. Both are frequently made in the same tanneries. Vegetable tanning is the older and slower process, but the qualities which it imparts make the leather superior, with some minor exceptions, for the purposes under consideration, to mineral-tanned leather. Mineral tanning is usually done in "drums;" vegetable tanning in both vats and "drums." Drum tanning is a quicker process than vat tanning. Chrome salts are usually employed in mineral tanning and sometimes, as in the case of sole leather for army shoes, the leather is tanned by the quick mineral or "chrome" process and then given a comparatively brief vegetable tanning called "vegetable retan."

Production of sole leather in 1914 was valued at \$116,188,059; belting leather, at \$8,369,584. In 1919, the former was valued at \$227,809,736 and the latter at \$37,275,668. The sole-leather industry has grown rapidly from a value of approximately \$55,000,000 in 1899, the belting-leather industry from a value then approximating \$7,000,000. Pennsylvania was the most important producer of sole leather, with a value of \$50,485,259 in 1914, nearly one-half the total output. Michigan was second, with \$12,641,509; West Virginia, \$9,035,266; Wisconsin, \$7,646,946; Virginia, \$7,535,199; and New York, \$7,184,838. Pennsylvania in 1919 still ranked first with an output of \$101,041,783, followed by West Virginia with \$20,429,088, and New York with \$19,662,132. The larger part of the product—\$117,522,076—was of oak tannage. Proximity to the supplies of oak and hemlock bark formerly determined the location of the belting and sole leather tanning establishments. The use of quebracho and bark extracts and other imported and domestic vegetable tanning materials now renders location of less importance.

Imports.—Out of an import value, in 1912, of more than \$1,000,000 for belting and sole-leather, \$821,640 came from England; in 1913, England sent us \$1,239,447 worth out of \$1,652,460, and Canada over \$100,000. In 1916 out of more than \$3,000,000 worth, Canada sent \$2,782,226 worth, and England only \$131,113. In 1917 imports were valued at \$2,443,785, Canada supplying \$1,600,279 worth, and England \$74,329. In 1920 England sent to this country sole leather valued at \$979,117, and Canada an amount valued at \$604,529. Detailed statistics for later years are shown as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|-------------------------|----------------|-------------|-------------|
| SOLE LEATHER. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | | \$1,784,579 | |
| 1919..... | 1,954,356 | 1,286,133 | \$0.66 |
| 1920..... | 3,470,559 | 2,301,783 | .66 |
| 1921 (9 months)..... | 2,106,977 | 774,724 | |
| BELTING LEATHER. | | | |
| 1918..... | | \$39,873 | |
| 1919..... | 177,135 | 236,283 | \$1.33 |
| 1920..... | 242,777 | 326,023 | 1.34 |
| 1921 (9 months)..... | 204,999 | 156,337 | |

Exports of belting leather were valued at \$1,105,168 in 1913, and at \$3,122,841 in 1917. The exports of sole leather, \$8,804,955 in 1913, increased by 1917 to \$39,026,278. In 1920 the principal markets for sole leather were England and Japan. France, Cuba, England, and Canada were the largest importers of our belting leather in 1918. In 1920 the largest quantities were sent to Canada and Argentina. Detailed statistics for later calendar years are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|------------------|
| Belting leather: | | | | |
| Quantity (pounds)..... | | | 192,682 | 64,124 |
| Value..... | \$2,097,877 | \$7,241,260 | \$228,577 | \$41,035 |
| Sole leather: | | | | |
| Quantity (pounds)..... | 26,748,035 | 122,660,993 | 24,429,639 | 8,651,236 |
| Value..... | \$14,164,982 | \$54,871,639 | \$11,983,902 | \$3,329,029 |

UPPER LEATHER.

(See Survey N-16.)

Description and uses.—The principal varieties of upper leather are "calf and kip" (kipskins are the hides of small cattle), "goat and kid," "sheep and lamb," "side upper" (cowhide), and miscellaneous kinds (including horsehide, buckskin, kangaroo, and cabretta). Cowhide leather is divided into "sides" and "splits." A "side" is one-half of a hide, full thickness. "Splits" are made by splitting the hide into two thicknesses, the outside layer being the "grain" and the inside layer the "flesh split." Calfskin is one of the best materials for men's and boys' wear, as it is stronger and firmer than kid, the latter being used extensively for women's and children's shoes. Sheepskin is used for the linings of shoes and for the uppers of cheap grades of shoes and slippers. Cordovan leather is horsehide.

Production statistics of upper leather for 1914 and 1919 follow:

| | 1914 | | 1919 | |
|--|------------|---------------|------------|---------------|
| | Number | Value. | Number. | Value. |
| Skins: | | | | |
| Calf and kip..... | 15,869,401 | \$41,812,734 | 11,697,427 | \$92,600,678 |
| Goat and kid..... | 29,874,538 | 26,113,234 | 51,508,678 | 143,509,682 |
| Sheep and lamb..... | 16,794,041 | 10,885,175 | 8,878,352 | 15,313,551 |
| Cabretta, kangaroo, and wallaby..... | 3,730,260 | 4,198,017 | 6,973,855 | 14,456,577 |
| Sides: | | | | |
| Horse leather (other than patent)..... | 406,741 | 1,360,103 | 1,720,507 | 10,561,999 |
| Cattle side upper (other than patent)..... | 8,245,964 | 32,939,139 | 16,093,073 | 120,897,283 |
| All other..... | | 2,042,390 | | 2,073,163 |
| Total: | | | | |
| Skins..... | 66,268,840 | \$119,350,792 | 79,058,312 | \$399,412,933 |
| Sides..... | 8,652,705 | | 18,413,580 | |

About one-half of the cowhides and calfskins used in upper leather three-fourths of the sheepskins, and practically all of the goatskins are imported. During the war, imports of hides and skins greatly increased in quantity and value, and the change in trade currents was very marked. Chrome tannage, an American invention which

became commercially effective between 1895 and 1900, revolutionized the leather industry. "Vegetable tannage", in vats, required from four to six months, and involved much hand labor. Chrome tanned skins are prepared in less time and quantity production is the rule. Chrome salts are "worked" into the hides while they are being tumbled about in huge drums. Chrome-tanned leather does not resist water (under some conditions) as well as the vegetable tanned article, and therefore the "vegetable retan" is sometimes given. Foreign countries also employ the chrome process, but not as extensively as the United States.

Imports of upper leather in 1911 were valued at \$284,247; in 1912 \$201,741; and in 1913, \$182,562, of which Germany sent us \$93,189, France \$45,080, and England \$33,291. In 1914 imports amounted to \$2,621,585, nearly 50 per cent coming from England, about 20 per cent from France, and somewhat less from Germany; Canada supplied an amount valued at \$200,000. Imports from 1915 to 1917 are shown as follows:

| | 1915 | 1916 | 1917 |
|-----------------------------------|-------------|-------------|-------------|
| Calf and kip upper leather..... | | \$1,031,690 | \$1,140,729 |
| Goat and kid upper leather..... | | 908,989 | 946,262 |
| Sheep and lamb upper leather..... | | 664,394 | 1,153,523 |
| "All other" upper leather..... | | 331,786 | 257,335 |
| Total..... | \$3,039,770 | \$2,936,868 | \$3,497,849 |

Most of the goat and kid upper leather came from France until 1918, when more than 50 per cent came from British West Africa. In 1919 France again sent the largest portion of these imports, a value of \$136,625 out of a total of \$227,514. In 1920 England sent nearly half of the imports of goat and kid upper leather.

France and England have been the leading sources of sheep and lamb upper leather, although in 1918 the largest imports came from Italy. British India led in 1919, but in 1920 England sent over half of the \$845,785 worth imported, while British India ranked second with \$62,016, and France third with \$57,901.

About 90 per cent of the calf and kip upper came from Canada in 1918. In 1920 the amount from that source was slightly over 40 per cent of the total value, and England sent over 25 per cent. Imports of the various classes are shown as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| CALF AND KIP. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | | \$888,776 | |
| 1919..... | 406,372 | 1,149,293 | \$2.83 |
| 1920..... | 572,908 | 1,431,566 | 2.50 |
| 1921 (9 months)..... | 469,808 | 1,031,339 | |
| GOAT AND KID. | | | |
| 1918..... | | \$267,027 | |
| 1919..... | 53,157 | 227,514 | \$4.28 |
| 1920..... | 80,403 | 250,870 | 3.12 |
| 1921 (9 months)..... | 37,165 | 161,667 | |

| Calendar year. | Quantity. | Value. | Unit value. |
|-----------------------------------|-----------|-----------|-------------|
| HORSE AND COLT. | | | |
| 1918..... | | \$368 | |
| 1919..... | 15,497 | 10,939 | \$0.71 |
| 1920..... | 39,857 | 41,136 | 1.03 |
| SHEEP AND LAMB. | | | |
| 1918..... | | \$180,546 | |
| 1919..... | 152,060 | 264,772 | \$1.74 |
| 1920..... | 673,786 | 845,785 | 1.25 |
| 1921 (9 months)..... | 70,840 | 133,319 | |
| UPPER LEATHER, N. S. P. V. | | | |
| 1918..... | | \$283,241 | |
| 1919..... | 307,099 | 638,343 | \$1.88 |
| 1920..... | 473,047 | 764,152 | 1.61 |
| 1921 (9 months)..... | 301,799 | 447,278 | |

Exports of upper leather are mainly of goat and kid leather, the leading variety being glazed kid. Glazed kid is not strictly what the name would indicate, but is, rather, "glossy" kid. Chrome tanning was first applied to kid, then calf, and finally to side and sole leather. About 75 per cent of the world's output of this upper leather is made in the United States. Exports of goat and kid upper leather were small in 1895; by 1900 they had grown to \$1,909,914 and by 1913 to \$19,573,000, making up the greater part of the exports of upper leather. Exports of goat and kid upper were 106,000,000 square feet in 1913 and 88,000,000 square feet in 1917. European countries took large quantities of upper leather for army shoes during the war, and we also gained many neutral markets. England, France, and Germany had been the distributors of our upper leather, but during the war direct buying became the rule. In 1913 England received about \$7,000,000 worth of our goat and kid upper leather; Germany, about \$3,000,000; the Netherlands, \$1,745,000; Argentina, \$1,413,000, and Russia, France, Denmark, and Australia each over \$500,000. Total exports were about \$19,000,000. In 1917, of more than \$30,000,000 of exports, England took over one-third and Denmark \$3,613,000, other markets being Russia, France, Canada, and South America. In 1920 England, the chief customer, took a value of \$15,570,299, Denmark \$4,818,120, and France \$2,239,028. Our chief markets for calf upper leather in 1913 were England, France, Germany, Canada, Brazil, Argentina; in 1917 exports increased to \$8,229,038 (quantity in 1913, 9,765,000 square feet; in 1917, 19,390,000 square feet). A similar expansion took place in other varieties of upper leather. England, France, Portugal, and Brazil took the largest quantities of calf upper in 1920.

Exports of upper leather for calendar years are shown as follows:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|--|-------------|--------------|--------------|-----------------|
| Calf and kip: | | | | |
| Quantity (square feet)..... | 15,538,326 | 49,417,005 | 16,023,910 | 6,958,699 |
| Value..... | \$7,919,776 | \$31,819,238 | \$12,244,734 | \$2,776,708 |
| Goat and kid: | | | | |
| Quantity (square feet)..... | 24,335,031 | 104,377,890 | 54,911,165 | 16,360,930 |
| Value..... | \$9,728,323 | \$57,920,607 | \$35,240,181 | \$5,502,017 |
| Cattle sides: | | | | |
| Quantity (square feet)..... | 7,028,084 | 50,481,517 | 121,566,654 | 14,993,078 |
| Value..... | \$1,568,425 | \$11,531,143 | \$35,935,744 | \$1,341,882 |
| Upper leather, n. s. p. f., (value)..... | \$3,076,984 | \$24,229,206 | \$12,166,975 | \$1,595,724 |

¹ Total of "grain and finished splits" and "wax and rough splits."

HARNESS LEATHER.

(See Survey N-15.)

Description and uses.—Harness leather is made of cow hides and is principally of the "bark-tanned" variety. Only 5,320 out of 2,777,312 "sides" of harness leather tanned here in 1914 were of the chrome variety. It is treated by the bark process because of the better resistance to water of leather so tanned.

Production.—The equipment of a tannery for making harness leather is not highly specialized and the manufacture is frequently combined with tanning of other heavy leather. The industry has not grown as fast as many other branches in recent years, probably because of the automobile. The output in 1899 was valued at \$16,712,056 and in 1909 at \$24,802,734; but it decreased to \$20,969,169 in 1914. In 1919 the output of harness leather was valued at \$24,085,406, the number of sides tanned being 1,710,769, of which 915,714 were of oak tannage, 423,389 of hemlock, and 371,666 of union. Saddlery leather to the amount of 102,594 sides, valued at \$986,012, was also produced. Wisconsin, California, Ohio, Pennsylvania, New York, Indiana, Maryland, and Michigan ranked in order as to value of output in 1909. In 1914 Wisconsin led and Ohio, Michigan, California, New York, Pennsylvania, and Indiana followed in order of importance. The tanning of harness leather is less localized than that of some other kinds, and the manufacture of harness and saddlery is widely distributed.

Imports of harness and saddle leather were practically negligible for 1913-1915. In 1916 they were valued at about \$200,000; in 1917 \$1,205,493, largely from Canada. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$4,931,638 | |
| 1919..... | 1,308,919 | 849,739 | \$0.65 |
| 1920..... | 511,263 | 406,377 | .79 |
| 1921 (9 months)..... | 632,873 | 279,944 | |

Exports.—None recorded.

PATENT LEATHER.

(See Survey N-16.)

Description and uses.—Patent leather is a leather treated with a preparation of lampblack, linseed oil, and other ingredients. Several coats are spread on and polished down with pumice stone. The leather is further blackened with a fluid black mixed with turpentine. It is then dried, varnished, baked, and hardened by exposure to the sun. Patent leather was formerly all "vegetable tanned" and finished on the flesh side. France and Germany were the leaders in manufacture. Chrome tanning was introduced about 1895. All chrome patent leather is varnished on the "grain" or hair side, which formerly distinguished American patent leather from that of foreign countries. The latter have now adopted the American method to a considerable extent.

Production has increased rapidly; the output of all patent leather was valued at \$15,590,812 in 1914, and at \$26,355,238 in 1919. Of the latter amount, cattle sides made up \$21,379,305.

Imports in 1913 of patent, japanned, varnished, or enameled leather were valued at \$200,832. In 1914 they increased to \$735,468, and in 1915 to \$1,388,242. In 1916, after trade with Germany ceased, imports fell to \$69,485; they were \$115,022 in 1917. In 1920 Canada exported to us \$185,075 worth of patent, japanned, varnished, and enameled leather and Switzerland an amount valued at \$123,385. Detailed imports since 1917 are shown in the following table:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| SIDE, UPPER. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | | \$173,685 | |
| 1919..... | 96,551 | 316,510 | \$3.28 |
| 1920..... | 39,948 | 188,118 | 4.66 |
| 1921 (9 months)..... | 21,987 | 64,611 | |
| ALL OTHER. | | | |
| 1918..... | | \$23,376 | |
| 1919..... | 15,807 | 34,272 | \$2.54 |
| 1920..... | 66,735 | 229,946 | 3.44 |
| 1921 (9 months)..... | 13,546 | 81,892 | |

Exports of patent and enameled leather have increased greatly, in 1900 being valued at \$101,708; in 1910, at \$367,601; in 1914, at \$1,675,667; in 1917, at \$7,150,097. In 1920 the largest quantities were taken by France, England, Italy, and Australia, in the order named.

Exports of patent leather since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|-------------|--------------|--------------|------------------|
| Quantity (square feet)..... | | | 21,693,810 | 12,379,363 |
| Value..... | \$4,205,608 | \$18,480,619 | \$17,643,464 | \$4,489,729 |

CASE, BAG, AND STRAP LEATHER.

(See Survey N-16.)

Description and uses.—Case and bag leather may be either chrome or vegetable tanned, but most strap leather is vegetable tanned. Cowhide, tanned with oak bark, is principally used for these leathers. "Splits" are used for all three kinds, but a much heavier split is used for strap leather, which usually is made out of the full thickness of the hide. The best quality of case and bag leather is bark-tanned calfskin or grain splits of cowhide. "Case, bag, and strap" is not a rigid classification. Leather suitable for making shoe uppers is also used for traveling bags and suit cases. Some sheep leather may be used either for bags or bookbinding, while strap leather may also be used for light soles, arch supporters, etc.

Production of case, bag, and strap leather in 1914 was 1,004,581 sides, valued at \$5,383,255. In 1919 the number of sides tanned for this purpose was 1,225,577, and the value of the product \$11,880,766. Of this quantity Pennsylvania produced 415,413 sides, valued at \$4,377,532.

Imports of case, bag, and strap leather were \$29,638 in 1915, \$56,314 in 1916, and \$43,017 in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$162,100 | |
| 1919..... | 189,285 | 159,437 | \$0.84 |
| 1920..... | 95,385 | 109,133 | 1.03 |
| 1921 (9 months)..... | 83,668 | 66,228 | |

Exports.—None recorded.

UPHOLSTERY LEATHER.

(See Survey N-16.)

Description and uses.—Upholstery leather is made principally out of whole cowhides, finished on the grain side, or out of cowhide splits. Cowhides are sometimes split into as many as five thicknesses. The "buffing" or thin outside split is sometimes used for bookbinder's leather and sometimes for upholstery; the "slab" or inside split is used for very cheap leather; while the second, third, and fourth splits, as well as the grain, may be used for upholstery leather.

Production of upholstery leather increased in value from \$5,748,387 in 1899 to \$14,328,358 in 1914, largely due to automobile requirements. In 1914, 654,053 hides were made up into whole-hide grain upholstery leather, valued at \$8,172,698, and 1,104,561 hides into "splits," valued at \$6,155,660. In 1919 production was \$32,224,644, of which whole-hide grains numbered 933,921, valued at \$18,262,372, and whole-hide splits made from 1,507,741 hides were valued at \$13,962,272. New Jersey ranked first in manufacture and Ohio second.

Imports.—None recorded.

Exports of "carriage, automobile, and upholstery leather" were valued at \$107,430 in 1913, \$38,937 in 1916, and \$97,054 in 1917. Exports since 1917 by calendar years have been in value as follows: 1918, \$163,541; 1919, \$415,848; 1920, \$740,477; 1921 (nine months), \$131,555. The principal countries of destination in 1920 were Italy and Canada, the former taking \$302,503 and the latter \$126,004 in value.

FANCY LEATHER.

(See Survey N-17.)

Description and uses.—Fancy leather is used for pocketbooks, cardcases, music rolls, belts, bag linings, hat sweatbands, and novelties. It is made principally of sheepskin, although considerable calf and goat skin and light splits or skivers of cowhide are used. Some genuine seal, walrus, and alligator skins are used, but much sheepskin and cowhide split leather is finished and embossed to resemble the former kinds. Russia calf, one of the high grades of fancy leather, is calfskin tanned by a special process with quebracho, hemlock, or some other vegetable tanning material; it was originally tanned in Russia with birch bark, which gave it a peculiar odor, now imitated by spraying birch oil on the grain. Other fancy leathers are morocco, pigskin, and alum-tanned (or "tawed") sheepskin.

Production of fancy leather in 1914 was \$8,775,968, more than half of sheep and lamb skin. In 1919 the total decreased to \$5,974,293—sheep and lamb to the number of 1,104,798 skins, valued at \$2,414,076, making up the largest item.

Imports of "fancy leather including morocco, seal, and fancy calf for fancy leather goods" were valued at \$199,217 in 1914, \$263,971 in 1915, \$529,937 in 1916, and \$639,602 in 1917. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$12,076 | |
| 1919..... | 83,964 | 365,271 | \$4.35 |
| 1920..... | 64,432 | 297,982 | 4.62 |
| 1921 (9 months)..... | 38,718 | 159,541 | |

Exports.—Not separately stated.

BOOKBINDER'S LEATHER.

(See Survey N-17.)

Description and uses.—Calfskin, cowhide skivers and buffings, sheep, goat, seal, and pig skins are used for bookbinders' leather. The grain splits of sheepskin are also thus used, while the flesh splits are utilized for chamois. Morocco leather (goatskin tanned with sumac) is one of the popular bookbinding leathers. The sheepskin used for binding law books is tanned with quebracho or some other vegetable tannin and finished on the grain without dyeing. Pigskin makes a durable leather of rather coarse grain. Russia calf (described under fancy leather) is much used for binding expensive editions.

Production of bookbinders' leather increased from a value of \$1,688,413 in 1899 to \$2,450,155 in 1909, but decreased to \$1,362,673 in 1914. In 1919 the value (\$3,463,841) was almost three times as great as in the latter year. This was made up of 327,390 hides, valued at \$2,467,486, skins of sheep and lamb numbering 389,953, at \$727,151, and 60,224 other skins, at \$269,204. New Jersey produces more than 50 per cent of the supply.

Imports and exports of bookbinders' leather are not separately stated.

ROUGH LEATHER.

(See Survey N-15.)

Description and uses.—Rough leather is made from cattle hides and is generally vegetable tanned, as the chrome tanned becomes so hard, if kept in the rough, that it is difficult to work over. This leather is unfinished, and is sold by the manufacturers to others who dress it for belting, upper, bag, and fancy, etc. The leather is sold either whole or split, the hair sides being known as "rough grains" and the flesh sides as "rough splits." Some tanners, particularly those manufacturing heavy oak leather, trim off the shoulders of hides and tan these for "rough." Rough leather is really an intermediate product, the leather made therefrom being known as "belting," "upper," "case, bag, and strap," etc.

Production amounted to \$10,180,949 in 1904, to \$6,335,599 in 1909, to \$4,494,985 in 1914, and \$3,712,687 in 1919. The decrease in the amount of rough leather made is due partly to the commercial use of tanning extracts, which makes location near supplies of bark no longer necessary. The small country tanneries, which used such bark, were not equipped to finish leather, but sold it in the rough. The number of such establishments has decreased. The production of 1919 was divided into: Rough grains, 95,528 sides, valued at \$499,098; rough splits, 1,050,908 whole sides, valued at \$1,370,595; and 172,385 butts, valued at \$250,849. Other rough leather, 206,379 sides, valued at \$1,592,145.

Imports.—Prior to 1919 the greatest amount imported in any year was in 1917, when the value was \$337,841. Great Britain is the immediate source of the bulk of this leather. Competition also comes from imported leathers of the kinds into which rough leather is made by the finishers. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$229,445 | |
| 1919..... | 2,601,381 | 1,753,727 | \$0.67 |
| 1920..... | 4,557,962 | 2,581,984 | .57 |
| 1921 (9 months)..... | 1,661,370 | 647,437 | |

Exports.—Figures not given separately.

SPLIT LEATHER.

(See Survey N-16.)

Description and uses.—Split leather is made from cattle and horse hides. For certain uses the whole hide would be too thick, and therefore it is often split into three to five thicknesses. It is largely used in the glove and shoe industries, and also in straps, belts, cases, bags, harnesses, upholstery, and soles. Splits are frequently sold in the rough and finished by concerns other than those doing the tanning.

Production of finished splits is much greater than of the rough splits. In 1919 finished splits (n. e. s.) amounted to \$16,459,665, of which over \$13,600,000 was of cattle and over \$2,760,000 of horse butts and fronts. The production of rough splits was \$1,621,444. (See Rough Leather.)

Imports of split leather, unfinished, in 1914 were \$163,960; of finished, \$85,616. During the war these declined, the former amounting in 1916 to \$5,668 and the latter to \$8,664. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|-----------------------------------|----------------|----------|-------------|
| SPLIT LEATHER, UNFINISHED. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | | \$43,724 | |
| 1919..... | 1,320,076 | 662,332 | \$0.50 |
| 1920..... | 67,999 | 34,800 | .50 |
| 1921 (9 months)..... | 33,869 | 14,477 | |
| SPLIT LEATHER, FINISHED. | | | |
| 1918..... | | \$10,797 | |
| 1919..... | 14,560 | 32,912 | \$2.26 |
| 1920..... | 52,961 | 114,161 | 2.16 |
| 1921 (9 months)..... | 14,131 | 21,818 | |

Exports are not separately stated. A large quantity is finished into wax splits for upper leather and exported.

ROLLER, APRON, PICKER, AND LACE LEATHER.

(See Survey N-17.)

Description and uses.—Roller leather is so-called because used on the rollers in textile machinery. It must be degreased and smooth, to avoid breaking the threads. It is usually made of oak-tanned lambskins. Apron leather is also used in textile machinery and is vegetable tanned and curried and degreased to make it soft and pliable. Picker leather, another kind of "textile" leather, is made of heavy cow hides, bark or alum tanned, and dressed with oil to render it pliable. For lace leathers, which are used in making lacing for belts, footballs, etc., bark tanned cow hides are also used.

Production of lace leather in 1919 was 491,077 sides, valued at \$2,532,074. Production of "textile" leather, which includes roller, apron, and picker leather, in 1919, was 263,060 sides, valued at \$666,762.

Imports are largely from Great Britain where there are about 30 firms which make roller leather and about 50 which manufacture picker bands.

Exports.—Not given separately.

COLLAR, SKIRTING, AND LATIGO.

(See Survey N-17.)

Description and uses.—Besides leather known as "harness and saddle," there are other leathers employed by the harness maker. Skirting leather, collar leather and latigo are made from light cow-hides. The first goes into the straps and lower parts of saddles; latigo is tanned for pliability and is generally used for hame straps and halters.

Production of skirting in 1914 was 311,646 sides, valued at \$2,082,963. In 1919, skirting and collar together were valued at \$5,998,656, and the quantity tanned was 581,410 sides.

The production of latigo was \$219,757, and the number of sides was 20,631.

Imports and exports.—None recorded.

HAT-SWEATBAND LEATHER.

(See Survey N-17.)

Description.—Skivers of skeepskin are generally used by the hat manufacturers for hat sweatbands. These may be tanned by several processes, though sumac is largely used, or, if white bands are desired, an alum tannage is employed. The leather is then finished by plain glazing or embossing.

Production in 1919 of leather for hat sweats was valued at \$2,712,512; the number of skins tanned was 1,351,522.

Imports of hat sweat leather come mostly from Great Britain.

Exports.—None recorded.

JERKIN LEATHER.

(See Survey N-17.)

Description and uses.—Jerkin leather is used for coats for sportsmen, aviators, etc. It is generally made of suede-finished veal skin or sheep skin tanned particularly for softness. Some buckskin is also used for soft shirts for hunters. Considerable leather is used for garment trimmings and for women's hats.

Production, imports, and exports.—Statistics not available.

WELTING LEATHER.

(See Survey N-17.)

Description.—A large part of the welting leather used in the shoe industry is made of oak-tanned shoulders. It is cut into suitable widths and sold by the yard.

Production of welting in the United States in 1919 amounted to 206,699 sides, valued at \$1,929,846.

Imports.—Not separately recorded.

Exports go to several of the shoe-manufacturing countries. Branches of one of the largest manufacturers of welting in the United States have been established in Switzerland, Norway, and South America.

PACKING LEATHER.

(See Survey N-17.)

Description and uses.—Packing leather is used in hydraulic presses, fire extinguishers, water and gasoline pumps, elevators, and many other kinds of machinery. Oak-tanned leather is much used for the purpose.

Production, import, and export statistics not available.

GOATSKINS, TANNED BUT NOT FINISHED (SKINS FOR MOROCCO LEATHER).

(See Survey N-17.)

Description, uses, and production.—Goatskins, tanned but not finished, constitute an intermediate product, and are finished after importation, generally into bookbinding, fancy, or shoe upper leather. (See Upper, Bookbinding, and Fancy Leather.)

Imports in 1914 amounted to \$1,737,329, of which \$993,156 was from England and \$595,437 from British India. The total value greatly increased in 1916 and 1917—to \$4,575,500 in the former and \$8,453,941 in the latter year. By 1920 it had declined to \$1,520,193, of which England shipped us \$1,177,068 and British India \$297,741. Detailed statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$314,096 | |
| 1919..... | 2,495,365 | 3,335,051 | \$1.34 |
| 1920..... | 1,079,000 | 1,520,193 | 1.41 |
| 1921 (9 months)..... | 183,053 | 171,872 | |

Exports are in the finished leather. (See Upper leather, p. 1349.)

SHEEPSKIN LEATHER (NOT ELSEWHERE SPECIFIED).

(See Survey N-17.)

Description and uses.—Sheepskin is used not only for gloves, shoes, books, hat sweatbands, and fancy articles, but also for cases, bags, and upholstery.

Production.—Production figures have been given for the sheep and lamb skins included under glove and upper leather, bookbinding and fancy leather, and hat sweatbands, but in addition to those classes there are three other groups of sheepskins enumerated by the Census Bureau; these are "skivers," "fleshers," and "shearlings" (on which there remains a certain amount of wool). Production of skivers in

1919 was 6,847,119 pieces, valued at \$9,374,475; of fleshers, 5,968,230 pieces at \$2,160,873; of shearlings, 544,440 skins at \$1,338,838.

Imports of fleshers and skivers come largely from Great Britain.

Exports.—Not separately recorded.

HOG AND PIG SKIN LEATHER.

(See Survey N-17.)

Description and uses.—Leather of hog and pigskin is used not only for gloves, but for cases and bags, fancy articles, seats of saddles, leather breeches, footballs, football pads, helmets, straps, belts, and puttees. It is characterized by toughness and durability.

Production of hog and pigskin leather, aside from that enumerated in the census under glove leather, amounted to 333,763 skins, valued at \$781,521.

Imports of this leather and the articles made therefrom are from Great Britain.

Exports.—Not separately recorded.

HORSE, COLT, ASS, AND MULE LEATHER.

(See Survey N-17.)

Description and uses.—Horse butts and fronts are tanned and used for various purposes. A large proportion goes into shoe upper (see Upper leather, p. 1347) and a considerable portion into gloves (see Glove leather, p. 1163). Horse leather is the most nearly waterproof of any leather produced, and it also takes a high polish. It was used largely during the war for military equipment, gaiters, etc. Ass and mule skins are known as "shagreen," when tanned.

Production of horse leather, aside from that made for gloves and shoe uppers, was 136,937 sides, valued at \$605,394, in 1919. The tanning of horsehides in the United States has been a development of the last quarter of a century, the war giving it an added impetus. The production of colt, ass, and mule leather was 70,157 skins, valued at \$595,654.

Imports and exports.—Not separately recorded. Imports are small, and formerly came mostly from France.

"ALL OTHER" LEATHER.

(See Survey N-17.)

Production.—In addition to the varieties described in this paragraph (1600) there are specialties and miscellaneous kinds, the production of which, in 1919, was valued at \$8,798,321. The domestic output of "all other" leather, the imports for consumption and the exports of "all other," are not strictly comparable but the figures are useful when taken in connection with those which have been given above in this paragraph 1600.

Imports.—In Foreign Commerce and Navigation, the following classes of leather are named under imports for consumption: Belting, case, bag and strap, chamois skins, enameled upholstery, fancy, glove, goatskins tanned but not finished (skins for morocco), harness and saddle leather, patent, pianoforte and pianoforte-action, rough, sole,

split, upper and leather cut into shoe uppers or vamps, or other forms suitable for conversion into boots and shoes.

The imports given in the table below are made up of those not thus enumerated. It will be noted that imports of some of the kinds of leather described above in paragraph 1600 are not separately mentioned; these are upholstery, bookbinders', roller, apron, picker and lace leather, collar, skirting and latigo leather, hat sweat, jerkin, welting, packing, fleshers and skivers of sheepskin, hog and pigskin, horse, colt, ass, and mule leather. Not all of these are imported, however, and a few varieties not named may be included in "all other" imports for consumption.

Imports of leather and tanned skins, n. s. p. f., were valued at \$3,003,361 in 1914 and \$4,066,251 in 1917. England, Germany, and Canada formerly supplied the greater proportion. In 1919 England was the chief source, followed by British India, France, Scotland, Italy, and Germany. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$793,633 | |
| 1919..... | 10,190,211 | 8,585,230 | \$0.84 |
| 1920..... | 7,604,123 | 6,546,503 | .86 |
| 1921 (9 months)..... | 2,601,887 | 1,600,751 | |

Exports.—In Foreign Commerce and Navigation, the following classes of leather are named under exports of domestic merchandise: Belting, carriage, automobile and upholstery, glove, patent, sole, and upper.

The exports given below are made up of the kinds not enumerated. The majority of those described under this paragraph (1600) are not enumerated in the exports, while not all of the different kinds described are exported.

Exports of "all other leather and tanned skins" amounted to \$3,614,370 in 1913, to \$8,664,227 in 1916, and to \$6,370,790 in 1917, Canada, England, and France being the principal recipients. Exports since 1917 have been by calendar years as follows: 1918, \$3,992,116; 1919, \$13,476,716; 1920, \$7,492,754; 1921 (9 months), \$1,406,640. In 1920, Canada took \$1,092,586, Cuba \$818,084, France \$529,244, and Russia in Europe \$423,237.

HARNESS, SADDLES AND SADDLERY, IN SETS OR IN PARTS.

(See Survey N-18.)

Description and uses.—These products are principally stirrups, saddles and traces, wagon and carriage harness, horse collars, bridles, lines, and straps. The different varieties of harness may be roughly classified into light and heavy—the former driving and the latter work harness. Saddles also may be classified as light and heavy.

Production.—The manufacture of harness and saddlery is widely distributed throughout the country. The output was valued at \$33,702,563 in 1899, \$42,054,842 in 1904, \$54,224,602 in 1909, \$53,558,612 in 1914, and \$83,699,050 in 1919. In 1914 seven States—Ohio, Indiana, Illinois, Wisconsin, Iowa, Missouri, and Texas—each manufactured harness and saddlery valued at between \$3,000,000

and \$5,000,000; nine States, from \$1,000,000 to \$3,000,000; and nine other States from \$500,000 to \$1,000,000 each. In 1919 Missouri led with an output of \$9,449,706, followed by Texas with \$7,817,750, and Illinois with \$7,032,469. The increasing service of motor trucks and automobiles, perhaps, explains the arrest of the industry. The increase in 1919 was mostly in value.

*Imports*⁹ of harness and saddlery were valued as follows: 1913, \$66,988; 1914, \$123,516; 1915, \$227,858; 1916, \$156,147; 1917, \$120,416; 1918, \$459,671; 1919, \$229,621; 1920, \$442,562; 1921 (nine months), \$192,786.

Exports of harness and saddles were valued at about \$786,000 in 1913-14, but increased to \$17,460,519 in 1915, due to war needs. France, England, and Russia took almost all of this total. Exports decreased to \$7,529,720 in 1916, Russia taking \$3,117,269 worth. Later exports by calendar years have been as follows: 1918, \$692,291; 1919, \$1,142,852; 1920, \$2,273,244; 1921 (nine months), \$639,520. In 1919 and 1920 values of \$649,884 and \$1,441,460, respectively, were exported to Cuba.

Important changes in classification.—The words "except metal parts" in connection with saddlery are new.

LEATHER CUT INTO SHOE UPPERS OR VAMPS, OR OTHER FORMS SUITABLE FOR CONVERSION INTO BOOTS AND SHOES.

(See Survey N-18.)

Description and uses.—The "upper" includes all of the shoe except the sole and heel. The "vamp" is the part of the upper which comes next to the sole. There are separate establishments engaged in the manufacture of "cut stock," i. e., soles, heels, etc. This industry has grown remarkably, and specialization has resulted in a better product. Uppers, however, are cut in the shoe factory.

Production of boot and shoe cut stock was valued at \$7,531,635 in 1879, \$23,242,892 in 1899, \$44,661,497 in 1909, \$59,964,523 in 1914, and \$161,203,310¹⁰ in 1919. The number of establishments was greater in 1889 than at present.

Imports in 1914, the first year after shoe uppers and vamps were made free, were valued at \$77,835; in 1915, at \$158,626; in 1916, at \$60,730; in 1917, at \$74,698. In later calendar years imports have been as follows: 1918, \$86,388; 1919, \$389,453; 1920, \$301,285; 1921 (nine months), \$337,259. The proportion of shoe uppers and vamps imported is small compared with domestic consumption.

Exports.—Not separately recorded.

Important changes in classification.—Specific mention has been made of "soles." "Suitable for conversion into manufactured articles" has been substituted for "suitable for conversion into boots or shoes."

⁹ Statistics, 1913-1917, are for fiscal years; 1918-1921, calendar years.

¹⁰ This figure probably includes a small quantity of cut stock not used in the boot and shoe industry. Some leather is cut for bookbinders, etc.

LEATHER SHOE LACES.

(See Survey N-18.)

Description and uses.—Leather shoe laces of the highest quality are frequently made from porpoise hide. Considerable quantities are also made from calfskin and cowhide.

Production statistics are lacking. Nine companies located in Massachusetts, Rhode Island, New York, and New Jersey have as their principal product leather shoe laces. The value of their output was approximately \$125,000 in 1914.

Imports of leather shoe laces, finished or unfinished, in 1913, were valued at \$7,722; in 1914, at \$16,464; in 1915, at \$5,958; in 1916, at \$2,316; in 1917, at \$3,878. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-------------------------|---------|-------------|
| | <i>Gross pairs.</i> | | |
| 1918..... | 8,100 | \$6,747 | \$2.18 |
| 1919..... | 790 | 4,945 | 6.26 |
| 1920..... | 10,165 | 46,210 | 4.55 |
| 1921 (9 months)..... | 1,759 | 7,020 | ..... |

Exports.—None recorded.

PARAGRAPH 1601.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1601. Boots and shoes made wholly or in chief value of leather.

ACT OF 1909.

ACT OF 1913.

PAR. 451. * * * boots and shoes made of leather, fifteen per centum ad valorem: * * *

PAR. 530. * * * boots and shoes made wholly or in chief value of leather; * * * [Free].

PAR. 450. * * * that all boots and shoes, made wholly or in chief value of leather made from cattle hides and cattle skins of whatever weight, of cattle of the bovine species, including calfskins, shall pay a duty of ten per centum ad valorem; * * *

BOOTS AND SHOES.

(See Survey N-18.)

Description.—The five principal kinds of shoes are the Goodyear welt, the McKay, the turned, the pegged or the nailed, and standard screw. Goodyear welt is considered the most comfortable. The peculiarity of this kind of shoe is the narrow strip of leather called welting, which is the joint or connecting link between the upper and inner sole (which are sewed together) and the outsole. The welt, projecting, forms the upper part of the "ledge" or "shelf" around the edge of

the shoe, and when the outsole is stitched on, the welt and outsole are stitched through. By the McKay process the upper, inner sole, and outsole are all sewed together at one operation. They are stitched "through and through" so that the stitches appear on the inside of the shoe, making it less comfortable; the McKay shoe also has less elasticity than the Goodyear welt. In making the turned shoe, the upper is sewed to the sole inside out and then turned. Slippers, women's light shoes, jockeys' boots, and other kinds of light-weight footwear are made in this way. Pegged or nailed shoes and standard screw shoes are made in the cheaper grades for rough and heavy wear.

Production of boots and shoes in 1914 was valued at \$501,000,000; in 1919 at \$1,159,171,395. The United States is the greatest shoe manufacturer, the United Kingdom second with an output equal to about one-third of our own. The industry in this country is marked by the greatest specialization. In some less advanced industrial countries it is still largely in the handicraft or "putting-out" stage, and even in England, France, and Germany many factories continue to produce all grades of men's, women's, and children's shoes. The United States leads in the production of shoe machinery, which is also extensively used in Europe. A consideration in export trade is the distinctive character of American styles. These are copied abroad, some foreign manufacturers branding their shoes "American made." New England leads in production, about one-half of the boots and shoes being made in Massachusetts, whose output in 1919 was 116,944,000 pairs, valued at \$442,466,236. Lynn, Brockton, Haverhill, and Boston are important manufacturing centers. New York ranks second among the States with a product valued at \$190,461,359, followed by Missouri with a value of \$109,193,423, and New Hampshire with \$73,870,588. The Middle West is developing the shoe industry very rapidly.

Import values in 1914 were \$407,231, England, Germany, and Canada supplying the largest quantities; in 1917 they were \$275,280, of which \$121,426 came from Canada and \$101,249 from the United Kingdom. In 1920 there were 191,435 pairs, valued at \$789,934, shipped principally from England, Canada, and France. Imports range normally between \$200,000 and \$500,000, a fraction of 1 per cent of domestic production. Statistics for the calendar years 1918-1921 follow:

Boots and shoes.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-----------|-----------|-----------|---------------------|
| Men's and boys': | | | | |
| Quantity (pairs)..... | 68,042 | 53,117 | 147,578 | 46,110 |
| Value..... | \$304,390 | \$179,802 | \$655,345 | \$225,094 |
| Women's and misses': | | | | |
| Quantity (pairs)..... | 36,153 | 8,159 | 34,102 | 14,227 |
| Value..... | \$40,146 | \$45,829 | \$122,598 | \$94,754 |
| Children's: | | | | |
| Quantity (pairs)..... | 10,938 | 439 | 9,638 | 44,388 |
| Value..... | \$3,771 | \$359 | \$11,748 | \$56,201 |
| Slippers: | | | | |
| Quantity (pairs)..... | 152,544 | 178,338 | 287,486 | 195,316 |
| Value..... | \$113,025 | \$119,530 | \$222,570 | \$123,610 |

Exports of boots and shoes in 1910 were valued at \$12,408,575; in 1914, at \$18,229,714; in 1920, at \$67,144,542, while slippers were valued at \$538,517. Before the war the United States ranked next to the United Kingdom in exports of boots and shoes, but the positions have since been reversed. Our exports are widely dispersed. In 1920 Cuba took over half of the exports of children's shoes, about one-third of those of men's, and those of women's to a value of over \$3,000,000. Denmark, France, Italy, Norway, Sweden, England, Mexico, Russia in Asia, and British South Africa purchased the largest quantities of men's footwear; Denmark, Norway, England, Canada, Mexico, Cuba, and British South Africa the greatest number of women's shoes.

Detailed statistics for the calendar years 1918-1921 of exports of boots and shoes are shown as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|--------------|--------------|--------------|---------------------|
| Women's: | | | | |
| Quantity (pairs)..... | 4,292,747 | 5,891,753 | 5,064,472 | 1,378,165 |
| Value..... | \$9,710,984 | \$18,196,352 | \$20,099,141 | \$3,949,633 |
| Men's: | | | | |
| Quantity (pairs)..... | 5,565,924 | 11,928,156 | 7,711,310 | 4,803,317 |
| Value..... | \$18,468,808 | \$50,709,841 | \$39,175,975 | \$15,013,841 |
| Children's: | | | | |
| Quantity (pairs)..... | 3,438,349 | 3,534,670 | 4,065,810 | 1,594,391 |
| Value..... | \$4,151,222 | \$5,930,354 | \$7,869,426 | \$2,715,596 |
| Slippers: | | | | |
| Quantity (pairs)..... | 235,028 | 328,172 | 227,662 | 51,561 |
| Value..... | \$335,048 | \$535,752 | \$538,517 | \$80,649 |

PARAGRAPH 1602.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1602. Leeches.

ACT OF 1909.

ACT OF 1913.

PAR. 609. Leeches [Free].

PAR. 531. Leeches [Free].

LEECHES.

(See Survey PL-2.)

Description and uses.—The medicinal leech (*Hirudo medicinalis*), used in surgery for abstracting blood from patients, is a European fresh-water annulate worm with stomach pouches to hold the blood.

Production.—Leeches are imported from Europe, chiefly through London and Paris. An uncultivated variety occurs in the United States, but is not commonly used in medicine.

Imports of leeches averaged \$6,380 for 1909-1917. Imports in 1917 were valued at \$16,899. Since 1917 they have amounted to \$6,913, \$13,421, \$11,086, and \$4,488 in the calendar years 1918, 1919, 1920, and the first 9 months of 1921, respectively.

PARAGRAPH 1603.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1603. Limestone rock asphalt; asphaltum and bitumen.

ACT OF 1909.

ACT OF 1913.

PAR. 90. * * * limestone rock asphalt, fifty cents per ton; asphaltum and bitumen, not specially provided for in this section, crude, if not dried, or otherwise advanced in any manner, one dollar and fifty cents per ton; if dried or otherwise advanced in any manner, three dollars per ton; * * *

PAR. 534. Limestone-rock asphalt; asphaltum, and bitumen [Free].

ASPHALTUM AND BITUMEN.

(See Survey FL-7.)

Description and uses.—Asphalt may be obtained by powdering and heating limestone-rock asphalt, and, in like manner, from bituminous sand and sandstone. Asphaltum is composed of sand, water, and bitumen and occurs in liquid, viscous, or solid deposits or lakes, those of Trinidad and Venezuela being commercially notable. Bitumen designates a number of inflammable mineral substances, ranging from liquids to solids, including petroleum, maltha, asphalt, elaterite, wurtzilite, albertite, grahamite, gilsonite, and ozokerite. These materials are widely used in making pavements, roads, and roofing. Those high in paraffin content are used in making varnishes. The demand for both natural and manufactured (oil) asphalts is large, although the use of the latter has predominated since 1907.

Production in 1914 was 77,588 net tons, valued at \$630,623, as reported by 11 operators in Utah, Texas, Oklahoma, Kentucky, and California. The output in 1917 was 80,904 net tons, valued at \$735,924. Oil asphalt totaled 674,470 net tons, valued at \$7,148,122 in 1914, and 1,347,422 net tons, valued at \$15,176,504 in 1917. In recent years Mexican petroleum has been the chief source of petroleum asphalt, which has replaced Trinidad and Bermudez (Venezuelan) asphalt to a considerable extent.

In 1920, 700,496 tons of petroleum asphalt valued at \$11,985,457 were produced in this country from domestic petroleum, and 1,045,779 tons valued at \$14,272,862, were produced from Mexican petroleum.

The domestic production of all other asphalts in 1920 amounted to 198,497 tons, valued at \$1,213,908.

Imports of limestone-rock asphalt, asphaltum, and bitumen in 1914 were 180,689 long tons, valued at \$918,387. The bulk of this tonnage of which Trinidad supplied 49 per cent and Venezuela 36 per cent, consisted of natural soft asphalt. Since 1917 imports have been as follows:

| Calendar year. | Quantity. | Value. | Duty. | Unit value. | Ad valorem rate. |
|----------------|-----------|--------|-------|-------------|------------------|
|----------------|-----------|--------|-------|-------------|------------------|

LIMESTONE-ROCK ASPHALT.

| | Tons. | | | | Per cent. |
|----------------------|-------|---------|--|--------|-----------|
| 1918..... | 30 | \$2,528 | | \$8.43 | |
| 1919..... | 656 | 5,576 | | 8.50 | |
| 1920..... | 1,238 | 11,665 | | 9.42 | |
| 1921 (9 months)..... | 8,099 | 147,932 | | | |

ALL OTHER ASPHALTUM AND BITUMEN.

| | | | | | |
|----------------------|---------|-----------|--|--------|--|
| 1918..... | 102,398 | \$624,967 | | \$6.10 | |
| 1919..... | 98,673 | 609,923 | | 6.51 | |
| 1920..... | 113,417 | 1,055,951 | | 9.31 | |
| 1921 (9 months)..... | 87,495 | 838,145 | | | |

MANUFACTURES OF ASPHALTUM AND BITUMEN.

| | | | | | |
|-----------|--|----------|---------|--|----|
| 1918..... | | \$15,064 | \$2,260 | | 15 |
| 1919..... | | 3,919 | 588 | | 15 |
| 1920..... | | 1,209 | 181 | | 15 |

Imports of "all other" asphaltums and bitumens have been chiefly from Trinidad, Tobago, and Venezuela.

Exports in 1914 were 49,831 long tons, valued at \$1,131,086; in 1918, 22,065 long tons, valued at \$548,745. Canada was the chief buyer. Exports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-----------|-------------|-------------|------------------|
| Asphaltum, unmanufactured: | | | | |
| Quantity (tons)..... | 19,739 | 35,900 | 46,166 | 32,681 |
| Value..... | \$577,654 | \$1,103,930 | \$1,356,116 | \$948,890 |
| Asphaltum, manufactures of, value..... | \$377,936 | \$606,918 | \$842,074 | \$479,681 |

The countries of destination are chiefly Canada, England, China, and Japan.

Suggested changes.—The hyphen between "limestone" and "rock" has been omitted and should be inserted.

PARAGRAPH 1604.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1604. Lemon juice, lime juice, and sour orange juice, all the foregoing containing not more than 2 per centum of alcohol.

ACT OF 1909.

ACT OF 1913.

PAR. 610. Lemon juice, lime juice, and sour orange juice, all the foregoing containing not more than two per centum of alcohol [Free].

PAR. 532. Lemon juice, lime juice, and sour orange juice, all the foregoing containing not more than 2 per centum of alcohol [Free].

LEMON, LIME, AND SOUR ORANGE JUICES.

(See Survey A-1.)

Description and uses.—Lemon, lime, and sour orange juices yield citric acid, the constituent which gives these juices their sour taste. The juice has more bulk than citrate of lime, the usual form for shipping citric acid (par. 46) and, because of its fluid condition, is more difficult to transport. The juice may be dilute as expressed from the fruit or it may be concentrated by boiling.

Imports of lemon, lime, and sour orange juice are relatively unimportant compared with the imports of other citric-acid materials. The import values increased from \$110,860 in 1914 to \$180,088 in 1917. Imports since 1917 by calendar years were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | | 2,949,867 | 1,918,989 | 450,590 |
| Value..... | \$165,277 | \$536,723 | \$264,147 | \$70,176 |

Exports.—Statistics not available.

Suggested changes.—There appears to be an inconsistency in making the limitation as to alcoholic content in this paragraph "not more than 2 per centum," while the dividing line between the two classifications of other fruit juices in paragraph 806 is one-half of 1 per centum, the alcoholic content provided for in the first part of that paragraph being "less than one-half of 1 per centum."

PARAGRAPH 1605.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1605. Lifeboats and life-saving apparatus specially imported by societies and institutions incorporated or established to encourage the saving of human life.

ACT OF 1909.

ACT OF 1913.

PAR. 612. Lifeboats and life-saving apparatus specially imported by societies incorporated or established to encourage the saving of human life [Free].¹¹

PAR. 533. Lifeboats and life-saving apparatus specially imported by societies and institutions incorporated or established to encourage the saving of human life [Free].¹²

LIFEBOATS AND LIFE-SAVING APPARATUS.

Imports under this classification are negligible. They were not separately shown until 1918 (calendar year) when they were valued at \$19. In 1919 and 1920 their value was \$399 and \$793. No imports are shown for 1921.

Exports not shown in official statistics.

¹¹ Miners' rescue appliances, designed for emergency use in mines where artificial breathing is necessary in the presence of poisonous gases, to aid in the saving of human life, and miners' safety lamps, exempt from duty under par. 623, act of 1909, dutiable under H. R. 7456 according to material of chief value.

¹² Miners' rescue appliances, designed for emergency use in mines where artificial breathing is necessary in the presence of poisonous gases, to aid in the saving of human life, and miners' safety lamps, and parts, accessories and appliances for cleaning, repairing, and operating all the foregoing, exempt from duty under par. 550, act of 1913, dutiable under H. R. 7456 according to material of chief value.

PARAGRAPH 1606.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1606. Lithographic stones, not engraved.

ACT OF 1909.

ACT OF 1913.

PAR. 614. Lithographic stones, not engraved [Free].

PAR. 535. Lithographic stones, not engraved [Free].

LITHOGRAPHIC STONES.

(See Survey C-15.)

Description and uses.—A compact, fine-grained, porous, slaty variety of limestone is used for lithographic purposes. Substitutes of aluminum, zinc, or rubber plates are satisfactory for many classes of ordinary work, but stone is preferred for maps, halftones, and other fine-grade lithography.

Production.—This stone comes chiefly from Bavaria, with small amounts from Belgium, England, Italy, and Canada. Kentucky produced 40,000 pounds in 1916, the first domestic stone, but difficulties arising from poor transportation facilities and quarrying conditions reduced the 1917 output to 5,832 pounds; and, as far as can be learned, the output ceased entirely in 1918. From 2½ to 27 cents per pound were realized on this product. In normal times the price of Bavarian stone is 5 to 6 cents a pound for 10 by 12 inch slabs of good grade and 1½ cents for poorer grades.

Import values of lithographic stones for 1908-1913 averaged \$96,940; in 1914 they were \$71,086. Bavaria contributed 90 per cent and Belgium 7 per cent. Imports in 1915 were valued at \$26,751; in 1916, at \$1,742; in 1917, at \$555. Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|------------------------|------|-----------|----------|-----------------|
| Quantity (pounds)..... | | 464,914 | 796,119 | 272,030 |
| Value..... | | \$216,293 | \$63,733 | \$82,976 |

Imports since 1918 have come principally from Germany and the Netherlands.

PARAGRAPH 1607.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1607. Loadstones.

ACT OF 1909.

ACT OF 1913.

PAR. 616. Loadstones [Free].

PAR. 537. Loadstones [Free].

LOADSTONES.

(See Survey FL-21.)

Description.—Loadstone is a variety of magnetite or magnetic ironstone which has the power of attracting iron. It is obtained mainly from Magnet Cove, Ark., though abundant elsewhere in the United States.

Production.—No statistics.

Imports of loadstones in 1873 were valued at \$238. From 1874 to 1897 import statistics of loadstones were combined with those for magnets. After 1897 loadstones were again listed separately. In 1918 loadstones, the first importation since 1906, were valued at \$60. There have been no later imports.

PARAGRAPH 1608.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1608. Manuscripts, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 621. Manuscripts [Free].

PAR. 542. Manuscripts [Free].

MANUSCRIPTS, N. S. P. F.

(See Survey M-8.)

Description and uses.—Modern usage considers any group of pages, whether written by hand or typewritten (not mimeographed), a manuscript.

Production.—No data available.

Imports in 1914 were valued at \$180,194; for the calendar years 1918-1921 they have been valued as follows: 1918, \$115,084; 1919, \$160,258; 1920, \$216,551; 1921 (9 months), \$59,884.

Important changes in classification.—"Not specially provided for" is new.

PARAGRAPH 1609.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1609. Marrow, crude.

ACT OF 1909.

ACT OF 1913.

PAR. 622. Marrow, crude [Free].

PAR. 543. Marrow, crude [Free].

CRUDE MARROW.

(See Survey FI.-15.)

Description and uses.—Marrow is the fatty substance filling the cavities of most bones, and may be red or yellow. The yellow marrow contains the larger percentage of fat, and is used in pharmacy

and for making pomades. Horse marrow is employed in the manufacture of soap. Red bone marrow is sometimes used as a medicinal food in cases of anæmia.

Imports of crude marrow in 1910 were 60,971 pounds, valued at \$1,376; in 1911, 10,670 pounds, valued at \$327. No imports are given between 1911 and 1918; those since 1917 by calendar years are as follows:

| | 1918 | 1919 | 1920 |
|------------------------|----------|-----------|----------|
| Quantity (pounds)..... | 23, 182 | 232, 980 | 97, 601 |
| Value..... | \$4, 684 | \$17, 728 | \$8, 548 |

Exports.—Statistics not given.

PARAGRAPH 1610.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1610. Mechanically ground wood pulp, chemical wood pulp, unbleached or bleached: *Provided*, That whenever the President shall ascertain as a fact that any country, dependency, province, or other subdivision of government forbids or restricts in any way (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly) the exportation of, or imposes any export duty, export license fee, or other export charge of any kind whatever, either directly or indirectly (whether in the form of additional charge or license fee, or otherwise), upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, he may by proclamation, declare such ascertainment setting forth the facts; whereupon, and until said proclamation shall be revoked, there shall be levied, collected, and paid upon mechanically ground wood pulp and chemical wood pulp, unbleached or bleached, when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, a duty of 10 per centum ad valorem, and, in addition thereto, an amount equal to the highest export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon either an equal amount of wood pulp or an amount of wood necessary to manufacture such wood pulp, or an amount of printing paper ordinarily manufactured from such wood pulp.

ACT OF 1909.

PAR. 406. Mechanically ground wood pulp, one-twelfth of one cent per pound, dry weight: *Provided, however,* That mechanically ground wood pulp shall be admitted free of duty from any country, dependency, province, or other subdivision of government (being the product thereof) which does not forbid or restrict in any way the exportation of (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly) or impose any export duty, export license fee, or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge or license fee or otherwise) upon printing paper, mechanically ground wood pulp, or wood for use in the manufacture of wood pulp: *Provided further,* That if any country, dependency, province, or other subdivision of government, shall impose an export duty or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge, or license fee, or otherwise) upon printing paper, mechanically ground wood pulp, or wood for use in the manufacture of wood pulp, the amount of such export duty or other export charge shall be added as an additional duty to the duty herein imposed upon mechanically ground wood pulp when imported directly or indirectly from such country, dependency, province, or other subdivision of government. Chemical wood pulp, unbleached, one-sixth of one cent per pound, dry weight; bleached, one-fourth of one cent per pound, dry weight: *Provided,* That if any country, dependency, province, or other subdivision of government shall impose an export duty, or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge or license fee or otherwise) upon printing paper, chemical wood pulp, or wood for use in the manufacture of wood pulp, the amount of such export duty, or other export charge, shall be added as an additional duty to the duties herein imposed upon chemical wood pulp when imported directly or indirectly from such country, dependency, province, or other subdivision of government.

ACT OF 1913.

PAR. 649. Mechanically ground wood pulp, chemical wood pulp, unbleached or bleached * * * [Free].

WOOD PULP.

(See Survey FL-38.)

Description and uses.—Wood pulp is a mass of cellulose fibers obtained from wood, either nearly pure cellulose, as in chemical pulp, or mixed with other constituents, as in ground wood pulp. There are two different kinds of wood pulp, mechanically ground and chemical. Mechanically ground wood pulp is obtained directly from the wood

by grinding it, in the presence of water, on a grindstone. It is inferior in quality to the chemical wood pulp, other constituents of the wood remaining as impurities. It is only about 55 per cent cellulose. Because of this fact and because the fibers are too short and stiff to felt together properly, it can not be used alone in paper making. It must be used in conjunction with some other form of pulp, usually chemical wood pulp. Chemical wood pulp is pure or nearly pure cellulose obtained by "cooking" small chips of wood in some chemical solution until the pitch, resin, and other impurities are dissolved. There are three kinds of chemical wood pulp—sulphite, soda, and sulphate—the sulphite being the most important commercially. The fibers of cellulose obtained by any of the three chemical processes are of greater length and more pliant than those obtained by the grinding process.

Spruce is the most important wood for the manufacture of wood pulp, furnishing over 54 per cent of the total domestic consumption. Other woods of importance are hemlock, balsam fir, poplar, jack pine, and yellow pine.

By far the most important use of wood pulp is as a raw material for paper. Newsprint paper is manufactured from ground wood pulp and sulphite in the proportion of about 4 parts of ground wood to 1 of sulphite. Book paper contains a larger proportion of sulphite and the higher grades may contain rag or other kinds of pulp. Sulphate is used chiefly for wrapping paper. Even the fine papers, such as bond and ledger, though preferably made from rag pulp, often contain sulphite.

There are also several minor uses for wood pulp. It has been made the basis of laces, yarns, textiles, artificial silks, paper clothing, and papier-mâché. Treated with chloride of zinc, it will yield vulcanized paper, which may be laminated and pressed into tubs, pails, and other containers.

Production.—The total production of wood pulp in the United States increased from 1,921,768 tons in 1904 to 3,799,835 tons in 1920. From 1916 to 1919 production was nearly stationary, averaging about 3,400,000 tons per year. It increased, however, 13 per cent in 1920. In this slow recent development of the wood-pulp industry may be seen the growing difficulty of obtaining raw material, owing to the depletion of the pulpwood forests. The 1920 production by kinds was: Ground wood, 1,578,300 tons; sulphite, 1,576,676 tons; soda, 431,971 tons. The principal wood pulp States are, in order of importance, Maine, New York, Wisconsin, New Hampshire, Pennsylvania, Minnesota, Michigan, and Vermont. Pulp may be manufactured as an independent industry and sold to paper manufacturers or others, or the manufacture of pulp and paper may be conducted in the same establishment. The tendency is in the latter direction.

Imports.—Domestic production falls far short of supplying the demand. During the past decade imports have varied from 17 to 23 per cent of domestic production and the relative importance of imports is increasing. The chief source is Canada, supplemented by smaller imports from Norway, Sweden, Finland, and Germany.

The quantities of wood pulp of all kinds imported for consumption into the United States increased from 423,217 short tons in the fiscal year 1910 to 782,357 short tons in 1917. There was a falling off in the calendar years 1918 and 1919 to 578,605 and 636,017 short tons

respectively. Imports of wood pulp (free under the act of 1913) have been for the calendar years 1918-1921, as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--------------------------------------|--------------|--------------|--------------|------------------|
| Mechanically ground: | | | | |
| Quantity (tons)..... | 165,956 | 189,583 | 208,168 | 91,093 |
| Value..... | \$4,720,971 | \$5,117,316 | \$13,881,596 | \$3,080,939 |
| Chemical unbleached sulphate: | | | | |
| Quantity (tons)..... | 105,666 | 130,278 | 164,207 | 68,937 |
| Value..... | \$7,954,923 | \$9,064,537 | \$17,210,196 | \$3,046,716 |
| Chemical unbleached sulphite: | | | | |
| Quantity (tons)..... | 226,619 | 214,243 | 307,908 | 100,872 |
| Value..... | \$16,989,556 | \$17,979,170 | \$37,489,626 | \$3,536,178 |
| Chemical bleached sulphate: | | | | |
| Quantity (tons)..... | 3,410 | 4,594 | 14,923 | 941 |
| Value..... | \$303,235 | \$394,765 | \$1,924,850 | \$77,643 |
| Chemical bleached sulphite: | | | | |
| Quantity (tons)..... | 14,962 | 38,174 | 114,020 | 54,147 |
| Value..... | \$1,511,807 | \$4,472,593 | \$18,961,907 | \$6,303,335 |
| Total, all kinds: | | | | |
| Quantity (tons)..... | 516,612 | 567,872 | 809,228 | 315,990 |
| Value..... | \$31,490,492 | \$37,048,381 | \$89,468,185 | \$24,049,811 |

Exports of wood pulp are insignificant as compared with either domestic production or imports. The maximum ratio of exports to domestic production in any year since 1910 has been 1.2 per cent. From 1910 to 1915, inclusive, annual exports averaged about 12,000 short tons and from 1916 to 1920, inclusive, about 34,000 short tons. Since 1914 the most important countries of destination of exports have been Canada, Japan, Argentina, the United Kingdom, and Brazil. Exports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 19,932 | 25,765 | 28,541 | 19,567 |
| Value..... | \$1,733,573 | \$3,048,491 | \$2,947,267 | \$1,433,907 |

Important changes in classification.—Wood pulp is conditionally exempted from duty.

Suggested changes.—Paragraph 402 on page 77 of H. R. 7456 does not harmonize with paragraph 1301, page 137, paragraph 1610, page 189, paragraph 1659, page 196, and paragraph 1683, page 200, with respect to restriction upon exportations to the United States.

Paragraph 402 apparently leaves to the Secretary of the Treasury determination of the fact whether any country, dependency, province, or other subdivision of government during the 12 months immediately preceding importation of logs of fir, etc., maintains any embargo, prohibition, or other restriction.

Paragraph 1301 authorizes the President to enter into negotiations with any country, dependency, province, or other subdivision of government forbidding or restricting in any way the exportation of printing paper, wood pulp, or wood for use in the manufacture of wood pulp, with a view to the removal of the 10 per cent additional duties imposed in that paragraph on printing paper.

Paragraph 1610 provides that whenever the President shall ascertain as a fact that any country, dependency, province, or other

subdivision of government restricts in any way the exportation of printing paper, wood pulp, or wood for use in the manufacture of wood pulp, a duty shall be levied on mechanically ground wood pulp and chemical wood pulp, unbleached or bleached.

Paragraph 1659 likewise imposes a duty on standard newsprint paper whenever the President shall ascertain as a fact that any country, dependency, province, or other subdivision of government forbids or restricts in any way the exportation of printing paper, wood pulp, or wood for use in the manufacture of wood pulp.

PARAGRAPH 1611.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1611. Medals of gold, silver, or copper, and other metallic articles actually bestowed by foreign countries or citizens of foreign countries as trophies or prizes, and received and accepted as honorary distinctions.

ACT OF 1909.

ACT OF 1913.

PAR. 624. Medals of gold, silver, or copper, and other metallic articles actually bestowed as trophies or prizes, and received and accepted as honorary distinctions [Free].

PAR. 546. Medals of gold, silver, or copper, and other articles actually bestowed as trophies or prizes, and received and accepted as honorary distinctions [Free].

MEDALS AND TROPHIES.

(See Survey FL-20.)

Production.—No statistics.

Imports.—The importation fluctuates in amount from year to year; the range during the period 1909-1917 being \$1,220 in the fiscal year 1917 and \$54,469 in 1910. Imports in recent calendar years were for 1918, \$5,541; 1919, \$10,376; 1920, \$19,460; 1921 (9 months), \$6,571.

Exports.—None recorded.

Important changes in classification.—The phrase "by foreign countries or citizens of foreign countries" is new.

PARAGRAPH 1612.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1612. Meerschaum.

ACT OF 1909.

ACT OF 1913.

PAR. 625. Meerschaum, crude or unmanufactured [Free].

PAR. 381. * * * meerschaum, crude or unmanufactured, 20 per centum ad valorem.

MEERSCHAUM.

(See Survey N-26.)

Description and uses.—Meerschaum is an opaque mineral of white, gray or cream color, and is light enough to float on water. It is a silicate of magnesium sometimes associated with magnesite and described by mineralogists under the name of sepiolite. It occurs in irregular nodular masses varying in size from that of a walnut to a cubic foot or more. The common kinds are used in the manufacture of porcelain, and the fine grades in the manufacture of pipes, cigar and cigarette holders, and other smokers' articles.

Production.—Most of the meerschaum of commerce is obtained from Asia Minor. It is also found in Greece, Moravia and Morocco, and to a limited extent in France and Spain. It is reported to have been found in the States of Pennsylvania, South Carolina, Utah, California, and New Mexico, although apparently not in sufficient quantities for commercial exploitation.

Imports of meerschaum to the United States were formerly almost all from Austria-Hungary, to which the output of Asia Minor was sent and distributed to various countries. In 1914 the value of imports was \$102,803, of which 97 per cent came from Austria-Hungary. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | | \$488 | | \$98 | 20 |
| 1920..... | 5,385 | 27,078 | \$5.03 | 5,416 | 20 |
| 1921 (9 months)..... | 1,045 | 3,806 | 3.64 | | |

In 1920 practically the entire importation was from Turkey in Europe.

Important changes in classification.—Transferred from the sundries schedule (par. 381) of the act of 1913, and "crude or unmanufactured" omitted.

PARAGRAPH 1613.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1613. Mineral salts obtained by evaporation from mineral waters, when accompanied by a duly authenticated certificate and satisfactory proof showing that they are in no way artificially prepared and are only the product of a designated mineral spring.

ACT OF 1909.

PAR. 627. Mineral salts obtained by evaporation from mineral waters, when accompanied by a duly authenticated certificate and satisfactory proof, showing that they are in no way artificially prepared, and are only the product of a designated mineral spring [Free].

ACT OF 1913.

PAR. 548. Mineral salts obtained by evaporation from mineral waters, when accompanied by a duly authenticated certificate and satisfactory proof showing that they are in no way artificially prepared and are only the product of a designated mineral spring [Free].

MINERAL SALTS.

(See Survey FL-22.)

Description and uses.—Mineral salts are obtained by evaporation of natural mineral waters and are principally medicinal. The product of this evaporation may contain a variety of salts, depending on the source of the water.

Imports of mineral salts have been quite variable—in 1913, 103,337 pounds, valued at \$35,420; in 1914, 82,569 pounds, averaging about 50 cents per pound. Imports decreased to 425 pounds in 1916 and in 1918 were 4,699,735 pounds, with a very low value per pound. This great increase and low price was due to the fact that most of the imports consisted of magnesium sulphate from British Columbia, valued at about \$5 per ton. Imports since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|----------|------------------|
| Quantity (pounds)..... | 3,666,346 | 1,237,730 | 833,206 | 13,262 |
| Value..... | \$10,231 | \$12,339 | \$13,572 | \$8,645 |

Exports.—Statistics not available.

PARAGRAPH 1614.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1614. Minerals, crude, or not advanced in value or condition by refining or grinding, or by other process of manufacture, not specifically provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 626. Minerals, crude, or not advanced in value or condition by refining or grinding, or by other process of manufacture, not specially provided for in this section [Free].

PAR. 549. Minerals, crude, or not advanced in value or condition by refining or grinding, or by other process of manufacture, not specially provided for in this section [Free].

MINERALS, CRUDE.

(See Survey FL-28.)

Description and uses.—The most important minerals coming under this general designation are vanadium ores and feldspar. Ores of tantalum, titanium, uranium, zirconium, molybdenum, and other ferroalloys now come in this group although molybdenite has received special mention under paragraph 302 of H. R. 7456.

Production.—Practically all of the ores and minerals included in this group are produced in the United States but complete statistics are not available.

Imports.—The largest single class of ores imported in this group is vanadium ore which comes mainly from an American-owned

mine in Peru but also from South Africa. Zirconium has been imported principally from Brazil. Tantalum imports in 1921 were derived from England while other steel hardening ores come from Canada and various other countries. Canada, owing to her large shipments of feldspar, is also the chief source of "all other crude minerals." The imports under the various designations for later calendar years may be tabulated as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|-----------|------------|-------------|------------------|
| Tantalum: | | | | |
| Quantity (pounds)..... | | | | 6,785 |
| Value..... | | | | \$1,327 |
| Titanium: | | | | |
| Quantity (pounds)..... | 1,606 | | | |
| Value..... | \$221 | | | |
| Uranium-radium ores: | | | | |
| Quantity (pounds)..... | 157 | | 396 | 250 |
| Value..... | \$4,840 | | \$1,110 | \$446 |
| Vanadium ores: | | | | |
| Quantity (pounds)..... | 1,772,215 | 6,026,005 | 20,673,296 | 10,307,540 |
| Value..... | \$5,333 | \$67,846 | \$1,080,935 | \$543,061 |
| Zirconium ores: | | | | |
| Quantity (pounds)..... | 3,216,659 | 11,023 | | 120,120 |
| Value..... | \$77,250 | \$332 | | \$2,700 |
| Steel hardening ores, all other: | | | | |
| Quantity (pounds)..... | 5,456,170 | 5,343 | 729,934 | 674,025 |
| Value..... | \$5,637 | \$4,227 | \$52,264 | \$17,318 |
| Minerals, crude or not advanced in value or condition, etc., n. s. p. f. (value): | \$539,764 | | | |
| Crude minerals, all other: | | | | |
| Quantity (pounds)..... | | 58,661,099 | 105,022,003 | 83,324,096 |
| Value..... | \$130,597 | \$178,535 | \$485,302 | \$223,557 |

Exports.—None recorded.

PARAGRAPH 1615.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1615. Models of inventions and of other improvements in the arts, to be used exclusively as models and incapable of any other use.

ACT OF 1909.

ACT OF 1913.

PAR. 629. Models of inventions and of other improvements in the arts, to be used exclusively as models and incapable of any other use [Free].

PAR. 551. Models of inventions and of other improvements in the arts, to be used exclusively as models and incapable of any other use [Free].

MODELS OF INVENTIONS.

Imports in 1914 were valued at \$41,333, and in later calendar years as follows: 1918, \$5,315; 1919, \$9,909; 1920, \$6,547; 1921 (9 months), \$11,068.

Exports not shown in official statistics.

PARAGRAPH 1616.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1616. Monazite sand and other thorium ores.

ACT OF 1909.

ACT OF 1913.

PAR. 183. * * * monazite sand and thorite, four cents per pound; * * *
 PAR. 154. * * * monazite sand and thorite; * * * 25 per centum ad valorem.

MONAZITE SAND AND THORITE.

(See Survey C-22.)

Description and uses.—Monazite sand is a dull-brown, crystalline mineral consisting chiefly of the phosphates of cerium and thorium. It is mined in Brazil and India and formerly was obtained to a small extent in North and South Carolina. This sand usually contains about 25 per cent of cerium and 5 to 10 per cent of thorium. It is used primarily as a raw material in gas mantles. Since the mantle is made up of 99 per cent of thoria to 1 per cent of ceria, and since there are no present uses for more than a fraction of the surplus ceria, the value of monazite depends upon its thoria content.

Thorite and thorianite are less important minerals from which thorium may be recovered. They contain from 50 to 75 per cent of thoria, but are comparatively rare, leaving monazite sand the chief source of thorium.

Production.—Domestic deposits of monazite sand occur in the beds of streams, and are mined and concentrated as in placer gold mining. This is an expensive and laborious process, not well adapted to large operation and usually carried on by farmers during spare time. About 20 years ago certain Brazilian sea beaches were found to contain monazite that could be cheaply exploited, and later monazite especially rich in thoria was discovered in India; American producers could not compete with either. The domestic output of monazite in 1905 was 1,352,418 pounds, valued at \$163,908. No production was recorded for 1913 and 1914. In 1915 and 1916 paucity of imports caused a slight revival, which in 1916 amounted to 76,872 pounds, about 5 per cent of the imports. Subsequent figures are not available.

Imports of monazite from 1909 to 1913 averaged about 1,300,000 pounds, valued at \$114,000. Imports since 1917, chiefly from Brazil, British India, and Canada, are as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | |
| 1918..... | 2,994,515 | \$204,661 | \$0.07 | \$51,165 | 25 |
| 1919..... | 632,568 | 48,768 | .08 | 12,192 | 25 |
| 1920..... | 1,814,482 | 141,678 | .08 | 26,382 | 25 |

Important changes in classification.—Transferred from par. 154 of the dutiable list of the act of 1913. The phrase "and other thorium ores" replaces "thorite."

PARAGRAPH 1617.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1617. Moss, seaweeds, and vegetable substances, crude or unmanufactured, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 630. Moss, seaweeds, and vegetable substances, crude or unmanufactured, not otherwise specially provided for in this section [Free].

PAR. 552. Moss, seaweeds, and vegetable substances, crude or unmanufactured, not otherwise specially provided for in this section [Free].

PAR. 540. Cocoa, or cacao, crude, * * * shells of [Free].

PAR. 456. Cocoa, or cacao, crude, * * * shells of [Free].

MOSS, SEAWEEDS, AND VEGETABLE SUBSTANCES.

(See Survey N-22.)

Description and uses.—Sea moss is used in making mattresses and for upholstering. Certain varieties of mosses and seaweeds are used here for food by the Japanese and Chinese. "Vegetable substances, crude or unmanufactured," include such products as hulls of the pea, cotton seed, mustard seed, and oat seed, used in cattle feed; also dried grass and leaves, afterwards dyed and used for millinery purposes. Holly branches are also included, being imported for Christmas decorations.

Production of moss is world-wide. Seaweeds are extensively distributed in the ocean and may be found from tide level to considerable depths. It is estimated that about 14,000,000 pounds of sea moss are used annually in the United States for mattresses and upholstery, and in paper making.

Imports of moss, seaweeds, and vegetable substances were \$246,196 in 1914. Canada, Japan, and France were the chief sources, supplying about 70 per cent. Considerable amounts formerly came from Germany. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|---------------------|
| Quantity (pounds)..... | | 8,362,717 | 7,929,129 | 4,212,699 |
| Value..... | \$302,912 | \$338,756 | \$480,839 | \$307,286 |

The value of imports from Japan are much larger than those from Canada and France, although the quantity is smaller. In 1920 Germany was an important source, being exceeded only by the three countries named above.

Exports of moss increased from \$51,006 in 1914 to \$91,667 in 1918 (calendar year), about 85 per cent going to Canada. Statistics for later calendar years follow: 1919, \$91,475; 1920, \$115,346; 1921 (9 months), \$42,429.

PARAGRAPH 1618.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1618. Needles, hand sewing or darning.

ACT OF 1909.

ACT OF 1913.

PAR. 633. Needles, hand sewing and darning [Free].

PAR. 555. Needles, hand-sewing and darning * * * [Free].

HAND-SEWING AND DARNING NEEDLES.

(See Survey C-15.)

Description and uses.—Besides ordinary hand-sewing and darning needles, there are included by Treasury decision harness, sail, mattress, and upholsterers' needles, which are classed as hand-sewing needles.

Production.—Hand-sewing and darning needles are not domestic products. Manufacturers explain that the large capital required yields more certain returns in other enterprises. There is not sufficient inducement for American capital to risk competition with the long-established English and German industries. American manufacturers would be handicapped by lack of raw material, as the wire for the finest quality of needles is made by but one or two mills in England. Hand labor seems essential for many operations. The English needle passes through the hands of about 32 workmen and is subject to about 13 different processes. As every workman requires special training, much skilled help is necessary, which, if available at all in the United States, would so increase the cost of the article as to make competition impossible. Practically all the hand-sewing needles used here are made in England and in Germany.

Imports of hand-sewing and darning needles in the fiscal year 1918 amounted in value to \$533,969. For the calendar years 1918-1921 they have been as follows:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|---------------------------|-----------|-----------|-------------|-----------------|
| Quantity (thousands)..... | | 758,957 | 1,209,393 | 638,862 |
| Value..... | \$776,067 | \$984,119 | \$1,546,890 | \$796,545 |

The greater part of the imported material comes from the United Kingdom. In the years 1918 and 1919 there was a considerable importation from Japan. During 1919 and 1920 the importation from Germany was growing relatively more significant.

PARAGRAPH 1619.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1619. Newspapers and periodicals; but the term "periodicals" as herein used shall be understood to embrace only unbound or paper-covered publications issued within six months of the time of entry, devoted to current literature of the day, or containing current literature as a predominant feature, and issued regularly at stated periods, as weekly, monthly, or quarterly, and bearing the date of issue.

ACT OF 1909.

PAR. 634. Newspapers and periodicals; but the term "periodicals" as herein used shall be understood to embrace only unbound or paper covered publications issued within six months of the time of entry, devoted to current literature of the day, or containing current literature as a predominant feature, and issued regularly at stated periods, as weekly, monthly, or quarterly, and bearing the date of issue [Free].

ACT OF 1913.

Par. 556. Newspapers and periodicals; but the term "periodicals" as herein used shall be understood to embrace only unbound or paper-covered publications issued within six months of the time of entry, devoted to current literature of the day, or containing current literature as a predominant feature, and issued regularly at stated periods, as weekly, monthly, or quarterly, and bearing the date of issue [Free].

NEWSPAPERS AND PERIODICALS.

(See Survey N-24.)

Description and uses.—The items mentioned in paragraph 1619 are of a character in themselves to be dutiable as printed matter under paragraph 1310. They are admitted free of duty only when they conform to certain specifications given in some detail in the paragraph.

Imports of newspapers and periodicals in 1914 were valued at \$363,807. Imports in later calendar years have been valued as follows: 1918, \$313,392; 1919, \$322,311; 1920, \$347,479; 1921 (nine months), \$237,118.

Exports.—Statistics not available.

PARAGRAPH 1620.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1620. Nuts: Crude in the shell and broken coconut meat or copra, not shredded, desiccated, or prepared in any manner, and not specially provided for; palm nuts and palm-nut kernels.

ACT OF 1909.

PAR 635. Nuts: * * * palm nuts and palm-nut kernels; * * * broken cocconut meat or copra, not shredded, desiccated, or prepared in any manner [Free].

ACT OF 1913.

PAR. 557. * * * broken coconut meat or copra, not shredded, desiccated, or prepared in any manner; palm nuts and palm-nut kernels [Free].

COPRA, PALM NUTS, KERNELS, ETC.

(See Survey A-11.)

Description and uses.—Copra is the dried, broken kernel of the coconut, and is the chief form of the commercial product from which coconut oil is expressed. (See paragraph 756.) Palm nuts are from palm varieties indigenous to western tropical Africa, and valuable for the palm oil they yield. The kernels are a distinct article of commerce. The meal left after extracting the oil from the kernels has a small value as feed for cattle.

Production.—Of the relatively small Florida and Porto Rican production of coconuts only the culls are marketed as copra. On the other hand, the Philippine crop (1,510,000,000 nuts in 1920) is in large part turned into copra either for crushing in the islands or for export.

There is no domestic production of palm nuts or palm kernels.

Imports of copra amounted to 44,459,158 pounds, valued at \$2,395,105, in 1914. Practically all of the 1914 importation came from Oceania (including the Philippines). In 1920 the Philippines furnished 10 per cent; Australia and other British Oceania, 43 per cent; Dutch East Indies, 14 per cent; and French Oceania, 11 per cent.

Statistics for the calendar years 1918–1921 follow:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|------------------------|--------------|--------------|--------------|-----------------|
| Quantity (pounds)..... | 430,499,328 | 257,915,799 | 215,188,461 | 129,296,526 |
| Value..... | \$26,255,527 | \$16,544,613 | \$14,187,178 | \$5,066,401 |

Imports of palm nuts and palm kernels in 1913 were valued at \$4,872, and in 1914 at \$23,127. Statistics for the calendar years 1918–1921 follow:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|------------------------|-----------|-----------|-----------|-----------------|
| Quantity (pounds)..... | | 5,610,056 | 8,329,034 | 65,003 |
| Value..... | \$384,215 | \$288,586 | \$484,730 | \$5,802 |

British Africa furnishes 95 per cent of the imports.

Important changes in classification.—This paragraph takes the place of a part of paragraph 557 of the act of 1913; marrons and coconuts were transferred to schedule 7 (pars. 755 and 756).

The word "crude" qualifying "marrons" and the words "in the shell" qualifying "coconuts" in paragraph 557 have been retained and combined in the phrase "crude in the shell," following the word "nuts" in this paragraph. No reason is apparent for this combination of parts of provisions.

Suggested changes.—"Copra" as the trade name might be substituted for "broken coconut meat or copra, not shredded, desiccated, or prepared in any manner, and not specially provided for."

The word "nuts" beginning this paragraph should be changed to "oil-bearing seeds and nuts" if the provision is to be given its full scope of exempting from duty oil seeds and nuts, unless no seeds shall be added to this paragraph. (See paragraph 760.)

Unless specific provision shall be made for perilla and sesame seed, and for tung nuts, the raw materials of the oils that are free of duty under paragraph 1626, they will be subject to duty as seeds not specially provided for.

PARAGRAPH 1621.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1621. Nux vomica.

ACT OF 1909.

ACT OF 1913.

PAR. 636. Nux vomica [Free].

PAR. 558. Nux vomica [Free].

NUX VOMICA.

(See Survey FL-2.)

Description and uses.—Nux vomica, the dried ripe seed of an Asiatic tree, is extensively used in medicine and in the manufacture of its alkaloids, of which strychnine is of chief importance.

Production.—It is derived from a wild tree of India and the surrounding regions, the only important source of strychnine.

Imports of nux vomica for 1909–1918 average 2,714,812 pounds, valued at \$61,447. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 4,107,167 | \$310,403 | \$0.08 |
| 1919..... | 3,750,838 | 240,446 | .06 |
| 1920..... | 3,069,994 | 208,234 | .07 |
| 1921 (9 months)..... | 2,500,381 | 218,748 | .09 |

PARAGRAPH 1622.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1622. Oakum.

ACT OF 1909.

ACT OF 1913.

PAR. 637. Oakum [Free].

PAR. 559. Oakum [Free].

OAKUM.

(See Survey FL-14.)

Description and uses.—Oakum, a tarred preparation of soft fibers, is divided according to its chief uses into marine oakum and plumbers' oakum. Marine oakum, made of old tarred ropes and, for the most part since 1914, of domestic hemp tows, is employed for calking or packing joints or timbers of wooden vessels and the deck planking in steel ships. Plumbers' oakum, made from jute wastes, principally old waste bagging, is used for calking all kinds of pipe.

Production of oakum in 1914 and in 1919 was limited to six establishments, the total output of which was valued in 1914 at \$359,000 and in 1919 at \$983,000. Prior to 1915 it is estimated that the annual domestic production of marine oakum amounted to about 100,000 bales of 50 pounds each, and of plumbers' oakum to about 85,000 bales. In 1919 the output was estimated at 210,000 bales of marine oakum and 60,000 bales of plumbers' oakum.

Imports in the period 1910-1914 averaged 1,446,000 pounds yearly and exports 1,351,000 pounds. Since 1917 imports have been small, whereas exports have shown a marked increase. Consumption of foreign oakum is limited to the higher grades of marine oakum, which are practically all supplied by the United Kingdom and Russia in Europe. Imports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|------|---------|---------|-----------------|
| Quantity (pounds)..... | 199 | 35,840 | 6,074 | 73,775 |
| Value..... | \$25 | \$3,500 | \$1,000 | \$8,833 |

Exports.—Nine-tenths of the exports consist of the lower grades of marine oakum shipped to Canada, Mexico, and South America. Exports in the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-----------|-----------|-----------|-----------------|
| Quantity (pounds)..... | 2,958,154 | 2,720,369 | 2,828,617 | 1,065,531 |
| Value..... | \$430,301 | \$364,510 | \$358,088 | \$104,881 |

PARAGRAPH 1623.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1623. Oil cake and oil-cake meal.

ACT OF 1909.

ACT OF 1913.

PAR. 638. Oil cake [Free].

PAR. 560. Oil cake [Free].

OIL CAKE AND OIL-CAKE MEAL.

(See Survey A-11.)

Description and uses.—The process of crushing various vegetable seeds and nuts to extract the oil, leaves a compressed mass known, when unground, as oil cake, and when ground, as oil-cake meal. This residual cake is chiefly derived from cotton seed, flaxseed, soya beans, corn, peanuts, and rapeseed. It is not only a valuable feedstuff for dairy, poultry, and other live stock, but also an important vegetable fertilizer, entering extensively into international trade.

Production.—The United States, through its great cottonseed-oil, linseed-oil, and corn-product industries, is the largest producer and exporter of the oil-cake by-product. In 1914 the production of cottonseed cake and meal was 2,191,610 tons; of linseed cake, about 600,000 tons, and of corn-cake meal close to 75,000 tons. In 1919 the production of cottonseed cake and meal was 2,260,007 tons valued at \$124,498,598; of linseed cake and meal, 409,141 tons valued at \$26,435,210.

Imports during 1911-1920 ranged from 10,000,000 to 230,000,000 pounds, with values varying from \$100,000 to \$4,600,000, coming principally from the Dutch East Indies and Philippine Islands

(coconut cake); China and Japan (soya-bean cake); Mexico (cottonseed cake); Canada and the United Kingdom (linseed cake). Most of the imports move to the Pacific States. Statistics for the calendar years 1918-1921 follow:

Oil cake.

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|------------|-------------|-------------|------------------|
| Cottonseed-oil cake: | | | | |
| Quantity (pounds)..... | 24,975,122 | 63,389,335 | 37,245,980 | 463,378 |
| Value..... | \$439,927 | \$1,314,271 | \$307,985 | \$8,414 |
| Cottonseed and linseed (Bibby's) oil cake: | | | | |
| Quantity (pounds)..... | 1,513,600 | 4,041,068 | 3,757,985 | 1,586,358 |
| Value..... | \$37,615 | \$99,248 | \$96,341 | \$25,576 |
| Coconut-oil cake: | | | | |
| Quantity (pounds)..... | 33,380 | 25,410,217 | 133,588,981 | 56,478,704 |
| Value..... | \$333 | \$423,144 | \$2,476,423 | \$1,062,455 |
| Soya-bean oil cake: | | | | |
| Quantity (pounds)..... | 78,370 | 16,988,787 | 29,473,132 | 6,091,619 |
| Value..... | \$1,261 | \$483,221 | \$645,267 | \$104,154 |
| All other bean-oil cake: | | | | |
| Quantity (pounds)..... | 21,000 | 1,740,381 | 9,122,025 | 2,825,565 |
| Value..... | \$534 | \$37,062 | \$265,322 | \$42,238 |
| Peanut-oil cake: | | | | |
| Quantity (pounds)..... | 120 | 227 | 1,221,122 | ..... |
| Value..... | \$23 | \$5 | \$32,189 | ..... |
| Rapeseed-oil cake: | | | | |
| Quantity (pounds)..... | ..... | ..... | 1,850,204 | ..... |
| Value..... | ..... | ..... | \$49,187 | ..... |
| All other oil cake: | | | | |
| Quantity (pounds)..... | 302,049 | 834,835 | 13,970,566 | 1,023,477 |
| Value..... | \$21,564 | \$13,847 | \$263,196 | \$34,515 |
| Total oil cake: | | | | |
| Quantity (pounds)..... | 26,923,641 | 112,405,870 | 230,296,095 | 68,460,001 |
| Value..... | \$500,927 | \$2,370,827 | \$4,635,910 | \$1,277,352 |

Oil-cake meal.

| Calendar year. | Quantity. | Value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|---------|------------------|
| | <i>Pounds.</i> | | | <i>Per cent.</i> |
| 1918..... | 799,340 | \$17,363 | \$2,604 | 15 |
| 1919..... | 50,000 | 1,309 | 196 | 15 |
| 1920..... | 109,336 | 1,522 | 228 | 15 |
| 1921 (9 months)..... | 20,280 | 451 | ..... | ..... |

Exports in normal years were about 2,000,000,000 pounds, valued at over \$21,000,000, cottonseed cake and meal ordinarily comprising about three-fourths of the total and linseed cake most of the remainder. The trade was greatly reduced during the war. Later statistics for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------------------|-------------|--------------|-------------|------------------|
| Cottonseed cake: | | | | |
| Quantity (pounds)..... | 1,384,250 | 394,625,721 | 314,013,114 | 285,309,654 |
| Value..... | \$32,412 | \$12,918,900 | \$9,818,176 | \$5,102,315 |
| Cottonseed meal: | | | | |
| Quantity (pounds)..... | 10,283,046 | 233,507,445 | 26,027,868 | 111,621,760 |
| Value..... | \$256,068 | \$7,262,043 | \$730,841 | \$3,020,665 |
| Linseed or flaxseed cake: | | | | |
| Quantity (pounds)..... | 45,392,709 | 377,922,678 | 223,286,040 | 403,782,446 |
| Value..... | \$1,115,129 | \$11,656,844 | \$7,638,606 | \$9,139,157 |
| Linseed or flaxseed meal: | | | | |
| Quantity (pounds)..... | 40,561,673 | 25,828,805 | 12,338,937 | 18,338,584 |
| Value..... | \$1,134,143 | \$846,387 | \$404,004 | \$392,455 |
| Corn-oil cake and meal: | | | | |
| Quantity (pounds)..... | 69,370 | 963,980 | 130,613 | 4,131,472 |
| Value..... | \$2,966 | \$26,874 | \$3,903 | \$68,096 |
| Coconut-oil cake and meal: | | | | |
| Quantity (pounds)..... | | | 528,170 | 7,905,353 |
| Value..... | | | \$13,784 | \$84,936 |
| All other oil cake and meal: | | | | |
| Quantity (pounds)..... | 9,371,706 | 104,379,153 | 13,232,720 | 34,264,204 |
| Value..... | \$244,783 | \$3,329,648 | \$402,085 | \$559,730 |

Important changes in classification.—Oil-cake meal has been added; it differs from oil cake only in being ground.

PARAGRAPH 1624.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1624. Oils, animal: Spermaceti, whale, and other fish oils of American fisheries, and all fish and other products of such fisheries.

ACT OF 1909.

ACT OF 1918.

PAR. 639. Oils: * * * and also spermaceti, whale, and other fish oils of American fisheries, and all fish and other products of such fisheries; * * * [Free.]

PAR. 561. Oils: * * * and also spermaceti, whale, and other fish oils of American fisheries, and all fish and other products of such fisheries [Free].

PAR. 567. Fish, fresh, frozen, or packed in ice, caught in the Great Lakes or other fresh waters by citizens of the United States, and all other fish, the products of American fisheries [Free].

[For discussion, see par 49, p. 140.]

PARAGRAPH 1625.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1625. Oils, distilled or essential: Anise, bergamot, bitter almond, camphor, caraway, cassia, cinnamon, citronella, geranium, lavender, lemon-grass, lime, lignaloe, neroli or orange flower, origanum, palmarosa, pettigrain, rose or otto of roses, rosemary, spike lavender, thyme, and ylang ylang: *Provided*, That no article mixed or compounded or containing alcohol shall be exempted from duty under this paragraph.

ACT OF 1909.

PAR. 639. Oils: Almond, * * * anise or anise seed, * * * aspic or spike lavender, bergamot, * * * caraway, cassia, cinnamon, * * * citronella or lemon grass, * * * lavender, * * * limes, * * * neroli or orange flower, * * * attar of roses, * * * rosemary or anthoss, * * * thyme, origanum red or white, * * * [Free].

PAR. 3. * * * distilled oils, essential oils, * * * twenty-five per centum ad valorem; * * *

ACT OF 1913.

PAR. 46. Oils, distilled and essential: * * * almond, bitter; * * * anise or anise seed; bergamot; * * * caraway; cassia; cinnamon; * * * citronella and lemon-grass; * * * lavender, and aspic or spike lavender; limes; neroli or orange flower; organum, red or white; rosemary or anthoss; attar of roses; thyme; * * * all the foregoing oils, * * * and essential and distilled oils and all combinations of the same, not specially provided for in this section, 20 per centum ad valorem: *Provided*, That no article containing alcohol shall be classified for duty under this paragraph.

OILS, DISTILLED OR ESSENTIAL.

ANISE OR ANISE-SEED OIL.

(See Survey A-12.)

Description and uses.—Anise-seed oil is distilled from anise fruit or the fruit of the star anise. The fruit yields from 1½ to 3 per cent of oil. The plant is indigenous to Asia Minor and Egypt and is also cultivated in Russia, Spain, Malta, Greece, Bulgaria, Chile, and India. The chief use of anise-seed oil is as a flavoring agent, especially in cheap grades of candy. It is used to some extent in medicines as a carminative and stimulant.

Imports prior to the war had reached a maximum of 127,501 pounds, valued at \$173,078 in 1913, and decreased to about one-third of that quantity in 1914. During the following years the imports increased, until in 1917 there were imported 266,686 pounds, valued at \$150,849, which yielded a revenue of \$30,169. By far the greater quantity of anise oil imported is the oil of star anise seed from China. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1913..... | 72,033 | \$63,476 | \$0.88 | \$12,695 | 20 |
| 1919..... | 148,849 | 156,982 | 1.05 | 31,396 | 20 |
| 1920..... | 290,241 | 246,682 | .84 | 49,336 | 20 |
| 1921 (9 months)..... | 76,995 | 35,700 | .46 | ..... | 20 |

Exports.—Statistics not available.

Important changes in classification.—Anise oil is dutiable under paragraph 46, act of 1913.

BERGAMOT OIL.

(See Survey A-12.)

Description and uses.—Bergamot oil is obtained from the fresh rind of the fruit known as the bergamot orange or the bergamot lemon. An oil of an inferior quality is obtained by distilling the

crushed rind with steam. Oil of bergamot possesses stimulating properties when taken internally. It is employed as a perfume in hair tonics, and in dusting powders and ointments to disguise the unpleasant odor of certain drugs. Bergamot oil is sometimes adulterated with orange oil and turpentine.

Imports in 1913 were 64,259 pounds, valued at \$310,835, and were free of duty. In 1914 imports decreased to about 50 per cent of the normal prewar imports, but since have been about equal to imports in 1913. Imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 58,581 | \$245,999 | \$4.20 | \$49,200 | 20 |
| 1919..... | 69,171 | 298,457 | 4.31 | 59,691 | 20 |
| 1920..... | 60,744 | 243,226 | 4.00 | 48,645 | 20 |
| 1921 (9 months)..... | 31,287 | 135,018 | 4.31 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—Bergamot oil is dutiable under paragraph 46, act of 1913.

BITTER ALMOND OIL.

(See Survey A-11.)

Description.—When bitter almond kernels are expressed they yield a bland fixed oil which is known as sweet almond oil. (See par. 45.) The residue from this expression when ground and distilled with water, yields the bitter oil of almonds. The bitter almond oil does not exist in the kernel, but is produced by the action of water on amygdalin, a constituent of almonds; it is also obtained by distilling the seeds of peaches and apricots. Bitter almond oil consists of about 85 per cent of benzaldehyde, which can be prepared synthetically from coal tar. The synthetic product has largely replaced the natural oil, and has a more uniform composition.

Imports of bitter oil of almonds in 1913 were 10,442 pounds, valued at \$25,629, and were admitted free of duty. The imports during the war declined considerably. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,375 | \$13,983 | \$10.17 | \$2,797 | 20 |
| 1919..... | 2,812 | 15,261 | 6.08 | 3,052 | 20 |
| 1920..... | 4,374 | 20,548 | 4.70 | 4,110 | 20 |
| 1921 (9 months)..... | 4,181 | 11,472 | 2.74 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—Bitter almond oil is dutiable under paragraph 46, act of 1913.

CAMPHOR OIL.

Description and uses.—Camphor oil is a by-product of ordinary or Japanese camphor, from which it is obtained by distillation with water. The first crude distillate is then subjected to a second fractional distillation. Its chief uses are in medicine and as a source of safrol (par. 56). In the Far East it is used as an illuminating oil.

Production is confined almost wholly to Japan, although a small amount is produced in China, the Malay States, and Mauritius.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 236,025 | \$21,248 | \$0.09 | \$4,250 | 20 |
| 1919..... | 401 | 116 | .29 | 23 | 20 |
| 1920..... | 41,958 | 7,844 | .19 | 1,569 | 20 |
| 1921 (9 months)..... | 5,567 | 2,333 | .41 | | |

Exports.—Statistics not available.

Important changes in classification.—First specific mention of camphor oil, which is dutiable under the provision for "essential and distilled oils" n. s. p. f., paragraph 46, act of 1913.

CARAWAY OIL.

(See Survey A-12.)

Description and uses.—Caraway oil is obtained by steam distillation from the caraway fruit, which yields from 4 to 6 per cent of oil. The oil is distilled chiefly in England, Holland, Germany, and Morocco. It is used medicinally as a stimulant and carminative, and to impart an agreeable flavor to other pharmaceutical remedies.

Imports had decreased prior to the war from 60,007 pounds in 1910 to 10,107 pounds in 1913. Imports further decreased in 1914 to about 3,500 pounds. In 1915, 18,107 pounds were imported, valued at \$20,730, yielding a revenue of \$4,146. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|---------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 1,097 | \$6,522 | \$5.95 | \$1,304 | 20 |
| 1919..... | 4,261 | 14,622 | 3.43 | 2,924 | 20 |
| 1920..... | 8,167 | 19,746 | 2.42 | 3,949 | 20 |
| 1921 (9 months)..... | 800 | 896 | 1.12 | | |

Exports.—Statistics not available.

Important changes in classification.—Caraway oil is dutiable under paragraph 46, act of 1913.

CASSIA OIL.

(See Survey A-12.)

Description.—Cassia oil is distilled from the bark, leaves, and twigs of the plant *Cinnamomum cassia*, which is indigenous to Cochin China, and is also cultivated in other parts of China. The oil consists chiefly of from 75 to 85 per cent cinnamic aldehyde. This product can be made synthetically from coal tar, and synthetic cassia oil is now a common article of commerce.

Imports are combined with those of oil of cinnamon, which it greatly resembles.

Important changes in classification.—Cassia oil is dutiable under paragraph 46, act of 1913.

CINNAMON OIL.

(See Survey A-12.)

Description.—Cinnamon oil is distilled from the bark of the Ceylon cinnamon tree (*Cinnamomum zeylanicum*). The oil is usually distilled from an inferior bark of insufficient value to pay the export tax. The bark yields from one-half to 1 per cent of oil.

Cinnamon leaf oil is an essential oil distilled from the leaves of the same plant. It differs from oil of cinnamon in that it contains very little cinnamic aldehyde and from 70 to 90 per cent of eugenol.

Imports.—The combined imports of cassia and cinnamon oil in 1913 were 123,645 pounds, valued at \$97,438, and were admitted free of duty. Imports decreased somewhat during 1914 and 1915, and in 1917 increased to 153,244 pounds, valued at \$130,112, and yielded a revenue of \$26,022.

Imports for later years follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 99,454 | \$125,629 | \$1.26 | \$25,126 | 20 |
| 1919..... | 168,626 | 277,290 | 1.64 | 55,456 | 20 |
| 1920..... | 175,589 | 265,661 | 1.51 | 53,012 | 20 |
| 1921 (9 months)..... | 35,594 | 36,657 | 1.20 | | |

Important changes in classification.—Cinnamon oil is dutiable under paragraph 46, act of 1913.

CITRONELLA AND LEMON-GRASS OILS.

(See Survey A-12.)

Description, uses, and production.—Citronella oil is distilled from "Indian grass," chiefly in the southern part of Ceylon. It is a pale-yellow oil which possesses a powerful odor, and this property, along with its low price, accounts for its extensive use as a cheap soap perfume. It is also used as a protection against insects, chiefly mosquitoes. Lemon-grass oil is obtained by distillation from two varieties of grass grown in Ceylon, the Straits Settlements, Malabar, and

Cochin China. Ceylon and Singapore are the chief centers of cultivation of the grass and of the production and exportation of the oil. It is used chiefly as a perfume, especially for the cheaper grades of soaps. It is also used to adulterate oil of lemons.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 783,045 | \$319,734 | \$0.41 | \$63,947 | 20 |
| 1919..... | 572,202 | 280,498 | .49 | 56,100 | 20 |
| 1920..... | 1,012,050 | 737,047 | .73 | 147,400 | 20 |
| 1921 (9 months)..... | 634,637 | 263,862 | .41 | ..... | ..... |

Important changes in classification.—Citronella and lemon-grass oils are dutiable under paragraph 46, act of 1913.

GERANIUM OIL.

Description and uses.—Geranium oil, or rose geranium oil, is distilled from several varieties of the plant *pelargonium*, and is used in compounding perfumes.

Production.—The plants are cultivated and distillation is carried on in Algeria, southern France, Spain, Italy, Corsica, and Provence.

Import statistics are available for 1914 only, when they were 63,414 pounds, valued at \$146,933.

Export statistics are not available.

Important changes in classification.—First specific mention; now dutiable under the general provision in paragraph 46 of the act of 1913.

LAVENDER AND SPIKE LAVENDER OILS.

(See Survey A-12.)

Description and uses.—Oil of lavender refers to a volatile oil distilled from the fresh flowering herb *Lavandula vera* and other species growing on the higher slopes of the Alps. Several grades of this oil, differing greatly in price, are on the market. In France a large part of the commercial oil is obtained from the wild plant by means of portable stills. The English oil, which is obtained exclusively from cultivated plants, commands a much higher price than the ordinary commercial or French oil, as only a small amount is produced. Commercially the English oil is frequently designated as oil of garden lavender. Oil of lavender is employed chiefly as a perfume and as a flavoring agent for certain pharmaceutical preparations. It is rarely employed in medicine.

Spike lavender oil or spike oil is distilled from the flowering *Lavandula spica*, which grows in the lower mountainous regions of France, Spain, and Italy. Spike oil is a common adulterant of oil of lavender and is occasionally distilled with true lavender. It is also used by artists in the preparation of varnishes. Spike lavender oil is much cheaper than true oil of lavender.

Imports of lavender and spike lavender oil in 1913 were 227,013 pounds, valued at \$482,779, admitted free of duty. In 1914 and 1915, imports were about one-third of those in 1913; in 1916, 198,205 pounds, valued at \$271,815, yielding a revenue of \$54,363. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad. valorem rate. |
|----------------------|----------------|-----------|-------------|----------|-------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 98,602 | \$214,759 | \$2.18 | \$42,952 | 20 |
| 1919..... | 141,970 | 263,038 | 1.85 | 52,608 | 20 |
| 1920..... | 135,268 | 351,947 | 2.60 | 70,389 | 20 |
| 1921 (9 months)..... | 71,050 | 138,419 | 1.95 | ..... | ..... |

Important changes in classification.—These oils are dutiable under paragraph 46, act of 1913.

LEMON-GRASS OIL.

(See Citronella oil, p. 1389.)

LIME OIL.

(See Survey A-12.)

Description and production.—Expressed lime oil is obtained by mechanical means from the peel of the fresh fruit of *Citrus limetta*. It is produced in Italy chiefly during the months of December and January. This oil closely resembles oil of lemon. A distilled lime oil is also produced, chiefly in the West Indies, and is the usual lime oil of commerce. The expressed Italian oil is much more valuable than the distilled West Indian oil.

Imports in 1913 were 13,075 pounds, valued at \$15,025, and were admitted free of duty. The imports during the war showed a decrease only in 1915. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad. valorem rate. |
|----------------------|----------------|----------|-------------|---------|-------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 9,978 | \$19,230 | \$1.93 | \$3,846 | 20 |
| 1919..... | 46,367 | 51,430 | 1.10 | 10,208 | 20 |
| 1920..... | 46,993 | 89,420 | 1.90 | 17,884 | 20 |
| 1921 (9 months)..... | 38,042 | 72,148 | 1.97 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—Lime oil is dutiable under paragraph 46, act of 1913.

LIGNALOE OIL.

Description and uses.—Linaloe oil, or as it is more commonly known, linaloe oil, comes on the market in two different varieties, Cayenne, and Mexican. The former is distilled in French Guiana, and the latter in Mexico, both from woods of uncertain botanical origin. They are used in compounding perfumes.

Production.—Production is confined to French Guiana and Mexico. *Imports* are shown for 1914 only, when they were 4,171 pounds, valued at \$10,926, chiefly from Mexico.

Exports.—Statistics are not available.

Important changes in classification.—First specific mention; now dutiable under paragraph 46, act of 1913.

Suggested changes.—The spelling generally used is "linaloe," not "lignaloë." This oil is also known in commerce as "Bois de Rose." In order to be certain of including this product the provision might be changed to "linaloe or Bois de Rose."

NEROLI OR ORANGE FLOWER OIL.

(See Survey A-12.)

Description, uses, and production.—This oil is obtained by distillation from fresh orange flowers and is produced exclusively in the southern part of France. The best grade of neroli comes from Nice. This oil is used almost exclusively in perfume. A form of orange flower oil is used to a certain extent as a flavoring agent in sirups. The odor of orange flower oil is due to methyl anthranilate, which can be made synthetically from coal tar. Methyl anthranilate was produced in the United States during 1920 by six firms. A synthetic product which is sold under the name of neroli is used largely as a perfume by soap makers.

Imports of neroli, or orange flower oil, in 1913 were 38,365 pounds, valued at \$171,932. During 1914 and 1915 the imports decreased to about 14,000 pounds, and during 1916 and 1917, were only slightly less than the imports in 1913. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 22,173 | \$70,683 | \$3.19 | \$14,137 | 20 |
| 1919..... | 25,076 | 123,060 | 4.91 | 24,612 | 20 |
| 1920..... | 36,946 | 181,141 | 4.90 | 36,228 | 20 |
| 1921 (9 months)..... | 22,684 | 51,612 | 2.28 | ..... | ..... |

Exports.—Statistics not available.

Important changes in classification.—This oil is dutiable under paragraph 46, act of 1913.

ORIGANUM OIL.

(See Survey A-12.)

Description.—Origanum or marjoram oil closely resembles oil of thyme and is obtained by distillation with water from two species of organum native to Europe and America. The two oils recognized in commerce are Trieste oil, which is dark, and Smyrna oil, which is light colored. This difference in color accounts for the tariff description "red or white."

Imports of organum had increased under exemption from duty prior to the war to 8,822 pounds, valued at \$8,502 in 1913. With the ex-

ception of 1914, the imports during the war showed a remarkable increase—54,671 pounds, valued at \$45,859, and yielded a revenue of \$9,171 in 1917. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|--------|-------------|-------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 200 | \$143 | \$0.72 | \$29 | 20 |
| 1919..... | 3,555 | 13,406 | 1.95 | 2,661 | 20 |
| 1920..... | 13,896 | 27,032 | 1.95 | 5,406 | 20 |
| 1921 (9 months)..... | 2,160 | 4,560 | 2.17 | ..... | 20 |

Exports.—Statistics not available.

Important changes in classification.—This oil is dutiable under paragraph 46, act of 1913.

PALMAROSA OIL.

Description and uses.—Palmarosa oil, or Turkish geranium grass oil, is distilled from Motia grass, which grows extensively in India. Its chief use is in the compounding of perfumes. The odor and properties are somewhat similar to geranium oil.

Production.—Distillation is confined wholly to India. The name Turkish geranium oil came into use through the commercial introduction of the oil via Constantinople.

Imports are shown for 1914 only, when they were 1,052 pounds, valued at \$1,351.

Important changes in classification.—First specific mention; now dutiable under the general provision in paragraph 46, act of 1913.

PETTIGRAIN OIL.

Description and uses.—The oil of pettigrain of to-day is distilled from the leaves and young shoots of the bitter orange. It is used in the compounding of perfumes.

Production.—The best pettigrain oil is distilled in the south of France, a certain amount also in Algeria and Spain. An oil of less perfume value, but one which forms the bulk of the oil of commerce, is distilled in Paraguay.

Imports in 1914 (the only year for which statistics are available) were 634 pounds, valued at \$1,114.

Important changes in classification.—First specific mention; now dutiable under the general provisions in paragraph 46, act of 1913.

ROSE OIL OR OTTO OF ROSES.

(See Survey A-12.)

Description, uses, and production.—Attar or otto of roses is a volatile oil distilled from fresh rose flowers. Of the numerous varieties of roses, only a few are used in the preparation of the essential oil. A large part of the attar of roses is obtained from the Balkan Mountains. The important center of the industry is Kezanlik. Roses are also cultivated in the southern part of France in the

neighborhood of Grasse, Cannes, and Nice. The French flowers, however, are used chiefly for the preparation of rose water and rose pomades. In recent years extensive rose plantations have been established in Germany near Klein-Miltitz. There is also a small production of attar of roses in Algeria.

As rose oil is expensive, the probability of adulteration is always great. The principal adulterants are palmarosa oil and true geranium oil. Rose oil is used chiefly in the preparation of high-grade toilet perfumes and is also employed in medicine for perfuming cerates, ointments, and lotions.

Imports.—The imports of attar of roses in 1913 had reached 133,325 ounces, valued at \$791,370, admitted free of duty. The imports since 1913 have been considerably less, and in 1917 declined to a minimum of 11,235 ounces, valued at \$85,673, and yielded a revenue of \$17,134. This decrease in imports has been due to war conditions which have demoralized the rose industry in Bulgaria. Import statistics since 1917 follow:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Ounces.</i> | | | | <i>Per cent.</i> |
| 1918..... | 21,299 | \$160,556 | \$7.54 | \$32,111 | 20 |
| 1919..... | 52,931 | 497,021 | 9.39 | 99,404 | 20 |
| 1920..... | 67,224 | 490,327 | 7.15 | 96,065 | 20 |
| 1921 (9 months)..... | 7,310 | 55,239 | 7.66 | | |

Exports.—Statistics not available.

Important changes in classification.—This oil is dutiable under paragraph 46, act of 1913.

ROSEMARY OIL.

(See Survey A-12.)

Description.—Rosemary oil is distilled from the flowering tops of the rosemary plant. There are two commercial varieties, Italian or Dalmatian oil, which is distilled after the flowering season is over, and a French oil, which possesses a finer odor and is distilled from the fresh flowering tops. English oil, which is produced from cultivated plants, and the Spanish oil are of minor commercial importance, although the English product brings a much higher price than the other oils.

Imports of rosemary oil showed a large increase, from about 50,000 pounds in 1910 to 284,144 pounds, valued at \$100,930, in 1913, being admitted free of duty. The imports during 1914, 1915, and 1916 were only about one-third those of 1913. Imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|----------|-------------|---------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 87,972 | \$45,341 | \$0.51 | \$9,068 | 20 |
| 1919..... | 152,138 | 77,465 | .51 | 15,493 | 20 |
| 1920..... | 219,226 | 193,102 | .88 | 38,620 | 20 |
| 1921 (9 months)..... | 22,018 | 18,119 | .82 | | |

Important changes in classification.—This oil is dutiable under paragraph 46, act of 1913.

SPIKE LAVENDER OIL.

(See Lavender oil, p. 1390.)

THYME OIL.

(See Survey A-12.)

Description and uses.—Thyme oil is distilled from fresh flowering tops of the thyme herb which grows wild in the mountains of southern France. Small quantities of oil are produced from the cultivated herb, but this source is of little commercial importance. The Spanish thyme oil is probably derived from a species of origanum. It has been a common practice to export thyme oil from France to England, whence it is reexported to the United States as oil of origanum. Thyme oil closely resembles oil of origanum; being much cheaper, it has been substituted largely for the latter.

Thyme oil is used chiefly for veterinary preparations and as a cheap soap perfume. The French oil is the most valuable. There are two commercial varieties, known as red and white. The former grade is a crude distilled oil and, when properly rectified and purified, gives the commercial white thyme oil. The yield of oil varies from 0.5 to 2.5 per cent.

Imports prior to the war increased from about 50,000 pounds in 1910 to 138,972 pounds, valued at \$105,296, admitted free of duty in 1913. Imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|----------------------|----------------|-----------|-------------|----------|------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 107,759 | \$122,241 | \$1.14 | \$24,448 | 20 |
| 1919..... | 115,456 | 171,459 | 1.49 | 34,292 | 20 |
| 1920..... | 77,227 | 151,681 | 1.96 | 30,376 | 20 |
| 1921 (9 months)..... | 51,078 | 74,006 | 1.47 | ..... | 20 |

Exports.—Statistics not available.

Important changes in classification.—Thyme oil is dutiable under paragraph 46, act of 1913.

YLANG-YLANG OIL.

Description and uses.—Ylang-ylang or Cananga oil is the product of the distillation of the flowers of *Cananga odorata*, a native of Ava and Tenasserim, and is generally distributed and cultivated throughout southern Asia, the East Indies, the Philippines, and Reunion. The Philippine oil is said to be the finest in quality. It is used in compounding perfumes.

Import statistics are not available.

Important changes in classification.—First specific mention; now dutiable under the general provision in paragraph 46 of the act of 1913.

Suggested changes.—This oil from Java and neighborhood is known commercially as Cananga oil. In order to be certain of its inclusion the words "or Cananga" might be added after "ylang-ylang."

PARAGRAPH 1626.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1626. Oils, expressed or extracted: Croton, palm, palm-kernel, perilla, sesame, and sweet almond; olive oil rendered unfit for use as food or for any but mechanical or manufacturing purposes, by such means as shall be satisfactory to the Secretary of the Treasury and under regulations to be prescribed by him; Chinese and Japanese tung oils; and nut oils not specially provided for.

ACT OF 1909.

PAR. 639. Oils: Almond, * * * croton, * * * nut oil or oil of nuts, * * * olive oil rendered unfit for use as food or for any but mechanical or manufacturing purposes, by such means as shall be satisfactory to the Secretary of the Treasury and under regulations to be prescribed by him; * * * palm, palm-kernel, * * * sesame or sesamum seed or bean, * * * [Free].

PAR. 3. * * * expressed oils, * * * twenty-five per centum ad valorem; * * * [Covered oils not specifically mentioned in 1909.]

ACT OF 1918.

PAR. 561. Oils: * * * croton, * * * palm, palm-kernel, perilla, * * * and olive oil rendered unfit for use as food or for any but mechanical or manufacturing purposes, by such means as shall be satisfactory to the Secretary of the Treasury and under regulations to be prescribed by him; Chinese nut oil, nut oil or oil of nuts not specially provided for in this section; * * * [Free].

PAR. 45. Oils, expressed: * * * almond oil, sweet, 5 cents per pound; sesame or sesamum seed or bean oil, 1 cent per pound; * * *

CROTON OIL.

(See Survey A-11.)

Description and uses.—Ordinary croton oil comes from the seeds of *Croton tiglium*, a native tree of the East Indies and cultivated in various tropical countries. The oil is amber color, has a nauseating odor, biting taste, and (often adulterated with castor oil) is used as a powerful purgative. It is produced in large quantities in India and in Great Britain by pressing or by extraction with volatile solvents. The chief uses are in medicine.

Imports have been small; prior to 1916 between 4,000 and 6,000 pounds, since decreasing greatly. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 1,000 | \$1,075 | \$1.08 |
| 1919..... | 900 | 1,288 | 1.43 |
| 1920..... | 3,573 | 3,776 | 1.06 |
| 1921 (9 months)..... | 2,002 | 2,064 | 1.02 |

PALM AND PALM-KERNEL OIL.

(See Survey A-11.)

Description and uses.—Palm oil is obtained from the outside fleshy portions of the ripe fruit; palm-kernel oil, from the kernels of the seeds. Forests of palm trees grow on the west coast of Africa, practically the only source of supply. Another species of palm is cultivated in South America, the West Indies, Java, and North

Burma, but its yield of oil is commercially unimportant. The native process of extracting palm oil is exceedingly crude and only a small portion of the oil is recovered. The residue, palm kernels, is usually shipped to Europe or America, where the oil is extracted. Both palm and palm-kernel oils are used extensively in soap making—27,345,000 pounds of palm oil and 4,762,000 pounds of palm-kernel oil in 1917. The total United States consumption in 1919 was 18,450,532 pounds of palm oil and 2,517,105 pounds of palm-kernel oil; in 1920, 24,791,212 pounds of palm oil and 2,671,112 pounds of palm-kernel oil; and for the first 9 months of 1921 (preliminary figures), 15,967,164 pounds and 1,862,505 pounds, respectively. Palm oil mixed with cottonseed and mineral oils is used in the manufacture of tin plate to protect the iron sheets from oxidation before being immersed in the molten tin. Fresh palm-kernel oil is used in vegetable butter substitutes and for other edible purposes.

Production of palm-kernel oil from imported kernels in the United States since 1911 has been as follows:

| Year. | Quantity. | Year. | Quantity. |
|-----------|----------------|----------------------|----------------|
| | <i>Pounds.</i> | | <i>Pounds.</i> |
| 1912..... | 3,200,000 | 1918..... | 3,784,000 |
| 1914..... | 402,000 | 1919..... | 2,517,105 |
| 1916..... | 8,619,000 | 1920..... | 2,671,112 |
| 1917..... | 6,453,000 | 1921 (9 months)..... | 1,827,332 |

Imports of palm oil in 1914 were 58,040,202 pounds, valued at \$3,858,001, and 27,405,231 pounds, valued at \$2,527,301 in 1918. Prior to 1916 England furnished about 90 per cent; but in 1918 British West Africa shipped us 90 per cent. Imports of palm-kernel oil in 1914 were 34,327,600 pounds, valued at \$3,087,343, declining to 18,618 pounds, valued at \$2,583 in 1918 (fiscal year). Imports prior to the war came chiefly from Germany and England. During the war England became the chief crusher and in order to retain this industry she has instituted a system of preferential export duties on palm kernels from British West Africa.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------|-----------|--------|-------------|
|----------------|-----------|--------|-------------|

PALM OIL.

| | <i>Pounds.</i> | | |
|----------------------|----------------|-------------|--------|
| 1918..... | 20,993,085 | \$1,651,241 | \$0.08 |
| 1919..... | 41,817,945 | 4,317,324 | .10 |
| 1920..... | 41,948,224 | 5,430,310 | .13 |
| 1921 (9 months)..... | 18,688,145 | 1,156,390 | .06 |

PALM-KERNEL OIL.

| | <i>Pounds.</i> | | |
|----------------------|----------------|---------|--------|
| 1918..... | 33,564 | \$4,855 | \$0.14 |
| 1919..... | 1,929,493 | 142,523 | .07 |
| 1920..... | 1,693,740 | 238,899 | .14 |
| 1921 (9 months)..... | 1,581,717 | 127,741 | .08 |

Imports of palm oil have been chiefly from England and West Africa, and of palm-kernel oil from England and Belgium.

Exports.—Statistics not available.

PERILLA OIL.

(See Survey A-11.)

Description and uses.—Perilla oil is obtained by crushing the seed of *Perilla ovymoides*, an annual plant indigenous to China, Japan, and the northern parts of India, where it is cultivated for its seeds, the oil being used for edible purposes. It is used as a substitute for linseed oil in paints, varnishes, linoleum, and printing inks when market prices are favorable. It is not produced in the United States.

Imports of perilla oil were 65,509 pounds, valued at \$5,504 in 1916. Imports since 1917 follow:

| Calendar year. | Quantity. | Value. | Unit value |
|----------------------|----------------|-----------|------------|
| | <i>Pounds.</i> | | |
| 1918..... | 921,740 | \$121,858 | \$0.13 |
| 1919..... | 4,742,739 | 723,622 | .15 |
| 1920..... | 7,581,555 | 1,216,291 | .16 |
| 1921 (9 months)..... | 615,464 | 45,068 | .07 |

SESAME OIL.

(See Survey A-11.)

Description and uses.—This oil is obtained from the seeds of the plant *Sesamum indicum*, L., which is grown principally in East India, Java, Siam, China, and Japan and in the countries bordering the Mediterranean. Sesame could be grown in the southern United States, but the harvesting requires a great deal of hand labor.

The seeds yield from 30 to 50 per cent of a thin yellow oil which is odorless, has a pleasant taste, and does not become rancid on exposure. The best qualities are used as table oils or to adulterate olive oil, the poorer grades as fuel or soap stock. It is one of the staple food' oils of southern Europe.

Production.—The production from imported seed has increased greatly since 1914, as shown in the following table:

| Year. | Quantity. | Year. | Quantity. |
|-----------|----------------|-----------|----------------|
| | <i>Pounds.</i> | | <i>Pounds.</i> |
| 1914..... | 30,000 | 1917..... | 304,000 |
| 1916..... | 126,000 | 1918..... | 299,000 |

Imports for 1914 were 1,389,648 pounds, more than half of which came from Germany. In 1915 they were 341,545 pounds; in 1917, 73,846 pounds. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equival-ent ad valorem. |
|----------------------|----------------|-----------|-------------|----------|-------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 2,354,927 | \$356,516 | \$0.15 | \$23,549 | 6.61 |
| 1919..... | 4,722,484 | 694,241 | .15 | 47,225 | 6.80 |
| 1920..... | 806,935 | 162,538 | .20 | 8,069 | 4.96 |
| 1921 (9 months)..... | 74,191 | 10,783 | .14 | | |

Exports.—Statistics not available.

Important changes in classification.—Transferred from the dutiable list (par. 45) of the act of 1913.

ALMOND OIL, SWEET.

(See Survey A-11.)

Description and uses.—So-called sweet almond oil is expressed from sweet and bitter almonds, since both oils are practically identical and can not be distinguished by chemical means. The cake resulting from the cold expression is ground and distilled with water, thus producing bitter oil of almond. (See par. 1625.) Sweet almonds yield on an average about 44 to 55 per cent of oil, while bitter almonds yield about 38 to 45 per cent, though it may be as low as 20 per cent.

The oil is pale yellow, with a pleasant mild taste and little odor. It does not readily become rancid. Owing to its high price, almond oil is freely diluted with other similar oils, chiefly peach-kernel and apricot-kernel oil. Genuine almond oil is sold under the name of "almond oil, true."

Almond oil is used principally for pharmaceutical purposes and in the manufacture of high-class toilet soaps.

Production.—The principal countries producing almonds are Morocco, the Canary Islands, Portugal, Spain, France, Italy, Sicily, Syria, and Persia. Figures for the domestic production of the oil are not available, but it is probably inconsiderable. Some almonds are raised in California, but are mostly used for other purposes.

Imports for 1913 amounted to 152,300 pounds. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Equivalent ad valorem. |
|----------------------|----------------|----------|-------------|-------|------------------------|
| | <i>Pounds.</i> | | | | <i>Per cent.</i> |
| 1918..... | 15,017 | \$11,586 | \$0.77 | \$751 | 6.48 |
| 1919..... | 46,288 | 38,991 | .84 | 2,314 | 5.94 |
| 1920..... | 66,907 | 28,405 | .60 | 2,845 | 10.02 |
| 1921 (9 months)..... | 31,312 | 14,380 | .46 | | |

Exports.—Statistics not available.

Important changes in classification.—Transferred from the dutiable list (par. 45) act of 1913.

OLIVE OIL.

(See Survey A-11.)

Description and uses.—Denatured olive oil, also known as "olive oil foots" and "sulphured olive oil," is a very low-grade oil extracted from the third and sometimes the fourth pressing of the olive cake or pomace. Some volatile solvent, such as gasoline or carbon bisulphide, is employed in the process. This oil is used in the manufacture of castile soap, in wool spinning, and for lubricating and illuminating purposes. (See edible olive oil, par. 50, p. 155.)

Production.—The annual domestic production of crude and virgin olive oil was 438,694 pounds in 1919, and 779,470 pounds (preliminary figures) in the first nine months of 1921.

Imports are declining—in 1907 they were 1,845,702 gallons. Imports since 1917, chiefly from Spain, Italy, and England, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------------|---------|-------------|
| | <i>Gallons.</i> | | |
| 1918..... | 7,812 | \$6,768 | \$0.87 |
| 1919..... | 287,654 | 443,190 | 1.54 |
| 1920..... | 108,839 | 214,044 | 2.02 |
| 1921 (9 months)..... | 413,195 | 360,145 | .87 |

Exports.—Statistics not available.

CHINESE AND JAPANESE TUNG OILS.

(See Survey A-11.)

Description and uses.—The term "tung oil" describes two similar fatty oils, but differentiated commercially as Chinese or Japanese tung oil. Both are also known as wood oil and nut oil. Chinese nut oil is obtained from the seeds of an indigenous tree yielding about 40 per cent of oil on pressing. Cold-pressed oil is known as "white tung," chiefly from China. Hot-pressed oil is known as "black tung." The Japanese oil is obtained from the fruit of a similar tree grown in the southern part of Japan. Both the Chinese and Japanese tung oils have largely replaced linseed oil in waterproof varnishes. The consumption of tung oil in 1919 was 34,166,655 pounds; in 1920, 46,381,235 pounds; and for the first nine months of 1921 (preliminary figures), 24,403,902 pounds.

Imports of Chinese nut oil have been about 5,000,000 to 6,000,000 gallons; in the fiscal year 1918, 4,818,740 gallons, valued at \$4,038,072. Over 90 per cent is from China, Japan supplying a small part since 1916. Imports of all other nut oils have varied greatly; in 1915 a maximum of 216,707 gallons, valued at \$83,994, falling to 18,423 gallons, valued at \$18,203, in the fiscal year 1918. Later imports of Chinese nut oil are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------------|-------------|-------------|
| | <i>Gallons.</i> | | |
| 1918..... | 5,700,663 | \$6,388,715 | \$1.12 |
| 1919..... | 7,180,346 | 8,120,529 | 1.13 |
| 1920..... | 9,061,620 | 11,077,271 | 1.22 |
| 1921 (9 months)..... | 2,080,307 | 1,378,564 | .67 |

Important changes in classification.—The phrase "Chinese nut oil" (par. 561, act of 1913) has been changed to "Chinese and Japanese tung oils," to remove doubt as to the inclusion of peanut oil within the term "nut oil." (Reclassification Report, p. 118.)

NUT OILS N. S. P. F.

Description and uses.—This provision would include any expressed or extracted oil produced from the kernel of a nut. Candle nut or Lumbang oil, which is closely related to Chinese and Japanese tung oil, is obtained from the tree *Aleurites moluccana* in the islands of the Pacific, West Indies, and in Brazil. It is a drying oil suitable for use in paints. Shea-nut oil is a semisolid fat which resembles coconut and palm oil and is used largely in soap. It is obtained from nuts of a tree appearing in large areas on the West Coast of Africa and in the French and English Sudan. About 2,000 short tons of this oil were produced from imported nuts in the United States in 1916. The oil offers possibilities for future development.

Imports of nut oils, n. s. p. f., since 1917, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------------|-----------|-------------|
| | <i>Gallons.</i> | | |
| 1918..... | 125,760 | \$155,389 | \$1.24 |
| 1919..... | 123,305 | 157,868 | 1.28 |
| 1920..... | 111,127 | 131,082 | 1.18 |
| 1921 (9 months)..... | 29,510 | 30,423 | 1.03 |

Exports.—Statistics not available.

PARAGRAPH 1627.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1627. Oils, mineral: Petroleum, crude, fuel, or refined, and all distillates obtained from petroleum, including kerosene, benzine, naphtha, gasoline, paraffin, and paraffin oil, not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 639. Oils: * * * petroleum, crude or refined, including kerosene, benzine, naphtha, gasoline, and similar oils produced from petroleum [Free].

PAR. 645. Paraffin [Free].

PAR. 561. Oils: * * * petroleum, crude or refined, and all products obtained from petroleum, including kerosene, benzine, naphtha, gasoline, paraffin, and paraffin oil; * * * [Free].

PETROLEUM AND PETROLEUM PRODUCTS.

(See Survey FL-17.)

Description and uses.—The provision for petroleum covers crude petroleum and its refined products, including kerosene, benzine, naphtha, gasoline, paraffin oils, and paraffin.

Production.—The refined products are obtained by separating the crude oils by means of fractional distillation; these may be modified by the methods of distillation and the points of separation of the distillate. These fractions are usually purified by treatment with sulphuric acid, caustic soda, and washing with water. If a large yield of gasoline is desired a "dry" or destructive distillation (cracking) is employed. Marketed crude petroleum increased steadily from 8,801,404,416 gallons, valued at \$127,899,688 in 1910, to

14,083,255,242 gallons, valued at \$522,635,213, in 1917. This country is the largest producer and supplies 66 per cent of the world's demand. In 1917 Oklahoma produced 34.26 per cent; California, 16.49 per cent; and Kansas, 12.84 per cent of the output. Texas, Illinois, West Virginia, Pennsylvania, and Ohio rank in the order named. Mexico is the world's second largest producer, supplying in 1919, 87,000,000 barrels, or 16 per cent of the world's output.

Domestic production of crude petroleum since 1913 and of gasoline since 1916 has been as follows:

CRUDE PETROLEUM.

| Year. | Quantity. | Value. | Year. | Quantity. | Value. |
|-----------|-----------------|---------------|----------------------|-----------------|---------------|
| | <i>Barrels.</i> | | | <i>Barrels.</i> | |
| 1914..... | 265,762,535 | \$214,125,215 | 1918..... | 355,927,716 | \$703,943,961 |
| 1915..... | 281,104,104 | 179,462,890 | 1919..... | 377,719,000 | |
| 1916..... | 300,767,158 | 330,899,868 | 1920..... | 443,402,000 | |
| 1917..... | 335,315,601 | 522,635,213 | 1921 (7 months)..... | 276,910,000 | |

GASOLINE.

| Year. | Quantity. | Year. | Quantity. |
|-----------|-----------------|----------------------|-----------------|
| | <i>Gallons.</i> | | <i>Gallons.</i> |
| 1917..... | 2,850,546,423 | 1920..... | 4,882,546,099 |
| 1918..... | 3,570,312,963 | 1921 (7 months)..... | 2,993,185,362 |
| 1919..... | 3,957,857,097 | | |

Imports of crude mineral oil or petroleum increased from 843,-080,788 gallons, valued at \$11,779,938 in 1914, to 1,348,419,493 gallons valued at \$18,039,207 in 1918. Over 95 per cent of the imports in 1918 was from Mexico, in quantity equaling 10 per cent of domestic production in 1917. Benzine, gasoline, and naphtha imports have varied considerably—in 1915, 7,920,424 gallons valued at \$762,556; in 1916 only 7,738 gallons; 11,069,898 gallons valued at \$1,473,027 in 1918, chiefly from Peru and Mexico. Imports of "all other refined" mineral oil increased from 1,796,092 gallons, valued at \$430,664 in 1914, to 43,927,718 gallons, valued at \$2,406,-754 in the fiscal year 1918. In later years the bulk of the imports has consisted of crude oil from Mexico.

Imports of petroleum products since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------|-----------|--------|-------------|
|----------------|-----------|--------|-------------|

CRUDE MINERAL OIL.

| | | | |
|----------------------|----------------------------------|--------------|--------|
| 1918..... | <i>Gallons.</i> 1,584,235,658 | \$21,408,752 | \$0.01 |
| 1919..... | 2,218,505,817 | 26,442,881 | .01 |
| 1920..... | 4,459,353,992 | 55,797,830 | .01 |
| 1921 (9 months)..... | 3,650,823,799 | 46,126,773 | .01 |

| Calendar year. | Quantity. | Value. | Unit value. |
|--|-----------------|-------------|-------------|
| BENZINE, GASOLINE, AND NAPHTHA | | | |
| 1918..... | 13,655,350 | \$1,944,506 | \$0.14 |
| 1919..... | 8,520,169 | 1,697,341 | .20 |
| 1920..... | 40,478,407 | 4,892,254 | .12 |
| 1921 (9 months)..... | 25,043,583 | 2,553,249 | .10 |
| PARAFFIN OIL. | | | |
| 1918..... | 418,264 | \$59,545 | \$0.14 |
| 1919..... | 390,550 | 60,930 | .16 |
| 1920..... | 582,869 | 121,049 | .21 |
| 1921 (9 months)..... | 8,633 | 4,314 | .49 |
| PARAFFIN AND PARAFFIN WAX. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 5,531,118 | \$546,342 | \$0.10 |
| 1919..... | 9,883,180 | 973,521 | .10 |
| 1920..... | 7,629,395 | 820,885 | .11 |
| 1921 (9 months)..... | 3,528,670 | 290,230 | .08 |
| ALL OTHER REFINED MINERAL OILS. | | | |
| | <i>Gallons.</i> | | |
| 1918..... | 37,111,647 | \$2,334,732 | \$0.06 |
| 1919..... | 47,354,552 | 3,239,475 | .07 |
| 1920..... | 68,926,209 | 5,091,647 | .07 |
| 1921 (9 months)..... | 76,820,890 | 5,220,143 | .06 |

Exports of domestic petroleum products in the fiscal year 1918 were 2,677,036,228 gallons, valued at \$298,329,051, about 50 per cent fuel and gas oil. The exports in 1917 were 2,651,118,349 gallons, or about 19 per cent of domestic production. Exports of crude mineral oil, chiefly to Canada, increased from 146,477,342 gallons, valued at \$6,812,672 in 1914, to 185,069,674 gallons, valued at \$9,288,979 in 1918. Exports of fuel and oil gas increased notably, from 475,143,205 gallons valued at \$13,747,863 in 1914 to 1,223,283,641 gallons valued at \$61,137,607 in 1918, going chiefly to the United Kingdom and Canada. Exports of illuminating oil decreased about 50 per cent from the export of 1,157,283,310 gallons, valued at \$74,500,162 in 1914, and have been chiefly to Europe. Exports of lubricating oils, including paraffin oil, have been principally to Europe, and increased from 196,884,696 gallons, valued at \$27,852,959 in 1914, to 269,673,770 gallons, valued at \$66,162,117 in 1918. Exports of gasoline, largely to Europe and Canada, increased from 151,611,537 gallons, valued at \$21,699,475 in 1914, to 260,880,122 gallons, valued at \$61,642,859 in 1918. Exports of all other naphthas (exclusive of gasoline) increased from 40,840,730 gallons, valued at \$5,653,210 in 1914 to 209,029,477 gallons, valued at \$52,739,227 in 1918. Exports of residuum decreased

from 113,370,245 gallons, valued at \$1,907,715 in 1914, to 881,875 gallons, valued at \$96,480 in 1918. Exports for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|---------------|---------------|---------------|------------------|
| Mineral oil, crude: | | | | |
| Quantity (gallons)..... | 205,829,030 | 248,821,453 | 337,881,081 | 282,713,392 |
| Value..... | \$12,084,250 | \$14,805,546 | \$28,990,444 | \$16,623,459 |
| Mineral oil, refined or manufactured, fuel and gas: | | | | |
| Quantity (gallons)..... | 1,200,750,319 | 584,849,605 | 827,594,250 | 665,747,675 |
| Value..... | \$36,615,743 | \$30,818,877 | \$54,888,724 | \$38,674,097 |
| Illuminat. g oil: | | | | |
| Quantity (gallons)..... | 491,109,815 | 979,155,147 | 870,665,033 | 532,771,294 |
| Value..... | \$50,354,414 | \$119,024,479 | \$133,290,080 | \$73,278,844 |
| Lubricating oil—paraffin: | | | | |
| Quantity (gallons)..... | 7,059,121 | 10,300,005 | 1,987,380 | 317,922 |
| Value..... | \$1,454,327 | \$1,795,012 | \$847,695 | \$136,374 |
| All other lubricating oil: | | | | |
| Quantity (gallons)..... | 250,258,132 | 264,495,161 | 400,134,079 | 195,044,843 |
| Value..... | \$74,148,728 | \$83,347,739 | \$154,758,909 | \$69,914,253 |
| Gasoline: | | | | |
| Quantity (gallons)..... | 351,967,164 | 259,783,919 | 395,384,262 | 207,370,236 |
| Value..... | \$85,225,574 | \$61,756,864 | \$104,992,832 | \$50,235,099 |
| All other naphthas and light products of distillation: | | | | |
| Quantity (gallons)..... | 207,401,691 | 112,349,038 | 245,925,485 | 196,103,040 |
| Value..... | \$54,368,166 | \$30,290,030 | \$70,547,541 | \$53,548,501 |
| Residuum: | | | | |
| Quantity (gallons)..... | 244,474 | 32,999,699 | 19,268,812 | 7,973,664 |
| Value..... | \$14,298 | \$1,834,285 | \$1,040,987 | \$457,813 |

Important changes in classification.—The phrase “and all products obtained from petroleum,” paragraph 561, act of 1913, has been changed to read “and all distillates obtained from petroleum,” so as not to include chemicals manufactured from petroleum. (Reclassification Report, p. 119.) Specific provision has been made for “fuel” petroleum.

PARAGRAPH 1628.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1628. Ores of gold, silver, or nickel, and nickel matte; ores of the platinum metals; sweepings of gold and silver.

ACT OF 1909.

ACT OF 1913.

PAR. 643. Ores of gold, silver, or nickel, and nickel matte; sweepings of gold and silver [Free].

PAR. 565. Ores of gold, silver, or nickel, and nickel matte; ores of the platinum metals; sweepings of gold and silver [Free].

ORES OF GOLD, SILVER, NICKEL, AND PLATINUM.

(See Surveys FL-20 and C-23.)

GOLD.

Production.—The recovered output from domestic ores and gravels in 1918 amounted to 3,320,784 fine ounces, valued at \$68,646,700, and in 1920, to 2,395,017 ounces, valued at \$49,509,400. The producing States number about 20, and extend throughout the country. In 1920 over one-half of the output was from California, Colorado,

and Alaska. Production has steadily declined since 1915, when it was 4,887,604 fine ounces, valued at \$101,035,700. Foreign production in 1917 was valued at \$339,839,500, nearly one-half from South Africa; Australasia, Russia (including Siberia), and Canada were the other large producers. Foreign output in 1918 was \$312,278,000.

Imports of gold and base bullion in 1914 were \$11,001,406, and in recent calendar years have been in value as follows: 1918, \$16,251,930; 1919, \$16,744,430; 1920, \$16,984,171; 1921 (9 months), \$30,935,441.

Exports of ore and base bullion (almost wholly to Canada) amounted to \$459,943 in 1914 and in recent calendar years have been as follows: 1918, \$206,674; 1919, \$20,719; 1920, \$11,260; 1921 (9 months), \$77,413.

SILVER.

Production.—The recovered output from domestic ores and gravels in 1918 amounted to 67,810,139 fine ounces, valued at nearly \$1 per ounce. The producing States are widely distributed and number about 20; chief among these are Montana, Utah, Idaho, and Nevada. The production in 1918 was somewhat smaller than in preceding years. In 1920 the country's output was 56,564,504 ounces, valued at \$57,420,325. The total foreign output in 1917 was 92,252,300 fine ounces, produced chiefly in Mexico, Canada, and Peru. Foreign production in 1918 was 129,584,800 fine ounces.

Imports of silver in ore and base bullion in 1914 were \$11,439,423, and in later calendar years were as follows: 1918, \$44,877,920; 1919, \$74,073,332; 1920, \$69,845,999; 1921 (9 months), \$30,461,909.

Exports of silver in ore and base bullion amounted to \$136,721 in 1914 and for later calendar years have been as follows: 1918, \$18,248; 1919, \$6,693; 1920, \$16,522; 1921 (9 months), \$13,851.

NICKEL ORE AND NICKEL MATTE.

Description and uses.—Nickel matte is the product of the smelting of nickel sulphide ores.

Production.—Nickel ore is not mined in this country, and but little nickel matte is produced. Canada is the largest producer, supplying more than one-half of the world's output. New Caledonia also has extensive deposits, which formerly dominated the nickel industry, but are now second in importance. Almost every country has workable deposits, but none so extensive as Canada and New Caledonia.

Imports.—In 1914 the nickel content of ore and matte (consisting almost exclusively of matte) was 43,532,278 pounds, valued at \$6,109,547. Imports in later calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---------------------------|------|-------------|-------------|------------------|
| Nickel ore: | | | | |
| Quantity— | | | | |
| Tons ¹ | | 7,878 | 917 | |
| Pounds ² | | 10,431,602 | 1,541,237 | |
| Value..... | | \$1,959,729 | \$145,723 | |
| Nickel matte: | | | | |
| Quantity— | | | | |
| Tons ¹ | | 15,179 | 31,733 | 1,497 |
| Pounds ² | | 18,871,626 | 40,044,871 | 2,023,681 |
| Value..... | | \$3,820,651 | \$8,318,149 | \$432,538 |

¹ Gross weight.
² Nickel content.

In addition to this importation, ore and matte containing 73,193,205 pounds of nickel, valued at \$11,517,546, were imported in 1918. The bulk of this imported material came from Canada.

Exports.—Nickel ore and nickel matte are not exported. The exports of nickel and nickel oxide in 1914 amounted to 28,895,242 pounds, valued at \$9,403,709, and for later calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-----------|------------------|
| Quantity (pounds)..... | 17,469,500 | 3,810,656 | 1,215,232 | 425,439 |
| Value..... | \$6,927,041 | \$1,697,544 | \$574,845 | \$103,244 |

These exports have gone largely to Belgium, Japan, the United Kingdom, Switzerland, France, and Italy.

Suggested changes.—See General Note on Paragraph, page 1407.

ORES OF THE PLATINUM METALS.

Description.—In its native state platinum is invariably associated with small amounts of rhodium, osmium, iridium, palladium, iron, copper, or gold.

Production.—Statistics of production are either not available or are unreliable, because ores of platinum in the United States, produced primarily for their platinum content, are insignificant in quantity. In this country platinum is produced from placers and from the residue obtained in refining gold and silver bullion, and copper and nickel mattes. In 1918 the value of domestic platinum yield was estimated at \$5,452,900. Foreign platinum comes mainly from Russia and Colombia.

Imports.—Ores of platinum metals are entered according to their platinum content. The 1914 figures show imports amounting to 831 troy ounces, valued at \$30,341. Imports for later calendar years, largely from Colombia, have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------------|----------|----------|-----------|------------------|
| Quantity (troy ounces)..... | 168 | 173 | 1,141 | 1,196 |
| Value..... | \$10,559 | \$15,868 | \$114,149 | \$76,090 |

Exports.—None recorded.

SWEEPINGS OF GOLD AND SILVER.

Description and uses.—Sweepings of gold and silver are chips of these metals from engraving, filing, turning, and polishing jewelry, and are invoiced as jeweler's sweeps. Particles of gold find their way to the floors of jewelry establishments, and are swept and saved until a sufficient quantity is obtained to warrant shipment to reduction plants. Their only use is conversion into metallic gold and silver.

Production.—No statistics.

Import value in 1914 was \$175,043. For the calendar years 1918-1921 imports have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (pounds)..... | | 350,801 | 543,888 | 482,022 |
| Value..... | \$678,974 | \$465,291 | \$650,516 | \$495,517 |

The leading contributing countries were Canada, Argentina, Brazil, and the United Kingdom.

Exports.—None reported.

GENERAL NOTE ON PARAGRAPH.

Suggested changes.—"Or" before "nickel," in line 20, page 192, might be changed to "and" to agree with the "and" before "silver" in line 21. Substitution of a semicolon for the comma before "nickel matte," and omission of "and" in line 20 would separate the matte from the ore.

PARAGRAPH 1629.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1629. Parchment and vellum.

ACT OF 1909.

ACT OF 1913.

PAR. 646. Parchment and vellum
[Free].

PAR. 568. Parchment and vellum
[Free].

PARCHMENT AND VELLUM.

(See Survey M-3.)

Description and uses.—Parchment is the skin of sheep, goats, calves, and other young animals prepared and polished with pumice stone to serve as a material for writing or drawing. Vellum is a fine grade of parchment formerly prepared only from calves, kids, and stillborn lambs, but now the term is applied to any fine grade of parchment. Before the art of paper making was perfected, parchment was one of the most important writing materials. Most ancient manuscripts are on parchment. At present parchment is used to a limited extent for the same purpose, especially for college diplomas, but it is also used in the manufacture of a number of small articles, such as bags, baskets, belts, card cases, pocketbooks, portfolios, and satchels.

Production.—No data available.

Imports of parchment and vellum in 1914 were valued at \$54,800; in later calendar years they have been valued as follows: 1918, \$17,425; 1919, \$49,583; 1920, \$144,113; 1921 (nine months), \$52,062.

Exports.—Not recorded.

PARAGRAPH 1630.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1630. Pearl, mother of, and shells, not sawed, cut, flaked, polished, or otherwise manufactured, or advanced in value from the natural state.

ACT OF 1909.

ACT OF 1913.

PAR. 647. Pearl, mother of, and shells, not sawed, cut, polished, or otherwise manufactured, or advanced in value from the natural state [Free].

PAR. 570. Pearl, mother of, and shells, not sawed, cut, flaked, polished, or otherwise manufactured, or advanced in value from the natural state [Free].

MOTHER-OF-PEARL AND SHELLS, NOT SAWED, ETC.

(See Survey N-21.)

Description and uses.—Mother-of-pearl is the hard, pearly, internal layer of several kinds of shells, especially of pearl oysters, river mussels, and abalone shells. These shells are found in the greatest perfection on the coasts of Ceylon, in the Persian Gulf, and in the Australian seas. Shells of the mollusk have been found in the Mississippi River and tributary streams, and to a small extent in some other American rivers. Mother-of-pearl is used largely in the arts, particularly in inlaid work, knife-handles, and toys, and very largely for buttons.

Production.—Practically all domestic mother-of-pearl is derived from mussel shells in the Mississippi River and its tributaries, and in 1914 amounted to 8,539 tons of shells, valued at \$148,960.

Imports of mother-of-pearl in 1914 were valued at \$1,253,742, and of other shells not sawed, cut, flaked, polished, or otherwise manufactured, at \$572,423. Australia furnished between 50 and 60 per cent. Large amounts are also received from England, French Oceania, and Dutch East Indies. These countries, with the addition of Panama, which is an important source, furnish the greater part of the supply of other shell. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-------------|-------------|-------------|------------------|
| Mother-of-pearl: | | | | |
| Quantity (pounds)..... | | 5,772,977 | 7,629,951 | 2,191,780 |
| Value..... | \$1,741,666 | \$1,669,904 | \$2,460,677 | \$1,475,478 |
| Other shells: | | | | |
| Quantity (pounds)..... | | 2,195,821 | 1,020,839 | 220,725 |
| Value..... | \$286,900 | \$494,528 | \$272,663 | \$61,333 |

Exports consist of the native fresh-water pearl shells, and in 1914 were valued at \$164,559. Germany was the leading purchaser. England, Canada, and France also took large quantities, and were the chief purchasers in later years. The total exports by calendar years were as follows: 1918, \$113,859; 1919, \$574,575; 1920, \$412,045; 1921 (nine months), \$206,586.

PARAGRAPH 1631.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1631. Personal effects, not exceeding \$300 in value, not merchandise, of citizens of the United States dying in foreign countries.

ACT OF 1909.

ACT OF 1913.

PAR. 648. Personal effects, not merchandise, of citizens of the United States dying in foreign countries [Free].

PAR. 571. Personal effects, not merchandise, of citizens of the United States dying in foreign countries [Free].

PERSONAL EFFECTS OF DECEASED CITIZENS.

Imports of personal effects of citizens of the United States dying in foreign countries are combined in the trade statistics with household furniture, wearing apparel, tools of trade, etc., of immigrants. In 1914 their value was \$5,019,950. More than half was from Canada; the remainder largely from England, France, and Germany. For later calendar years they were as follows: 1918, \$3,972,564; 1919, \$8,447,404; 1920, \$10,949,525; 1921 (nine months), \$6,264,609. With the exception of Germany, the countries from which these articles came were as above.

Important changes in classification.—The limitation to \$300 is new.

PARAGRAPH 1632.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1632. Phosphates, crude, and apatite.

ACT OF 1909.

ACT OF 1913.

PAR. 651. Phosphates, crude [Free].

PAR. 574. Phosphates, crude [Free].

PAR. 495. Apatite [Free].

PAR. 401. Apatite [Free].

PHOSPHATES, CRUDE.

(See Survey FL-5.)

Description and uses.—Crude phosphates are phosphate rocks consisting principally of calcium phosphate. They occur in rock formations of various forms, such as hard rock in beds between layers of sandstone, shale, or other sedimentary rocks; as pebbles in stream deposits; and as a residuum from the decomposition of phosphatic limestone and other rocks containing phosphates. Basic slag (par. 1576), obtained from the smelting of iron ore containing phosphorus, is extensively used as a fertilizer. Crude phosphate rock is used principally as a fertilizer either directly with no further treatment than grinding, or changed to the acid phosphate by treatment with sulphuric acid or by some other means.

Production.—The United States produces more crude phosphate than any other country, northern Africa (including Tunis, Algeria, and Egypt) ranking second. Florida yields the greater part of our output. The total domestic production for 1910-14, inclusive, averaged a little less than 3,000,000 long tons, but fell off somewhat during the war on account of decreasing exports to Europe. The output (phosphate rock sold) in 1918 was 2,490,760 long tons, valued at \$8,214,463; in 1919, 2,271,983 long tons, and in 1920, 4,103,982 long tons, valued at \$25,079,572.

Imports of crude phosphates have been less than 1 per cent of production and decreased from 23,551 long tons in 1914 to 6 tons in 1918. There were no imports during the calendar years 1918 and 1919; in 1920 there were 63 tons, valued at \$2,090 and for nine months of 1921, 3,535 tons, valued at \$43,960.

Exports amounted to 1,477,871 long tons, valued at \$10,617,835, in 1914, but sharply declined to 269,364 long tons, valued at \$1,742,697, in 1915. Later exports of phosphate rock by calendar years are shown as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-----------|-------------|-------------|---------------------|
| High-grade hard rock: | | | | |
| Quantity (tons)..... | 57,771 | 215,039 | 344,896 | 149,380 |
| Value..... | \$445,419 | \$2,261,852 | \$4,496,457 | \$2,160,799 |
| Land pebble: | | | | |
| Quantity (tons)..... | 64,559 | 128,860 | 693,355 | 405,195 |
| Value..... | \$303,758 | \$904,308 | \$5,593,814 | \$3,571,149 |
| All other: | | | | |
| Quantity (tons)..... | 21,125 | 734,832 | 31,461 | 3,831 |
| Value..... | \$163,308 | \$401,622 | \$479,904 | \$72,018 |

Exports of "high-grade hard rock" have been chiefly to Germany, Denmark, and Belgium, and of "land pebble" to England, Spain, and Scotland.

APATITE.

(See Survey FL-5.)

Description and uses.—Apatite is a naturally occurring crystalline mineral consisting of calcium phosphate combined with calcium fluoride, chloride, or carbonate, sold on a basis of 75 to 80 per cent of calcium phosphate. It is usually treated with sulphuric acid to form "superphosphate" for fertilizer purposes, but has certain objections which favor the use of other phosphate materials.

Production.—The chief deposits of apatite are located in Canada and Spain. Domestic production data are not available.

Imports of apatite in 1913 were 2,930 tons, valued at \$22,535. Data are not shown from 1914 to 1918 (fiscal years). Imports since 1918 have been small; the maximum was 142 tons in the calendar year 1920.

Exports.—Statistics not available.

PARAGRAPH 1638.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1633. Plants, trees, shrubs, roots, seed cane, seeds, and other material for planting, imported by the Department of Agriculture or the United States Botanic Garden.

ACT OF 1909.

ACT OF 1918.

PAR. 652. Plants, trees, shrubs, roots, seed cane, and seeds, imported by the Department of Agriculture or the United States Botanic Garden [Free].

PAR. 577. Plants, trees, shrubs, roots, seed cane, and seeds, imported by the Department of Agriculture or the United States Botanic Garden [Free].

PLANTS, TREES, ETC., IMPORTED BY THE DEPARTMENT OF AGRICULTURE, ETC.

Description and uses.—The materials here included represent plants, trees, seeds, etc., brought in by the Government for experiment and study, and cover a wide range of plant material.

Imports of plants, trees, shrubs, roots, seed cane, and seeds were valued at \$32,000 in 1914, and at \$47,643 in 1915. Imports since 1917 by calendar years have been valued as follows: 1918, \$5,781; 1919, \$4,334; 1920, \$5,685; 1921 (nine months), \$7,554.

Exports.—None.

Important changes in classification.—This provision has been extended to "other material for planting."

PARAGRAPH 1634.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1634. Platinum, unmanufactured or in ingots, bars, plates, not less than one-eighth of one inch in thickness, sponge, or scrap.

ACT OF 1909.

ACT OF 1918.

PAR. 653. Platinum, unmanufactured or in ingots, bars, plates, * * * sponge, or scrap, * * * [Free].

PAR. 578. Platinum, unmanufactured or in ingots, bars, plates, * * * sponge, or scrap, * * * [Free].

PLATINUM.

(See Survey FL-20.)

Description and uses.—The crude mineral called platinum is frequently alloyed with iridium, rhodium palladium, and iron or other metals. In this country the metal is produced mainly from the residue obtained in refining gold and silver bullion and copper and nickel mattes. It is now of great industrial and military importance and is practically indispensable in the chemical industry. Some of its important uses are in the contact process of making concentrated sulphuric acid, in the delicate parts of the ignition system of inter-

nal-combustion engines, in instruments of precision, in photographic paper, in dentistry, and for jewelry.

Production of crude platinum was 450 troy ounces, valued at \$20,250, in 1914, and 710 troy ounces, valued at \$35,490, in 1916. California and southwestern Oregon are the principal sources in this country. The domestic output in 1914 was less than 1 per cent of total net imports of platinum and its manufactures. Known deposits do not indicate that the United States will ever produce a substantial part of the platinum supply. World production is small and steadily declining. In 1914 Russia produced 241,200 troy ounces, or 92.57 per cent of the world's total; Colombia, 17,500 troy ounces, or 6.72 per cent; all other countries, 1,848 troy ounces, or 0.71 per cent. In 1916 Russia supplied but 63,900 troy ounces, or 71.05 per cent; Colombia, 25,000 troy ounces, or 27.80 per cent; and all other countries, 1,032 ounces, or 1.15 per cent. The Russian output, even prior to the political disturbances in that country, was decreasing owing to the gradual exhaustion of the mines. In the United States the metal is derived largely from the residues obtained in the refining of gold, silver, copper, and nickel. Reports from refiners to the Geological Survey indicate a recovery from these sources of 36,015 troy ounces of the metal in 1920.

Imports of unmanufactured platinum were 38,953 troy ounces, valued at \$1,418,280, in 1914; 47,669 ounces, valued at \$4,245,334, in the fiscal year 1918. Imports of platinum manufactured into ingots, bars, plates, sheet and wire, sponge, or scrap were 54,932 ounces, valued at \$2,444,951, in 1914; 3,093 ounces, valued at \$261,906, in the fiscal year 1918. Imports of vases, retorts, and other apparatus, vessels and parts of, composed of platinum, for chemical uses were valued at \$82,000 in 1914 and at \$2,530 in the fiscal year 1918. Total imports of platinum and manufactures of platinum, including a small quantity of ore, were valued at \$3,982,708 in 1914, and at \$4,578,812 in the fiscal year 1918. In 1914 the chief sources of our unmanufactured platinum, in order, were Germany, Colombia, and the United Kingdom; in 1918, Colombia and Russia in Asia. More recently supplies have come mainly from Colombia, because of the fact that Russia, owing to her political situation, almost ceased production. Imports of the manufactured forms included under this designation were derived in 1914 from Germany, France, and the United Kingdom, but since the war the United Kingdom has been the main source. The statistics for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|------------------|
| Platinum, unmanufactured: | | | | |
| Quantity (ounces, troy)..... | 45,665 | 47,774 | 56,671 | 30,738 |
| Value..... | \$4,134,181 | \$4,540,485 | \$5,936,719 | \$2,035,633 |
| Platinum, ingots, bars, plates, sheets, etc., sponge, and scrap: | | | | |
| Quantity (ounces, troy)..... | 9,130 | 6,603 | 23,148 | 11,598 |
| Value..... | \$905,015 | \$672,956 | \$2,423,631 | \$622,636 |

Exports are small, and those of unmanufactured platinum amounted in 1914 to 273 troy ounces, valued at \$12,977. Practically all of this export went to Canada. Exports of manufactured platinum in 1914 were valued at \$71,172, of which about 75 per cent went to Canada. In later calendar years exports have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|----------|----------|-----------|------------------|
| Platinum, unmanufactured: | | | | |
| Quantity (troy ounces)..... | 119 | 610 | 1,302 | 3,172 |
| Value..... | \$13,511 | \$75,056 | \$177,115 | \$235,872 |
| Platinum, manufactures of, (value)..... | \$23,562 | \$54,529 | \$111,014 | \$63,184 |

The unmanufactured platinum went largely to Canada, Japan, and the United Kingdom.

Important changes in classification.—In H. R. 7456 platinum unmanufactured or in ingots, bars, and plates, not less than one-eighth of an inch in thickness, sponge or scrap, are retained on the free list; but platinum one-eighth of an inch in thickness or less, and in the forms of sheets and wire and vases, retorts, and other apparatus, vessels and parts thereof, composed of platinum for chemical uses, are omitted from this paragraph and therefore transferred to the dutiable list.

Suggested changes.—“Sheets” are omitted.

Page 193, line 9, of H. R. 7456: Insert “or” between “bars” and “plates.”

Page 193, line 10, of H. R. 7456: Change “or” to “and” between “sponge” and “scrap.”

PARAGRAPH 1635.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1635. Potassium chloride or muriate of potash, potassium sulphate, kainite, wood ashes and beet-root ashes, and all crude potash salts not specially provided for: *Provided*, That for a period of five years beginning on the day following the passage of this Act there shall be levied, collected, and paid, on the actual potash (potassium oxide) content of all the foregoing, a duty of $\frac{3}{4}$ cents per pound for the first two years; 2 cents per pound for the third year; $1\frac{1}{4}$ cents per pound for the fourth year; and 1 cent per pound for the fifth year: *Provided further*, That thereafter the said potash content shall be free of duty.

ACT OF 1909.

PAR. 655. Potash, crude, or “black salts;” * * * sulphate of potash, crude or refined, and muriate of potash [Free].

PAR. 604. Kyanite, or cyanite, and kainite [Free].

PAR. 502. Ashes, wood and lye of, and beet-root ashes [Free].

ACT OF 1913.

PAR. 580. Potash: Crude, or “black salts;” * * * sulphate of; * * * and muriate of [Free].

PAR. 525. Kyanite, or cyanite, and kainite [Free].

PAR. 407. Ashes, wood and lye, and beet-root ashes [Free].

POTASSIUM CHLORIDE (MURIATE OF POTASH)

(See Survey A-16.)

Description and uses.—Potassium chloride is known commercially as muriate of potash. When pure it is a white crystalline solid readily soluble in water. It occurs as sylvite (or sylvine) and also as carnalite, a mixed chloride of potassium and magnesium, in the Stassfurt and other salt deposits of Europe. Large quantities are made from Stassfurt carnalite, and it is also obtained from kelp and the liquors left from the manufacture of salt from sea water. The chief use of the crude substance is as a fertilizer. It is also a crude material in the preparation of caustic potash and potassium chlorate by the electrolytic process.

Production.—Some potassium chloride has been produced here since the war. In 1918, 30,127 tons of the crude salt were obtained, and in addition 6,559 tons of low-grade potassium chloride.

Imports in 1914 were 234,855 tons, valued at \$7,925,781, decreasing to 606 tons in 1917 and to 596 tons in 1918. Previous to 1916 imports were almost entirely from Germany, in 1917 mostly from Japan and Scotland. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|------------|-------------|
| | Tons. | | |
| 1918..... | 379 | \$102,109 | \$269.42 |
| 1919..... | 20,716 | 1,783,916 | 86.11 |
| 1920..... | 121,602 | 12,703,858 | 104.47 |
| 1921 (9 months)..... | 36,818 | 3,529,914 | 90.44 |

Exports.—Statistics not available.

Important changes in classification.—Provisions are new.

POTASSIUM SULPHATE

(See Survey A-16.)

Description and uses.—Potassium sulphate (pure) forms crystals which are soluble in water and have a bitter taste. It is used principally in the crude form as a fertilizer; also in making potassium carbonate by the Leblanc process, in potash alum, and by glassworks. It is manufactured largely from crude German potash salts; also by heating potassium chloride with sulphuric acid, hydrochloric acid being produced at the same time.

Production of sulphate of potash was 6,672 tons of the crude salt in 1918 and 4,882 tons in 1919.

Imports.—Formerly the supply came from Germany. Imports in 1914 were 45,139 tons, declining to 661 tons in 1917, mostly from Japan. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|-----------|-------------|
| | Tons. | | |
| 1918..... | 90 | \$15,329 | \$170.32 |
| 1919..... | 1,263 | 188,592 | 149.32 |
| 1920..... | 15,184 | 2,343,431 | 154.33 |
| 1921 (9 months)..... | 4,258 | 385,570 | 90.55 |

Exports.—Statistics not available.
Important changes in classification.—Provisos are new.

KAINITE.

(See Survey A-16.)

Description and uses.—Kainite, a complex salt consisting of sulphate of potash, the sulphate and chloride of magnesia, and water of crystallization, is a natural mineral found abundantly in Europe. It is used in the crude state (ground) as a fertilizer.

Production.—All of the domestic supply is imported.

Imports of kainite have been almost entirely from Germany—in 1914, 526,112 tons, valued at \$2,579,619; in 1916 only 64 tons. Imports since 1918 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|-----------|-------------|
| | Tons. | | |
| 1919..... | 53,274 | \$921,431 | \$17.97 |
| 1920..... | 372,019 | 8,812,621 | 22.08 |
| 1921 (9 months)..... | 63,589 | 1,549,122 | 25.18 |

Exports.—Statistics not available.
Important changes in classification.—Provisos are new.

WOOD ASHES.

(See Survey A-16.)

Description and uses.—Wood ashes become of commercial importance only where there are extensive forests and large sawmills, where the wood waste is burned for fuel at the mills and the ashes are sold. Wood ashes are sometimes used directly as a fertilizer on account of their potash and phosphorus content. The lye obtained by leaching is strongly caustic. It is used in the making of soap or is boiled down and crude potash salts obtained. Beet-root ashes are also sometimes used as a fertilizer.

Production.—During the war there was a revival of the wood-ashes industry, owing to the shortage of potash. The output from this source in 1919 was 358 short tons of actual potash, valued at \$202,714.

Imports of wood ashes have varied in value from \$27,884 in 1914 to \$55,226 in 1917, and \$47,932 in 1918, since which time statistics are not available.

Exports.—Statistics not available.
Important changes in classification.—Provisos are new.

PARAGRAPH 1636.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1636. Potassium cyanide.

ACT OF 1909.

ACT OF 1913.

PAR. 64. * * * cyanide of potassium, twelve and one-half per centum ad valorem.

PAR. 580. Potash: * * * cyanide of; * * * [Free].

POTASSIUM CYANIDE.

(See Survey A-18.)

Description and uses.—Potassium cyanide is a white crystalline solid, readily soluble in water, and extremely poisonous. Sodium cyanide, much cheaper and having a higher percentage of cyanide, has practically replaced potassium cyanide, which is made either by fusing potassium ferrocyanide with potassium carbonate and carbon, or by fusing cyanamid with potassium chloride and carbon. Its principal use is for the extraction of gold and silver from their ores; also for fumigation (notably that of citrus fruits), as a solvent for electroplating baths, and as a flux in assaying and metallurgy.

Production.—Separate figures are not available, but before the war the domestic output did not supply the demand. While imports were cut off, the demand was supplied by the production of sodium cyanide instead of potassium cyanide.

Imports prior to 1913 averaged more than 2,000,000 pounds (over 90 per cent coming from Germany), declining to a minimum of about 44,000 pounds in 1916. In 1917 the imports were mostly from Japan. Imports since 1917 are shown below:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 24,280 | \$10,278 | \$0.42 |
| 1919..... | 1,176,845 | 68,848 | .06 |
| 1920..... | 14,443,887 | 1,088,247 | .07 |
| 1921 (9 months)..... | 3,596,798 | 304,358 | .08 |

Exports.—Statistics not available.

Suggested changes.—See Sodium cyanide, paragraph 1654, p. 1435.

PARAGRAPH 1637.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1637: Professional books, implements, instruments, and tools of trade, occupation, or employment in the actual possession of persons emigrating to the United States owned and used by them abroad, not exceeding \$250 in value; but this exemption shall not be construed to include machinery or other articles imported for use in any manufacturing establishment, or for any other person or persons, or for sale, nor shall it be construed to include theatrical scenery, properties, and apparel; but such articles brought by proprietors or managers of theatrical exhibitions arriving from abroad, for temporary use by them in such exhibitions, and not for any other person, and not for sale, and which have been used by them abroad, shall be admitted free of duty under such regulations as the Secretary of the Treasury may prescribe; but

H. R. 7456.

SENATE AMENDMENTS.

bonds shall be given for the payment to the United States of such duties as may be imposed by law upon any and all such articles as shall not be exported within six months after such importation: *Provided*, That the Secretary of the Treasury may, in his discretion, extend such period for a further term of six months in case application shall be made therefor.

ACT OF 1909.

PAR. 656. Professional books, implements, instruments, and tools of trade, occupation, or employment, in the actual possession at the time of arrival, of persons emigrating to the United States; but this exemption shall not be construed to include machinery or other articles imported for use in any manufacturing establishment, or for any other person or persons, or for sale, nor shall it be construed to include theatrical scenery, properties, and apparel; but such articles brought by proprietors or managers of theatrical exhibitions arriving from abroad, for temporary use by them in such exhibitions, and not for any other person, and not for sale, and which have been used by them abroad, shall be admitted free of duty under such regulations as the Secretary of the Treasury may prescribe; but bonds shall be given for the payment to the United States of such duties as may be imposed by law upon any and all such articles as shall not be exported within six months after such importation: *Provided*, That the Secretary of the Treasury may, in his discretion, extend such period for a further term of six months in case application shall be made therefor.

ACT OF 1913.

PAR 582. Professional books, implements, instruments, and tools of trade, occupation, or employment in the actual possession of persons emigrating to the United States owned and used by them abroad; but this exemption shall not be construed to include machinery or other articles imported for use in any manufacturing establishment, or for any other person or persons, or for sale, nor shall it be construed to include theatrical scenery, properties, and apparel; but such articles brought by proprietors or managers of theatrical exhibitions arriving from abroad, for temporary use by them in such exhibitions, and not for any other person, and not for sale, and which have been used by them abroad, shall be admitted free of duty under such regulations as the Secretary of the Treasury may prescribe; but bonds shall be given for the payment to the United States of such duties as may be imposed by law upon any and all such articles as shall not be exported within six months after such importation: *Provided*, That the Secretary of the Treasury may, in his discretion, extend such period for a further term of six months in case application shall be made therefor.

PROFESSIONAL BOOKS, IMPLEMENTS, ETC., OF IMMIGRANTS.

Import statistics are combined with those for personal effects of citizens of the United States dying in foreign countries. They are shown under paragraph 1631, page 1409.

Important changes in classification.—The limitation to \$250 is new.

PARAGRAPH 1638.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1638. Pulu.

ACT OF 1909.

ACT OF 1913.

PAR. 657. Pulu [Free].

PAR. 583. Pulu [Free].

PULU.

Description and uses.—Pulu, or vegetable silk, is the soft, elastic, hairlike, yellowish brown scale found on the upper part of the stem and at the base of the leaves (frond stalks) of a certain tree fern, which grows chiefly in the Hawaiian Islands. It is used for stuffing mattresses, cushions, etc., and is never spun.

Imports.—The only imports recorded since 1913 were in 1919, when they amounted to 24 tons, valued at \$4,920.

Suggested changes.—Pulu is a minor fiber and imports are so small that no reason is apparent for a separate paragraph. Without specific mention pulu would come within paragraph 1575, which provides for grasses and fibers not specially provided for.

PARAGRAPH 1639.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1639. Quinine sulphate and all alkaloids and salts of alkaloids derived from cinchona bark.

ACT OF 1909.

ACT OF 1918.

PAR. 658. Quinia sulphate of and all alkaloids or salts of cinchona bark [Free].

PAR. 584. Quinia sulphate of, and all alkaloids or salts of cinchona bark [Free].

QUININE AND OTHER CINCHONA ALKALOIDS.

(See Survey FL-2.)

Description and uses.—Quinine or quinia, the principal alkaloid of cinchona bark, is one of the most important medicinal articles. Quinine sulphate (sulphate of quinia) is the most widely used among some 50 salts of quinine. Other alkaloids in the bark are quinidine, cinchona, and cinchonidine. Recent extensive use in certain proprietary preparations has increased their importance.

Production.—Quinine is prepared from cinchona bark in Java, India, the principal European countries, and America. Java, the chief source, is a Dutch dependency, and exportation of cinchona bark is restricted to Holland. The processes of manufacture are varied, but generally the alkaloids are liberated by treating the ground bark with soda or lime and subsequently extracting with a suitable solvent. The details of the processes are guarded as trade secrets. Only two domestic firms manufacture quinine on a commercial scale, and statistics are not available. The total alkaloids in cinchona bark run from about 5 per cent to occasionally 7 per cent. The 10-year average import (3,444,008 pounds) would, therefore, be equivalent to about 2,750,000 ounces of alkaloids, of which 2,000,000 ounces may be reckoned as quinine. These figures may be somewhat in excess of the actual amount, for considerable quantities of cinchona bark are used for other purposes.

Imports of quinine for 1909-1918 averaged 1,855,193 ounces, valued at \$451,469, while imports of cinchonidine averaged 146,617 ounces,

valued at \$20,239. All other alkaloids and salts averaged 375,533 ounces, valued at \$80,890. Imports since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|--|----------------|-------------|-------------|
| QUININE SULPHATE. | | | |
| | <i>Ounces.</i> | | |
| 1918..... | 1,987,333 | \$1,067,766 | \$0.54 |
| 1919..... | 2,299,285 | 1,426,912 | .62 |
| 1920..... | 3,605,521 | 2,421,961 | .68 |
| 1921 (9 months)..... | 753,288 | 508,129 | .67 |
| CINCHONIDINE. | | | |
| 1918..... | 131,272 | \$28,360 | \$0.22 |
| 1919..... | 35,000 | 15,290 | .44 |
| 1920..... | 12,032 | 42,093 | .34 |
| 1921 (9 months)..... | 8,048 | 4,590 | .57 |
| ALL OTHER ALKALOIDS OF CINCHONA BARK. | | | |
| 1918..... | 320,889 | \$197,810 | \$0.62 |
| 1919..... | 1,614,604 | 190,230 | .12 |
| 1920..... | 1,454,436 | 556,213 | .28 |
| 1921 (9 months)..... | 1,293,270 | 174,150 | .14 |

Exports.—Statistics not available.

Important changes in classification.—The phrase “derived from” has been inserted, as there are no “salts of cinchona bark” as provided for in paragraph 584, act of 1913. (Reclassification Report, p. 121.)

PARAGRAPH 1640.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1640. Radium, and salts of, and radioactive substitutes.

ACT OF 1909.

ACT OF 1913.

PAR. 659. Radium [Free].

PAR. 585. Radium and salts of, radioactive substitutes * * * [Free].

RADIUM.

(See Survey FL-22.)

Description and uses.—Radium is a metallic element formed by the disintegration of uranium, and is therefore always present in minute amounts in uranium ores, the source of radium. The largest known deposits of uranium ore are in the United States. Radium is never employed as a metal, but always in the form of its compounds. The principal uses are in luminous paints, and for therapeutic purposes, especially the treatment of cancer. As the ratio of radium to uranium in any ore is only about 1 to 3,000,000, and as most uranium ores are low grade, the amount of radium that can be obtained from 1 ton of ore is extremely small. Uranium ore in sufficient quantity to be of commercial value occurs only in a few localities.

Production.—The United States produces more radium than all other countries combined. Data for separate years are difficult to

obtain; but domestic production in 1918 was between 21 and 22 grams in the form of salts of high purity. This was much the greatest production for any single year.

Imports were largest in 1914, valued at \$59,816, nearly 90 per cent from Germany. No imports are shown for 1918. Subsequent imports are combined with those of radioactive substances.

RADIOACTIVE SUBSTITUTES.

(See Survey FL-22.)

Description and uses.—The only known substitute for radium is mesothorium, obtained as a by-product in the manufacture of thorium nitrate. It can be very satisfactorily substituted for radium in luminous paints and to a limited extent therapeutically.

Production is quite small, but at least two companies have begun its preparation as a by-product in the manufacture of thorium nitrate for gas mantles. Data are as yet not available, but the production of mesothorium never can be very great.

Imports of radium, salts of, and radioactive substances since 1917 are shown below.

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|--------|-------------|
| | <i>Grains.</i> | | |
| 1918..... | 10 | \$274 | \$27.40 |
| 1919..... | 13 | 11,651 | 896.23 |
| 1921 (9 months)..... | 807 | 3,027 | 3.75 |

Exports.—Statistics are not available.

PARAGRAPH 1641.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1641. Rag pulp; paper stock, crude, of every description, including all grasses, fibers, rags, waste, including jute, hemp and flax waste, shavings, clippings, old paper, rope ends, waste rope, and waste bagging, and all other waste not specially provided for, including old gunny cloth, and old gunny bags, used chiefly for paper making, no longer suitable for bags.

ACT OF 1909.

ACT OF 1913.

PAR. 644. Paper stock, crude, of every description, including all grasses, fibers, rags (other than wool), waste, including jute waste, shavings, clippings, old paper, rope ends, waste rope, and waste bagging, and all other waste not specially provided for in this section, including old gunny cloth and old gunny bags, used chiefly for paper making [Free].

PAR. 566. Paper stock, crude, of every description, including all grasses, fibers, rags, waste, including jute, hemp and flax waste, shavings, clippings, old paper, rope ends, waste rope, and waste bagging, and all other waste not specially provided for in this section, including old gunny cloth and old gunny bags, used chiefly for paper making [Free].

PAR. 649. * * * rag pulp [Free].

RAG PULP.

(See Survey FL-38.)

Description and uses.—Rag pulp is essentially a mass of cellulose fibers obtained from rags. Before the process of manufacturing pulp from wood was discovered it was the most important raw material for manufacturing paper and is still important, especially for the better grades, such as bond, ledger, and writing paper, and even some of the higher grades of printing paper. The process of manufacturing rag pulp involves the collection, sorting, cleaning, and shredding of the rags. They are boiled with milk of lime or caustic soda and treated in a "rag engine" or "Hollander," after which the pulp is ready to be manufactured into paper.

Production.—The manufacture of rag pulp is not carried on as a separate industry. Paper manufacturers using rag pulp produce it as a part of the continuous process of paper making. Some idea of the importance of rag pulp may be gathered from the quantity and value of rags consumed, which in 1914 amounted to 361,667 tons, valued at \$12,151,288, or about 6.8 per cent of all paper stock consumed.

Imports of rag pulp in 1918, calendar year, were 139,469 pounds, valued at \$1,557. In 1919 they were 262,987 pounds with a value of \$5,611. No later statistics are given.

Exports are not recorded.

Important changes in classification.—In the act of 1913 rag pulp is admitted free of duty by paragraph 649 in connection with wood pulp of all kinds. In H. R. 7456 it is still admitted free of duty but is associated in paragraph 1641 with paper stock of all kinds.

PAPER STOCK.

(See Survey M-4.)

Description and uses.—The tariff wording is self-explanatory. It is not possible to make a thorough differentiation according to the kinds of finished paper into which paper stock enters, for almost every kind of paper employs a great variety of raw materials.

The principal kind of grass used is esparto grass, imported from Spain and Algeria. This grass makes a high-grade, light, fluffy, book paper. It is little used in the United States, however, being consumed principally in the United Kingdom. Other kinds of grass, such as saw grass from Florida, are of minor importance. There is probably no grass in existence that could not be made into paper, if sufficient energy were expended on it; but most grasses yield too little cellulose to be commercially useful as paper-making material. "Fibers" is a general term applicable to anything of a fibrous texture. It should be emphasized, however, that except for some asbestos and negligible quantities of other fibers only vegetable fibers are used. Rags enter into almost all kinds of paper except newsprint, wrapping, and hanging paper, although certain grades of a great many other kinds of paper contain no rags. They are not always absent from the kinds of paper mentioned. The best rags are new linen cuttings, although new cotton cuttings make

an excellent quality of paper. New linen and cotton cuttings have their most important use in making the best qualities of writing, bond, and ledger paper. Old rags of light color which have been carefully sorted and cleaned are much used in making writing paper, book paper, tissue paper, and all sorts of specialties. Heavy, coarse, colored rags are one of the important constituents of sheathing paper, roofing felt, and other coarse, heavy papers, and are used to some extent in making paper boards. Woolen rags are not used. Waste of jute, hemp, and flax and waste bagging and gunny cloth are often employed to make a heavy, strong paper; for instance, manila wrapping paper. Old paper enters into paper of all kinds. Ninety per cent of paper boards are made of waste paper. A good deal is used in making building papers and felts and cheap wrapping paper. Waste paper is used, usually in small proportion, in making book paper and other papers of relatively high quality. Considerable quantities of straw are consumed in the manufacture of paper board, and also to some extent in making certain kinds of paper. Straw-board manufacture is in Holland a definitely developed industry.

Production and consumption.—There can hardly be said to be an industry producing paper stock. Paper stock is either a waste product or a by-product, except in certain minor instances. The principal processes in the preparation of paper stock are the concentration in central places of waste material from localities throughout the country, baling or bagging it, and transporting it to the consumer. In 1914 the following amounts of paper stock were consumed in the United States: Old or waste paper, 151,000 tons, valued at \$19,161,000; rags, 362,000 tons, valued at \$12,151,000; manila stock, 121,000 tons, valued at \$4,046,000; straw, 308,000 tons, valued at \$1,676,000.

Imports of these various fibers, grasses, and wastes amounted in 1914 to 294,121,145 pounds, valued at \$4,667,156. The chief sources are Germany, the United Kingdom, British India, Belgium, France. Imports for the calendar years 1918–1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|------------------|
| Rags, other than woolen: | | | | |
| Quantity (pounds)..... | 3,785,878 | 94,608,067 | 273,007,172 | 71,246,116 |
| Value..... | \$142,574 | \$3,180,767 | \$9,719,968 | \$1,353,863 |
| Grasses, fibers, waste, including jute, hemp, etc.: | | | | |
| Quantity (pounds)..... | 71,370,117 | 77,586,204 | 159,496,488 | 57,774,211 |
| Value..... | \$1,996,690 | \$2,623,934 | \$6,783,558 | \$1,342,325 |
| Waste bagging, old gunny, cloth and gunny bags, waste of plain-woven fabrics of single jute yarn, etc.: | | | | |
| Quantity (pounds)..... | 16,618,589 | 47,964,766 | 76,966,489 | 14,783,180 |
| Value..... | \$623,148 | \$1,374,383 | \$2,008,170 | \$224,883 |

Exports during the calendar years 1918–1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|-------------|-------------|------------------|
| Quantity (pounds)..... | 32,241,306 | 54,541,861 | 84,666,468 | 25,481,307 |
| Value..... | \$670,342 | \$1,533,013 | \$2,718,929 | \$494,102 |

Important changes in classification.—The words "no longer suitable for bags" have been added in order to prevent free importation of bags still usable as containers. The provision for "rags not otherwise specially provided for" (par. 586, act of 1913) has been omitted.

Suggested changes.—Page 195, line 4 of H. R. 7456: Insert "and" before "no".

PARAGRAPH 1642.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1642. Rennet, raw or prepared.

ACT OF 1909.

ACT OF 1913:

PAR. 662. Rennets, raw or prepared
[Free].

PAR. 588. Rennets, raw or prepared
[Free].

RENNET.

(See Survey PL-45.)

Description and uses.—The rennet extracts of commerce are preparations from the stomachs of unweaned calves (also of various other animals). Such extracts contain rennet in dilute and impure form. The chemical ferment contained in rennet is prepared in more concentrated state in the form of tablets or powders. Rennet is valuable because of its property of curdling milk, which makes possible the manufacture of many kinds of cheese.

Production.—Statistics not available.

Imports of rennet, raw and prepared, in 1918 were valued at \$62,173, one-half from Denmark, the rest from Sweden, Canada, and Spain. There was a considerable decrease during the war, the average value for 1911-1915 being \$114,809. Before the war Denmark was first and Germany second in exportation to this country. Imports after 1917 are shown as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$78,590 | |
| 1919..... | 102,686 | 146,542 | \$1.43 |
| 1920..... | 213,532 | 141,266 | .66 |
| 1921 (9 months)..... | 37,592 | 13,468 | .35 |

Exports.—Statistics not available.

Important changes in classification.—"Rennet" and not "rennets" is the proper usage.

PARAGRAPH 1643.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1643. Rice cleaned for use in the manufacture of canned foods.

ACT OF 1909.

ACT OF 1913.

[No corresponding provision.]

[No corresponding provision.]¹³

¹³ Dutiable at 1 cent per pound, par. 9, emergency tariff act of 1921.

RICE, CLEANED, ETC.

(See Survey G-5.)

Description, uses, and production.—It is asserted by some manufacturers of canned foods that domestic rices are not satisfactory for certain canned foods, notably soups, because of disintegration under high steam pressure, and that Patna rice, grown largely in the Province of Bengal, is the most desirable for this purpose. Since 1915, practically no Patna rice has been available and the best grades of domestic rice have been used.

Imports were not separately stated prior to the passage of the emergency tariff, act of May 27, 1921. Imports for consumption for the period May 27 to September 30, 1921, amounted to 5,612 pounds valued at \$234.

Important changes in classification.—Rice cleaned for use in the manufacture of canned foods was dutiable under par. 193 of the act of 1913 and is dutiable at 1 cent per pound under paragraph 9 of the emergency tariff act of May 27, 1921.

Suggested changes.—The provision, although primarily intended for Patna rice, gives free entry to any form of rice whether of good or poor quality. The term "canned foods" is a broad one. The provision might be replaced with "Patna rice," which is a definite commercial grade.

PARAGRAPH 1644.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1644. Sago, cruda, and sago flour.

ACT OF 1909.

ACT OF 1913.

PAR. 664. Sago, crude, and sago flour
[Free].PAR. 590. Sago, crude, and sago flour
[Free].

SAGO.

(See Survey G-33.)

Description and uses.—The sago is a tropical palm plant produced chiefly in the East Indies. It is not grown in the United States. From the pith of the stem is obtained crude sago, which is further manufactured into sago flour and "pearl sago." Sago flour is made by grating and then kneading over a strainer the pithy trunk of the sago. If the dough or paste is worked through sieves and allowed to fall on hot plates, pearl sago is formed. The sago flour is used for sizing, filling, and finishing textiles, while the "pearl sago" is used almost entirely for food purposes in desserts and specialty dishes. Uses of sago are almost identical with those of tapioca flour.

Imports of sago and sago flour in 1914, mostly from the Straits Settlements and the Dutch East Indies, were 9,970,717 pounds, valued at \$160,924. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|------------|-----------|-----------|---------------------|
| Quantity (pounds)..... | 18,393,647 | 2,900,936 | 4,812,018 | 3,021,709 |
| Value..... | \$593,762 | \$169,198 | \$243,709 | \$73,176 |

In 1920, 80 per cent of the imports of farinaceous substances came from the Dutch East Indies.

PARAGRAPH 1645.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1645. Sea herring and tuna, fresh, frozen, or packed in ice.

ACT OF 1909.

ACT OF 1913.

PAR. 272. * * * herrings, fresh, one-fourth of one cent per pound; * * *.

PAR. 483. * * * all other fish not otherwise specially provided for in this section [Free].

PAR. 273. Fish, fresh, * * * frozen, packed in ice * * * three-fourths of one cent per pound * * *.

SEA HERRING AND TUNA.

Description and uses.—About 90 per cent of the sea herring that form the raw material of the Maine sardine industry is taken in Canadian waters by Canadian fishermen. A large part of the tuna caught in Mexican waters is used in the tuna canning industry of southern California. The domestic output of canned tuna ranks next to canned salmon in quantity and value.

Production statistics are not available.

Imports of herring, fresh, frozen, or packed in ice, amounted in 1913 to 1,327,723 pounds, valued at \$37,718.

Imports of tuna come only from Mexico; they are included in statistics for "all other fish, fresh, frozen, or packed in ice." Later calendar year statistics for imports of herring follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 9,770,251 | 5,627,719 | 8,019,514 | 4,579,851 |
| Value..... | \$278,520 | \$122,874 | \$158,591 | \$106,102 |

Exports.—Not separately stated.

Important changes in classification.—A new provision. The term "sea herring" has been employed to differentiate the salt-water herring (sea herring) from the so-called "Lake herring," the name inappropriately applied to ciscoes, caught in the Great Lakes.

PARAGRAPH 1646.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1646. Selenium, and salts of.

ACT OF 1909.

PAR. 480. * * * articles manufactured, in whole or in part, not provided for in this section * * * twenty per centum ad valorem.

PAR. 3. * * * chemical * * * salts * * * twenty-five per centum ad valorem; * * *.

ACT OF 1913.

PAR. 565. * * * selenium and salts of [Free].

SELENIUM AND SALTS OF SELENIUM.

(See Survey FL-22.)

Description and uses.—Selenium is an element with properties similar to sulphur and usually occurs in copper ores; production is as a by-product of the electrolytic refining of copper. Selenium appears on the market as a black or red amorphous powder, and during 1918 sold for \$2.75 to \$3.75 per pound. Its chief use is as a decolorizer for glass and also, as a substitute for manganese compounds, in the manufacture of ruby glass. The various salts and compounds of selenium are of no commercial importance.

Production since 1916 is given below:

| | 1917 | 1918 | 1919 | 1920 |
|------------------------|----------|-----------|-----------|-----------|
| Quantity (pounds)..... | 39,630 | 103,094 | 69,025 | 97,141 |
| Value..... | \$70,000 | \$378,540 | \$126,986 | \$175,568 |

If the market conditions warranted, the domestic production could be greatly increased.

Imports of selenium and its salts in 1914 were valued at \$372; of this amount 97 per cent came from Germany. The value was \$59 in 1915, \$302 in 1916, and \$2,236 in 1917. Imports in the calendar years since 1918 have been small—114 pounds, valued at \$239, in 1919, and 1,106 pounds, valued at \$2,099, in the first nine months of 1921.

Exports.—Statistics not available.

Important changes in classification.—Selenium and salts have been given a separate paragraph.

PARAGRAPH 1647.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1647. Sheep dip.

ACT OF 1909.

PAR. 669. Sheep dip [Free].

ACT OF 1913.

PAR. 596. Sheep dip [Free].

SHEEP DIP.

(See Survey FL-8.)

Description and uses.—"Sheep dip" is the term used for materials applied to cattle, and in which sheep are dipped to destroy parasites and vermin, such as ticks and lice, or to cure skin diseases, such as scabies. The principal kinds of sheep dip are (1) lime-sulphur solution, which consists of lime combined chemically with sulphur in the form of a polysulphide, for scabies, and, the same materials mixed with arsenical solution, for sheep ticks; (2) nicotine or nicotine sulphate, a by-product of the tobacco industry, made by extracting the nicotine from the stems, etc., and when mixed with lime-sulphur solution, employed for scabies, lice, and ticks; (3) creosote oil (dip oil), obtained from coal tar, and containing from 20 to 25 per cent tar acids mixed with rosin soap, for scabies, lice, and ticks; (4) arsenical dips, mixtures of arsenious sulphide, sodium arsenite, and sulphur, for ticks and other vermin; (5) cresylic acid dip, containing about 50 per cent cresylic acid and a suitable oil, such as linseed or soya-bean oil.

Import values of sheep dip during 1908-1918 averaged \$22,802. Later imports have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------|----------|-------------|
| | Pounds. | | |
| 1918..... | | \$22,536 | ..... |
| 1919..... | 146,803 | 12,346 | 80.08 |
| 1920..... | 70,169 | 5,150 | .07 |
| 1921 (9 months)..... | 59,340 | 8,506 | .15 |

Exports.—Statistics not available.

PARAGRAPH 1648.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1648. Shotgun barrels, in single tubes, forged, rough bored.

ACT OF 1909.

ACT OF 1913.

PAR. 670. Shotgun barrels, in single tubes, forged, rough bored [Free].

PAR. 597. Shotgun barrels, in single tubes, forged, rough bored [Free].

SHOTGUN BARRELS, SINGLE TUBES, FORGED AND ROUGH BORED.

(See Survey C-14.)

Production.—No statistics.

Imports of shotgun barrels in single tubes, forged and rough bored, in 1917 were valued at \$39. In 1914 they aggregated \$171,198 in value, of which amount \$163,861 came from Belgium. Later statistics for calendar years have been as follows:

| | 1919 | 1920 | 1921 (9 months). |
|-------------|----------|-----------|------------------|
| Number..... | 30,667 | 168,202 | 6,666 |
| Value..... | \$37,863 | \$155,094 | \$8,194 |

Exports.—None reported.

Suggested changes.—Gun-barrel molds not in bars, a cruder form than barrels and single tubes, forged, rough bored, are dutiable under paragraph 304 of H. R. 7456.

PARAGRAPH 1649.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1649. Shrimps, lobsters, and other shellfish, fresh, frozen, packed in ice, or prepared or preserved in any manner, and not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 671. Shrimps and other shellfish [Free].

PAR. 598. Shrimps, lobsters, and other shellfish [Free].

SHRIMPS, LOBSTERS, AND OTHER SHELLFISH.

Description and uses.—Included under "other shellfish" are oysters, crabs, clams, scallops, squid, abalone, crawfish, and others of little importance. This paragraph also includes prepared and canned shellfish, not specially provided for.

Production of shellfish amounted to 444,024,000 pounds, valued at \$22,218,000, in 1908 (latest figures available for entire country). The most valuable single product of the world's fisheries, the oyster, in the yield of which America is far in the lead, constituted 52 per cent of the shellfish caught in 1908, and 71 per cent of the total value. In that year 46,593,000 pounds of oysters were used for canning, the product being valued at \$3,428,000. About 70 per cent of the oysters were gathered in Maryland, Virginia, Connecticut, Louisiana, New York, and New Jersey, while about 85 per cent of the canned product was reported by Louisiana, Mississippi, Maryland, South Carolina, and Georgia. In 1908 lobsters represented 3 per cent in amount and 9 per cent in value of the shellfish catch; shrimp, 4 per cent and 2 per cent; crabs, 12 per cent and 4 per cent; and clams, 4 per cent and 9 per cent. Maine reported 65 per cent of the lobster catch; Massachusetts, 16 per cent; and Rhode Island, 9 per cent. The canning of lobster has disappeared under restrictive legislation necessitated by the very rapid diminution of the supply. In 1919 a total of 717,636 cases of oysters, valued at \$3,510,119, were canned in the United States. The canned shrimp product in 1919 amounted to 322,076 cases, valued at \$1,864,793, and canned clams to 157,843 cases, valued at \$772,870.

Imports of shrimps, lobsters, and other shellfish in 1914 were valued at \$2,408,377 and in 1920 at \$6,345,233. In 1920 imports of crab meat were 30 per cent of the total; of canned lobsters, 24 per cent; of lobsters, all other, 45 per cent; and of shrimps and other shellfish, 1.3 per cent. Practically all the lobsters came from Canada, and the crab meat from Japan. About 90 per cent of the shrimp and other shellfish were from Japan, Canada, Hongkong, and Mexico. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-------------|-------------|------------------|
| Lobsters, canned: | | | | |
| Quantity (pounds)..... | 2,491,123 | 1,687,137 | 3,224,761 | 1,321,823 |
| Value..... | \$1,000,545 | \$1,068,418 | \$2,281,627 | \$635,631 |
| Lobsters, all other (except canned): | | | | |
| Quantity (pounds)..... | 4,517,546 | 5,636,050 | 6,193,180 | 7,350,233 |
| Value..... | \$908,712 | \$974,312 | \$1,115,898 | \$1,169,633 |
| Shrimp and other shellfish and turtles, value.. | \$461,128 | \$749,388 | \$821,640 | \$539,107 |

Export values of shellfish increased from \$989,860 in 1914 to \$1,970,171 in 1920; of oysters, from \$666,432 in 1914 to \$871,072 in 1920. "All other shellfish" represent the remainder. About 60 per cent of the oysters went to Canada, while Australia, Argentina, England, and Mexico also took considerable amounts. The United Kingdom's oyster imports declined during the war from about 25 per cent to less than 1 per cent of our exports.

Exports of shellfish for the calendar years 1918-1921 were valued as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-----------|-----------|-----------|------------------|
| Oysters..... | \$413,203 | \$666,004 | \$871,072 | \$363,897 |
| All other shellfish (except oysters)..... | 1,006,681 | 1,307,004 | 1,099,699 | 516,590 |

Important changes in classification.—"Fresh, frozen, packed in ice, or prepared or preserved in any manner, and not specially provided for," is an addition. "Not specially provided for" was inserted to exclude "crab meat," which is provided for in paragraph 722.

PARAGRAPH 1650.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1650. Silk cocoons and silk waste.

ACT OF 1909.

ACT OF 1918.

PAR. 673. Silk cocoons and silk waste
[Free].

PAR. 599. Silk cocoons and silk waste
[Free].

SILK COCOONS.

(See Survey L-1.)

Description and use.—The silk cocoon is the envelope of slender silk filament spun by the silkworm around its own body. Both raw silk (par. 1651) and waste silk are obtained from the cocoon.

Production.—There is no cocoon production here. (See par. 1651, p. 1430). Imports, except those which are occasionally made for scientific purposes, are of pierced or imperfect cocoons unfit for reeling (par. 600) and of value only as silk waste.

Imports, in the fiscal year 1914, were 1,413 pounds, valued at \$1,118. Later imports for calendar years are recorded as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|-----------|-----------|------------------|
| Quantity (pounds)..... | 160,118 | 852,474 | 239,268 | 76,843 |
| Value..... | \$218,152 | \$498,636 | \$314,737 | \$68,991 |

SILK WASTE.

(See Survey L-1.)

Description and use.—Silk waste comprises those pierced or imperfect cocoons, and parts, such as the outer and inner layers, which can not be reeled; also "mill" wastes created in throwing and weaving raw silk. It is used almost wholly in making spun silk yarn (see par. 1202, p. 1011). Under this paragraph come also exhausted noils—that is, short waste silk left over after dressing, or dressing and combing, and which are too short [two inches is taken as the dividing line (Abstract 39083, of 1916) between exhausted and long noils, the latter covered by paragraph 1201], to be redressed or combed. They are employed in making noil yarn on mule spindles for use in wool and silk mixtures and in time of war in making cartridge-bag cloth.

Production.—The only domestic production is that which consists of mill waste, mostly a by-product of throwing, sometimes estimated as one-eighth the quantity of waste imported.

Imports, exclusive of cocoons given above, rose from 5,960,109 pounds, valued at \$3,102,892, in 1914, to 8,552,168 pounds, valued at \$7,148,276 in the fiscal year 1918. Imports for the calendar years 1918–1921 were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|------------------|
| Quantity (pounds)..... | 15,002,445 | 9,795,083 | 5,378,939 | 3,994,996 |
| Value..... | \$13,610,865 | \$12,083,647 | \$15,714,446 | \$3,000,566 |

The extraordinarily large import in the calendar year 1918 was due to the war demand for silk to be used in making cartridge-bag cloth. The large import since that time bespeaks the notable expansion of the spun-silk industry since 1914. The principal source of waste silk now is China, with Japan a close second. The import from France, which until 1912 was the chief source, is small. Our supplies from Europe are derived chiefly from Italy.

Exports are not recorded.

PARAGRAPH 1651.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1651. Silk, raw, in skeins reeled from the cocoon, or reeled, but not wound, doubled, twisted, or advanced in manufacture in any way.

ACT OF 1909.

ACT OF 1913.

PAR. 672. Silk, raw, in skeins reeled from the cocoon, or reeled, but not wound, doubled, twisted, or advanced in manufacture in any way [Free].

PAR. 600. Silk, raw, in skeins reeled from the cocoon, or reeled, but not wound, doubled, twisted, or advanced in manufacture in any way [Free].

RAW SILK.

(See Survey L-1.)

Description and uses.—Raw silk denotes those silk filaments reeled from the cocoon into skeins, and those which have been rereeled. The bulk of silk fabrics and articles is made from raw silk, which is woven directly into fabrics or "thrown" (twisted) into yarn and then woven, knitted, or braided to make fabrics and articles.

Production.—Raw silk is not produced on a commercial scale in the United States. For centuries attempts have been made to produce silk in America, but without permanent success. The raising of cocoons and the reeling of silk require, even under the most advanced methods, a prohibitive amount of tedious work by hand. Even in France, with its cheaper labor, the production of raw silk is declining, notwithstanding Government subsidies; and the still cheaper labor of Italy is failing against oriental competition. Japan and China, with abundance of the cheapest hand labor, are the principal producers.

Imports.—The United States is the largest manufacturer of silk and as this industry expands, imports of raw silk increase. Imports in the fiscal year 1914 were 28,825,828 pounds, valued at \$97,844,150. Imports for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------------|---------------|---------------|------------------|
| Quantity (pounds)..... | 23,839,828 | 44,872,633 | 20,060,129 | 22,978,308 |
| Value..... | \$190,512,311 | \$326,254,265 | \$265,007,474 | \$183,064,264 |

Japan is the main source, followed by China. Imports from European countries are small.

Exports are nil as silk is not raised here.

PARAGRAPH 1652.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1652. Skeletons and other preparations of anatomy.

ACT OF 1906.

ACT OF 1913.

PAR. 675. Skeletons and other preparations of anatomy [Free].

PAR. 602. Skeletons and other preparations of anatomy [Free].

SKELETONS, ETC.

Imports of skeletons and other preparations of anatomy in 1914 were valued at \$15,958, and for later calendar years as follows: 1918, \$3,229; 1919, \$4,291; 1920, \$6,701; 1921 (9 months), \$9,957.

Exports not shown in official statistics.

PARAGRAPH 1653.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1653. Skins of all kinds, raw, and hides not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 676. Skins of all kinds, raw (except sheepskins with the wool on), and hides not specially provided for in this section [Free].

PAR. 603. Skins of hares, rabbits, dogs, goats, and sheep, undressed [Free].

PAR. 604. Skins of all kinds, raw, and hides not specially provided for in this section [Free].

SKINS, RAW, AND HIDES N. S. P. F.

(See Survey FL-19.)

Description and uses.—The principal products embraced in this paragraph are the pelts of the calf, sheep, buffalo, goat, horse, colt, ass, kangaroo, and deer. Calfskins are used chiefly for shoe uppers, upholstery, case, bag, and strap leathers, and, to some extent, for bookbinding and light leathers. Sheepskins are used for shoe linings, gloves, and fancy leathers; goatskins, for shoe uppers, glove, bookbinding, and fancy leathers; and buffalo hides, to make heavy sole leather. Horsehide serves for shoe uppers and heavy glove leather, and coltskin for shoe uppers. Kangaroo skins are used for fine shoe upper leather and deerskins for shoe uppers, glove, and piano-action leather. More of these skins are used in shoes than for any other one purpose. The imported hides and skins are divided into two classes—"dry" and "green or pickled." Pelts taken off in localities remote from favorable means of transportation and in warm climates, often have to be dried to reduce the weight and to prevent deterioration. A 12-pound "dry" hide equals a 25-pound "green or pickled," hide. They must be softened again, however, for tanning.

Production here is about 50 per cent of the calfskins used in domestic tanneries; about 25 per cent of the sheepskins; a very few goatskins, horsehides, and deerskins; and practically no buffalo or kangaroo skins.

Imports.—Russia was the greatest source of supply for hides and skins before the war. Reexports from Europe were large, colonies or protectorates sending them through home countries. The war closed many of these routes and imports from South America, Africa, and Asia increased enormously. Of dry calfskin, in 1913 Russia in Europe supplied \$8,000,000 worth, more than one-half the imports. In 1913 Germany was the leading source of green or pickled calfskins, but European Russia, the Netherlands, France, and Canada were also important, with a total value of \$11,202,956. Of dry goatskins British India was the chief source; of dry sheepskins, European Russia and England; and of green or pickled sheepskins, England.

Other principal imports of hides and skins were: Buffalo hides, principally from British India, valued at \$2,790,009 in 1913; horse, colt, and ass skins in 1913 valued at \$2,234,581, principally from Russia in Europe, and kangaroo skins, almost always exclusively from Australia, valued at \$719,188 in 1913.

Later statistics for calendar years for raw skins of all kinds and hides n. s. p. f. are shown as follows:

| Hides and skins. | 1918 | 1919 | 1920 | 1921 (9 months). |
|--|---------------|---------------|---------------|------------------|
| Buffalo, dry (12 pounds and over): | | | | |
| Quantity (pounds)..... | 5,779,483 | 15,619,738 | 9,483,796 | 1,682,540 |
| Value..... | \$1,537,192 | \$3,463,457 | \$2,721,204 | \$315,919 |
| Buffalo, green or pickled (25 pounds or over): | | | | |
| Quantity (pounds)..... | 1,393,463 | 1,892,149 | 1,759,648 | 102,313 |
| Value..... | \$380,961 | \$511,966 | \$502,168 | \$29,448 |
| Calf, dry: | | | | |
| Quantity (pounds)..... | 5,383,279 | 42,325,190 | 16,902,653 | 9,430,950 |
| Value..... | \$2,175,470 | \$20,914,313 | \$9,979,730 | \$2,383,926 |
| Calf, green or pickled: | | | | |
| Quantity (pounds)..... | 2,093,402 | 22,230,311 | 18,229,633 | 28,647,784 |
| Value..... | \$717,367 | \$12,738,819 | \$9,270,931 | \$5,966,419 |
| Goat, dry: | | | | |
| Quantity (pounds)..... | 53,458,173 | 111,138,387 | 69,869,332 | 39,411,904 |
| Value..... | \$28,626,610 | \$66,837,011 | \$62,410,287 | \$15,429,291 |
| Goat, green or pickled: | | | | |
| Quantity (pounds)..... | 9,057,918 | 22,522,563 | 10,335,304 | 4,540,036 |
| Value..... | \$1,965,306 | \$9,729,448 | \$6,229,955 | \$722,474 |
| Horse, colt, and ass, dry: | | | | |
| Quantity (pounds)..... | 868,742 | 15,973,796 | 5,043,439 | 551,092 |
| Value..... | \$163,003 | \$3,633,399 | \$1,619,774 | \$74,656 |
| Horse, colt, and ass, green or pickled: | | | | |
| Quantity (pounds)..... | 4,128,814 | 12,077,113 | 11,802,968 | 2,848,240 |
| Value..... | \$536,682 | \$3,612,468 | \$2,635,555 | \$245,900 |
| Sheep, dry: | | | | |
| Quantity (pounds)..... | 21,549,713 | 43,560,327 | 29,832,904 | 11,647,179 |
| Value..... | \$7,517,651 | \$21,288,068 | \$17,395,159 | \$2,797,158 |
| Sheep, green or pickled: | | | | |
| Quantity (pounds)..... | 31,422,331 | 41,471,500 | 52,857,541 | 22,829,835 |
| Value..... | \$10,047,914 | \$15,232,461 | \$20,800,980 | \$3,452,908 |
| All other: ¹ | | | | |
| Quantity (pounds)..... | 5,444,532 | 8,538,477 | 8,398,335 | 5,143,710 |
| Value..... | \$2,269,884 | \$3,962,201 | \$4,720,305 | \$888,277 |
| Total hides and skins (including cattle hides and fish skins): | | | | |
| Quantity (pounds)..... | 361,232,399 | 744,689,828 | 510,156,545 | 268,962,272 |
| Value..... | \$107,822,657 | \$306,502,062 | \$248,769,410 | \$51,414,072 |

¹ Except those listed and cattle hides and fish skins.

Of the total imports of all hides and skins in 1920, including cattle hides, Argentina shipped 20 per cent, British India 14 per cent, China 12 per cent, Australia, New Zealand, and British South Africa 10 per cent, and Brazil 8 per cent.

Exports of hides and skins are comparatively small, as we draw on foreign countries for large quantities of raw material for our tanneries. Statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------------|-----------|-------------|-------------|------------------|
| Calfskins. | | | | |
| Quantity (pounds)..... | 2,213,293 | 4,651,335 | 1,139,653 | 4,191,902 |
| Value..... | \$466,512 | \$3,217,625 | \$979,698 | \$574,704 |
| Horsehides: | | | | |
| Quantity (pounds)..... | 51,471 | 467,420 | 655,017 | 112,131 |
| Value..... | \$13,864 | \$135,176 | \$142,706 | \$12,614 |
| All other hides and skins: | | | | |
| Quantity (pounds)..... | 499,148 | 2,605,984 | 4,121,781 | 3,316,308 |
| Value..... | \$215,493 | \$1,252,164 | \$1,619,340 | \$544,601 |

In 1920, 85 per cent of the exports of calfskins and 80 per cent of the exports of horsehides were to Canada. Exports of other hides and skins were to France (32 per cent), England (17 per cent), and Canada (16 per cent).

Important changes in classification.—Paragraph 603 of the act of 1913 for skins of hares, rabbits, dogs, goats, and sheep, undressed, is merged in this paragraph with paragraph 604.

Suggested changes.—It is suggested that if hides and skins be retained on the free list, paragraph 1582 be combined with this paragraph, as follows: "Skins of all kinds, raw, and hides, raw, uncured, or undressed, or dried, salted or pickled, all the foregoing not specially provided for."

PARAGRAPH 1654.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1654. Sodium: Cyanide, nitrate, sulphate, crude, or salt cake, and niter cake.

ACT OF 1909.

PAR. 3. * * * chemical compounds, mixtures and salts * * * twenty-five per centum ad valorem; * * *

PAR. 677. Soda, nitrate of, or cubic nitrate [Free].

PAR. 77. Sulphate of soda, or salt cake, or niter cake, one dollar per ton.

ACT OF 1913.

PAR. 605. Soda, * * * cyanide of, sulphate of, crude, or salt cake and niter cake, * * * nitrate of, or cubic nitrate [Free].

SODIUM CYANIDE.

(See Survey A-18.)

Description and uses.—Cyanide of soda, or sodium cyanide, is a salt of prussic acid, and, taken internally, is very poisonous. It has largely replaced the potassium salt, because cheaper. It is used in the "cyanide process" of extracting precious metals from their ores; in fumigating citrus fruit, raw imported cotton, and grain elevators; in electroplating, especially with gold and silver; and in case-hardening of iron. For fumigating purposes sodium cyanide is on the market in the shape of an egg weighing 1 ounce; the trade name is "Cyanegg."

Production.—Cyanide of soda is produced by the Castner process from metallic sodium, ammonia, and coke; and also by fusing cyanamid (par. 1540) and salt. Prior to 1917 all of the cyanide produced here was by the Castner process, and the output was controlled by a single firm.

Imports were 6,063,659 pounds, valued at \$934,354 in 1915. Imports since 1917 chiefly from Germany, England and Czecho-Slovakia, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 69,279 | \$12,615 | \$0.18 |
| 1919..... | 5,174,831 | 306,426 | .06 |
| 1920..... | 7,590,496 | 1,091,443 | .14 |
| 1921 (9 months)..... | 6,689,498 | 633,219 | .10 |

Exports.—Statistics not available.

Suggested changes.—It has been represented to the Tariff Commission that it would be advisable to classify all cyanides under one paragraph. This suggestion has also been made by a domestic manufacturer during hearings before the Senate Finance Committee. (See pp. 1109-1118, hearings before Committee on Finance, Tariff Schedule 1, H. R. 7456.) The various cyanides are used for practically the same purposes. It is their cyanogen (CN) content, and not their metal content, which is of importance to the consumer. Therefore, this classification is logical. If the committee desires to adopt this suggestion, the following paragraph will accomplish the purpose:

Cyanides: Potassium cyanide, sodium cyanide, all other cyanide salts, and all combinations and mixtures of cyanides, — per centum ad valorem.

If this paragraph is inserted in H. R. 7456 the provisions for potassium cyanide in paragraph 1636 and for sodium cyanide in this paragraph should be omitted. In view of the widely varying prices of different cyanide compounds, it is believed that they will be best covered by an ad valorem duty. The percentage of cyanogen in the compounds varies greatly according to the process of manufacture. A crude sodium cyanide made from calcium cyanamid contains between 40 and 50 per cent of sodium cyanide, whereas purer grades contain 95 to 98 per cent sodium cyanide.

NITRATE OF SODA.

(See Survey A-18.)

Description and uses.—Nitrate of soda, cubic nitrate or Chilean saltpeter, when pure is a white crystalline salt readily soluble in water. The commercial product, of grayish-white color, is of two qualities (1) a fertilizer grade, which contains from 91 to 95 per cent of sodium nitrate corresponding to about 15 per cent of nitrogen; (2) a refined grade, with 96 to 97 per cent of sodium nitrate, used in the manufacture of nitric acid and other chemicals. Normally the larger part is consumed in fertilizer, but during the war the chief use was for explosives.

Production.—The only natural deposits of nitrate of soda of commercial importance are in Chile, whose output since 1910 approximated 3,000,000 tons annually, temporarily declining to about 1,000,000 in 1915. The Chilean Government levies an export duty of \$11.19 per ton, from which it derives more than \$32,000,000 per year, or over 50 per cent of its total revenue. Prior to the war over 80 per cent went to Great Britain, Germany, and the United States; Great Britain received annually about 1,000,000 tons. During the war virtually all of the Chilean nitrate was sold to the British and United States Governments.

Imports prior to 1916 were between 500,000 and 600,000 long tons per year. During 1916 and 1917 over 1,000,000 tons were imported each year. In 1918 all imports came from Chile. Those since 1917 are as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|--------------|--------------|-------------|
| | <i>Tons.</i> | | |
| 1918..... | 1,847,680 | \$90,216,935 | \$48.83 |
| 1919..... | 407,559 | 19,558,963 | 47.99 |
| 1920..... | 1,321,892 | 63,121,035 | 47.75 |
| 1921 (9 months)..... | 344,929 | 16,463,000 | 47.73 |

Exports.—Statistics not available.

Important changes in classification.—“Cubic nitrate,” used in connection with sodium nitrate, has been omitted.

SODIUM SULPHATE CRUDE, OR SALT CAKE AND NITER CAKE.

(See Survey A-18.)

Description and uses.—Salt cake, sulphate of soda, crude, is the impure sodium salt of sulphuric acid, and is obtained chiefly by chemical processes. It is used in the manufacture of inferior grades of glass, especially bottles, and for the manufacture of sodium sulphide, Glauber salt, and ultramarine. In Europe, salt cake is used in making soda ash by the Leblanc process. Niter cake is a by-product in the manufacture of nitric acid (sodium nitrate-sulphuric acid process). It consists chiefly of sodium acid sulphate, with a varying amount of sodium sulphate and free sulphuric acid and other impurities, and was used as a substitute for sulphuric acid during the war for such purposes as acidifying soap stock, acid wash, regenerating plaster, acidifying phosphate fertilizers, bleaching paper pulp, preparing muriatic acid, recovering grease, removing oxide and scale from steel and for any other purposes where a weak mineral acid is required.

Production.—Salt cake is obtained (1) from natural deposits or brine lakes, (2) as a by-product in the manufacture of muriatic acid, and (3) in Europe by the Hargreaves-Robinson process using salt, sulphur dioxide, air, and steam. In 1914 over 110,000 short tons of salt cake were produced here. Niter cake is obtained as a by-product in the manufacture of nitric acid from nitrate of soda. The demand for nitric acid during the war multiplied the production of niter cake many times.

Production of salt cake and niter cake in 1919 and 1920 was as follows:

| | Salt cake. | Niter cake. |
|---------------------------------|-------------|-------------|
| 1919—Quantity (short tons)..... | 129,042 | 83,402 |
| Value..... | \$2,019,460 | \$271,424 |
| 1920—Quantity (short tons)..... | 178,770 | 308,639 |
| Value..... | \$2,049,102 | 788,544 |

Imports of sulphate of crude soda, or salt cake, and niter cake since 1911 have been unimportant.

Exports.—Statistics not available.

Suggested changes.—Transpose "crude" and "sulphate" and strike out the comma after "crude" and "sulphate" so that the paragraph will read:

Sodium: Cyanide, nitrate, crude sulphate or salt cake, and niter cake.

PARAGRAPH 1655.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1655. Specimens of natural history, botany, and mineralogy, when imported for scientific public collections and not for sale.

ACT OF 1909.

ACT OF 1913.

PAR. 678. Specimens of natural history, botany, and mineralogy, when imported for scientific public collections, and not for sale [Free].

PAR. 607. Specimens of natural history, botany, and mineralogy, when imported for scientific public collections, and not for sale [Free].

SPECIMENS OF NATURAL HISTORY, ETC.

Imports of specimens of natural history, botany, and mineralogy in 1914, mainly from Germany, Canada, England, and the Netherlands, were valued at \$47,524. Imports for later calendar years have been as follows: 1918, \$35,539; 1919, \$52,775; 1920, \$86,577; 1921 (9 months), \$37,980.

Exports of specimens of minerals in 1914, mostly to Germany and England, were valued at \$39,496; in 1915, mainly to France, England, and Canada, at \$49,800. Specimens of natural history, valued at \$14,075, went largely to Germany, England, Belgium, and Canada in 1914. Similar exports in 1915, chiefly to England and Canada, were valued at \$9,057. No data for 1918 or later years are available.

PARAGRAPH 1656.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1656. Spunk.

ACT OF 1909.

ACT OF 1913.

PAR. 680. Spunk [Free].

PAR. 608. Spunk [Free].

SPUNK.

(See Survey N-8.)

Description and uses.—Spunk is a kind of tinder made from a species of fungus found on old trees. It is also called punk, amadou, black match, pyrotechnical sponge, and German tinder.

Production data are not available.

Imports are negligible. They amounted to \$377 in 1912, the highest since 1908. In 1920 (calendar year) their value was \$54; in 1919, \$101; and in 1918, \$12.

Exports.—None recorded.

Suggested changes in classification.—This provision for "spunk" and the provision for "joss stick and joss light" (par. 1593, p. 1340) have been the subject of considerable litigation. Both paragraphs might be eliminated and the commodities relegated to the paragraph for unenumerated articles, to avoid confusion with articles such as firecracker-lighters, and mosquito and incense sticks.

PARAGRAPH 1657.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1657. Spurs and stilts used in the manufacture of earthen, porcelain, or stone ware.

ACT OF 1909.

ACT OF 1913.

PAR. 681. Spurs and stilts used in the manufacture of earthen, porcelain, and stone ware [Free].

PAR. 609. Spurs and stilts used in the manufacture of earthen, porcelain, and stone ware [Free].

SPURS.

Description and uses.—Spurs (also called stilts) are small pieces of refractory clay ware employed to support articles while they are being fired or baked in a saggar. A saggar, or segger, is a pot or case of fire clay used to inclose fine or delicate ware when placed in the kiln. The spur prevents the pieces from adhering to each other or to the pot.

Imports of spurs and stilts in 1914 were valued at \$1,599. Later statistics for the calendar years 1918–1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|-------------|---------|-------|---------|--------------------|
| Number..... | | 1,800 | 193,828 | 475,821 |
| Value..... | \$1,094 | \$88 | \$1,858 | \$2,975 |

Exports.—None recorded.

PARAGRAPH 1658.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1658. Stamps: Foreign postage or revenue stamps, canceled or uncanceled, and foreign government stamped post cards bearing no other printing than the official imprint thereon.

ACT OF 1909.

ACT OF 1913.

PAR. 682. Stamps; foreign postage or revenue stamps, canceled or uncanceled, and foreign government stamped post cards bearing no other printing than the official imprint thereon [Free].

PAR. 610. Stamps: Foreign postage or revenue stamps, canceled or uncanceled, and foreign government stamped post cards bearing no other printing than the official imprint thereon [Free].

STAMPS, ETC.

Description and uses.—Foreign postage and revenue stamps and foreign post cards are imported in considerable quantities for collectors. For the most part these stamps are canceled and have no value for mailing purposes. Nevertheless, they have a commercial value because of the demand by collectors, which value is independent of the denomination of the stamp and is based on its rarity.

Production.—Foreign stamps and post cards are presumably not produced in the United States.

Imports in 1914 were valued at \$73,156. About one half of these came from England, the rest largely from Switzerland and Germany. Imports in the calendar years 1918-1921 have been valued as follows: 1918, \$13,338; 1919, \$47,232; 1920, \$231,922; 1921 (nine months), \$155,786.

Exports.—None recorded.

PARAGRAPH 1659.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1659. Standard newsprint paper: *Provided*, That whenever the President shall ascertain as a fact that any country, dependency, province, or other subdivision of government forbids or restricts in any way (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly) the exportation of, or imposes any export duty, export license fee, or other export charge of any kind whatever, either directly or indirectly (whether in the form of additional charge or license fee, or otherwise), upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, he may by proclamation declare such ascertainment setting forth the facts; whereupon, and until said proclamation shall be revoked, there shall be levied, collected, and paid upon standard newsprint paper, when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, a duty of 10 per centum ad valorem, and, in addition thereto, an amount equal to the highest export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon either an equal amount of printing paper or an amount of wood pulp or wood for use in the manufacture of wood pulp necessary to manufacture such printing paper.

ACT OF 1909.

PAR. 409. Printing paper (other than paper commercially known as handmade or machine handmade paper, japan paper, and imitation japan paper by whatever name known), unsized, sized, or glued, suitable for the printing of books and newspapers, but not for covers or bindings, not specially provided for in this section, valued at not above two and one-fourth cents per pound, three-sixteenths of one cent per pound; valued above two and one-fourth cents and not above two and one-half cents per pound, three-tenths of one cent per pound; * * * *Provided, however, That if any country, dependency, province, or other subdivision of government shall forbid or restrict in any way the exportation of (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly) or impose any export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, there shall be imposed upon printing paper when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, an additional duty of one-tenth of one cent per pound when valued at three cents per pound, or less, and in addition thereto the amount of such export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp.*

ACT OF 1913.

PAR. 567. Printing paper (other than paper commercially known as handmade or machine handmade paper, japan paper, and imitation japan paper by whatever name known), unsized, sized, or glued, suitable for the printing of books and newspapers, but not for covers or bindings, not specially provided for in this section, valued at not above 2½ cents per pound, * * * [Free].

NEWSPRINT PAPER.

(See Survey M-2)

Description and uses.—See paragraph 1301, page 1045.

Production in 1914 was 1,313,284 short tons, valued at \$52,942,774, and in 1919, 1,324,000 short tons, valued at \$98,560,000. The chief centers of the industry are found in the Northeastern and Lake States. In 1914 the distribution by percentage was as follows: New York, 37; Maine, 26; Wisconsin, 10; Minnesota, 8; all other States, 19. The chief problem confronting the industry is the problem of raw material. The depletion of pulp-wood forests is causing increased dependence upon importations of pulp wood or wood pulp. The year 1920 was noteworthy as the year of the alleged "newsprint famine," yet, according to figures collected by the Federal Trade Commission production exceeded that of 1919 by 137,451 short tons, and imports, as shown below, exceeded those of 1919 by 101,952 short tons, while exports were less than those of 1919 by

14,378 short tons. Total consumption, therefore, exceeded that of 1919 by 453,781 short tons.

Imports of newsprint in 1914 were 278,071 short tons, valued at \$10,765,108. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|---------------|---------------|---------------|--------------------|
| Quantity (pounds)..... | 1,193,034,043 | 1,255,732,140 | 1,459,687,393 | 1,125,405,412 |
| Value..... | \$35,022,032 | \$43,685,109 | \$68,508,505 | \$51,067,084 |

Under the act of 1913 printing papers were classified for tariff purposes as (1) printing paper valued at not more than 2½ cents per pound, and (2) printing paper valued at more than 2½ cents per pound. By the act of September 8, 1916, the dividing line was changed from 2½ cents to 5 cents and by the act of April 23, 1920, from 5 cents to 8 cents. This division by price corresponds roughly with the division into newsprint and book paper and is made the basis of the above table.

The ratio of imports to total domestic production increased from 11 per cent in 1913 to 48 per cent in 1920. Up to 1920 from 98 per cent to more than 99 per cent came from Canada, or from Canada, Newfoundland, and Labrador. Small amounts came from Norway and Sweden. Beginning with 1920 there have been increasing percentages from European countries—specifically Norway, Sweden, Finland, and Germany. For the first 10 months of 1921 the percentage from Canada was reduced to 83.1. For the same period the percentage from Germany was 5.4; from Finland, 3.0; from Norway, 2.5; from Sweden, 5.3; and from all other countries, 0.7. Because of the increasing demand for newsprint and the depletion of the pulp-wood forests we are becoming increasingly dependent upon importation for our supply of newsprint paper.

Exports of newsprint in 1914 were 44,483 short tons, valued at \$2,177,483. Exports for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|--------------|-------------|--------------------|
| Quantity (pounds)..... | 193,477,853 | 220,535,014 | 91,777,916 | 26,533,636 |
| Value..... | \$7,975,268 | \$10,091,951 | \$5,970,127 | \$1,830,763 |

Export trade in newsprint, which in 1919 amounted to 8 per cent of domestic production, fell off to 3 per cent in 1920 and the decrease continued in 1921.

Important changes in classification.—See paragraphs 1301 and 1610, pages 1046 and 1372.

PARAGRAPH 1660.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1660. Statuary and casts of sculpture for use as models or for art educational purposes only; regalia and gems, where specially imported in good faith for the use and by order of any society incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, seminary of learning, orphan asylum, or public hospital in the United States, or any State or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe; but the term "regalia" as herein used shall be held to embrace only such insignia of rank or office or emblems as may be worn upon the person or borne in the hand during public exercises of the society or institution, and shall not include articles of furniture or fixtures, or of regular wearing apparel, nor personal property of individuals.

ACT OF 1909.

PAR. 661. Statuary and casts of sculpture for use as models or for art educational purposes only; regalia and gems, where specially imported in good faith for the use and by order of any society incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, seminary of learning, orphan asylum, or public hospital in the United States, or any State or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe; but the term "regalia" as herein used shall be held to embrace only such insignia of rank or office or emblems as may be worn upon the person or borne in the hand during public exercises of the society or institution, and shall not include articles of furniture or fixtures, or of regular wearing apparel, nor personal property of individuals [Free].

ACT OF 1918.

PAR. 611. Statuary and casts of sculpture for use as models or for art educational purposes only; regalia and gems, where specially imported in good faith for the use and by order of any society incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, seminary of learning, orphan asylum, or public hospital in the United States, or any State or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe; but the term "regalia" as herein used shall be held to embrace only such insignia of rank or office or emblems as may be worn upon the person or borne in the hand during public exercises of the society or institution, and shall not include articles of furniture or fixtures, or of regular wearing apparel, nor personal property of individuals [Free].

STATUARY, ETC., FOR USE AS MODELS; REGALIA, GEMS, ETC.

(See Survey N-24.)

Imports of statuary and casts of sculpture for use as models, etc., in 1914 were valued at \$442,844. Later imports by calendar years have been as follows: 1918, \$99,822; 1919, \$238,840; 1920, \$307,652; 1921 (nine months), \$365,624.

Exports of all works of art are shown under paragraph 1447, page 1196.

PARAGRAPH 1661.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1661. Stone and sand: Burrstone in blocks, rough or unmanufactured; quartzite; rottenstone tripoli, and sand, crude or manufactured; cliff stone, freestone, granite, and sandstone, unmanufactured, and not suitable for use as monumental or building stone; all of the foregoing not specially provided for.

ACT OF 1909.

ACT OF 1913.

PAR. 683. Stone and sand: Burrstone in blocks, rough or unmanufactured; cliff stone, unmanufactured; rotten stone, tripoli, and sand, crude or manufactured, not otherwise provided for in this section [Free].

PAR. 614. Stone and sand: Burrstone in blocks, rough or unmanufactured; rotten stone, tripoli, and sand, crude or manufactured; cliff stone, freestone, granite, sandstone, * * * unmanufactured, and not suitable for use as monumental or building stone; all of the foregoing not specially provided for in this section [Free].

BURRSTONE.

(See Survey B-3 and par. 234, p. 349.)

Imports under this classification by calendar years amounted to: 1918, \$17,370; 1919, 81 tons, valued at \$8,996; 1920, 114 tons, valued at \$9,007; and in 1921 (9 months), 67 tons, valued at \$3,075.

QUARTZITE.

Description and uses.—Quartzite is a sandstone which by the deposit of crystalline quartz between its grains has been compacted into a solid quartz rock. As distinguished from sandstones, quartzites are free from pores and have a smooth fracture. Quartzite blocks may be used in tube mills for crushing and grinding ores, cements, and for other metallurgical and chemical processes. They are too hard and splintery to be used as building stones to any large extent.

Production.—Statistics are not given separately for quartzite. In the following table are shown total domestic sales of quartz including vein quartz, pegmatite, and quartzite.

| | 1918 | 1919 | 1920 |
|----------------------------|-----------|-----------|-----------|
| Quantity (short tons)..... | 71,740 | 63,332 | 68,190 |
| Value..... | \$289,330 | \$373,571 | \$320,350 |

Imports and exports.—None separately recorded.

Important changes in classification.—The provision for quartzite is new.

ROTTENSTONE AND TRIPOLI.

(See Survey B-3.)

Description and uses.—Rottenstone is a siliceous stone, the residue of a siliceous limestone whose calcareous matter has been removed by the solvent action of water. The term tripoli designates two products similar in properties, uses, and chemical composition, but

different in geological origin; the name being applied to: (1) A light, white or yellowish, porous, and generally purely siliceous rock which has resulted from the leaching of the calcareous matter from very siliceous limestone or highly calcareous cherts, and is therefore synonymous with rottenstone; (2) diatomaceous earth or kieselguhr. A deposit of a fine, white, siliceous powder composed chiefly or wholly of the remains of diatoms or minute aquatic plants, occurs in Tripoli, and enters the trade as tripoli or tripolite. These materials are usually loose and powdery, but in some cases are more or less firmly coherent. They are used chiefly as an abrasive for polishing purposes, scouring soaps, and soap powders; as absorbents, chiefly for nitroglycerin in making dynamite; as a filtering medium, packing material, and heat insulating material.

Production.—Illinois has been the chief producer of tripoli, although the output of eastern States (Pennsylvania, for example) is higher priced, and is sold for polishing preparations. Western States lead in the output of diatomaceous earth. Statistics of production are given in the following table:

| | Tripoli. | | Diatomaceous earth. | |
|-----------|--------------------|-----------|---------------------|-----------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Short tons.</i> | | <i>Short tons.</i> | |
| 1914..... | 17,218 | \$112,428 | 11,012 | \$102,809 |
| 1918..... | 19,982 | 199,854 | 2,965 | 24,947 |
| 1919..... | 24,292 | 181,541 | 42,642 | 331,980 |
| 1920..... | 40,233 | 599,677 | 61,922 | 1,079,883 |

† Ground and otherwise prepared.

* Excludes California product used for filters and as insulating and fireproofing material.

Imports of tripoli and rottenstone increased in value from \$20,004 in 1914 to \$37,573 in 1916, but decreased to \$14,551 in 1918. They have been chiefly from England, Canada, and Germany. Later statistics for calendar years follow:

| | 1919 | 1920 | 1921 (9 months). |
|----------------------|----------|---------|------------------|
| Tripoli: | | | |
| Quantity (tons)..... | 412 | 305 | 208 |
| Value..... | \$10,620 | \$7,720 | \$5,675 |
| Rottenstone: | | | |
| Quantity (tons)..... | 21 | 526 | 39 |
| Value..... | \$1,925 | \$8,063 | \$2,365 |

SAND, CRUDE OR MANUFACTURED.

(See Survey B-7.)

Description and uses.—Besides familiar uses, sand is employed as an abrasive in sand blasting, in making glass, and to form molds in casting iron and steel.

Production of sand and gravel increased from 66,846,959 tons, valued at \$21,158,583 in 1911, to 82,041,388 short tons, valued at \$65,661,605 in 1920.

The following table gives kinds, quantities, and values of sand produced in 1914 and 1920:

| | 1914 | | 1920 | |
|----------------------------------|--------------------|-------------------|--------------------|-------------------|
| | Quantity. | Value. | Quantity. | Value. |
| | <i>Short tons.</i> | | <i>Short tons.</i> | |
| Glass sand..... | 1,619,649 | \$1,568,030 | 2,165,226 | \$4,748,690 |
| Moulding sand..... | 2,751,209 | 1,750,383 | 5,128,075 | 7,504,759 |
| Building sand..... | 24,003,932 | 7,982,771 | 20,539,365 | 17,959,635 |
| Grinding and polishing sand..... | 1,034,871 | 652,388 | 1,132,810 | 2,037,079 |
| Fire or furnace sand..... | 318,560 | 187,467 | 400,953 | 724,456 |
| Engine sand..... | 1,262,790 | 367,548 | 1,754,897 | 1,435,163 |
| Paving sand..... | 3,580,171 | 1,191,999 | 5,920,328 | 1,080,952 |
| Filter sand..... | | | 83,983 | 106,320 |
| Other sands..... | 3,331,236 | 782,773 | 649,805 | 634,500 |
| Railroad ballast..... | 2,116,429 | 322,740 | 9,061,815 | 2,887,573 |
| Gravel..... | 39,212,858 | 9,398,997 | 29,183,431 | 23,575,418 |
| Total..... | 70,221,735 | 23,646,999 | 82,041,388 | 65,661,005 |

¹ Railroad ballast sand.

² Exclusive of railroad ballast.

Imports of sand in 1918 were valued at \$135,140, and were chiefly from Canada. Later statistics for calendar years 1919-1921 follow:

| | 1919 | 1920 | 1921 (9 months). |
|----------------------|-----------|-----------|---------------------|
| Quantity (tons)..... | 533,465 | 1,045,254 | 558,597 |
| Value..... | \$126,686 | \$912,282 | \$592,852 |

Exports of sand and gravel increased from \$132,221 in 1915, to \$552,409 in 1918, 90 per cent or more going to Canada. In 1920 (calendar year) the value was \$669,945.

CLIFFSTONE UNMANUFACTURED, ETC.

Description and uses.—This is a hard chalk, used to some extent in the manufacture of paint, paper, and rubber, and as a filler on wood.

Imports in 1914 were 9,079 tons, valued at \$11,046; in 1918, 5,306 tons, valued at \$10,293; in 1919 (calendar year), \$17,447, and in 1920, \$13,334.

FREESTONE AND SANDSTONE UNMANUFACTURED, ETC.

(See Survey B-11 and par. 235, p. 350.)

GRANITE UNMANUFACTURED, ETC.

(See Survey B-11 and par. 235, p. 352.)

Imports in 1914 were valued at \$24,134, and in 1918 at \$4,400, including all freestone, sandstone, granite, and limestone unmanufactured and unsuitable for building or monumental use. In 1920 (calendar year) they were valued at \$97,199.

Exports of all unmanufactured stone (including marble) averaged annually, for the fiscal years 1914-1918, about \$500,000. For the calendar years 1918-1921 they have been as follows: 1918, \$552,261; 1919, \$770,392; 1920, \$774,442; 1921 (nine months), \$425,614.

PARAGRAPH 1662.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1662. Strontianite or mineral strontium carbonate and celestite or mineral strontium sulphate.

ACT OF 1909.

ACT OF 1913.

PAR. 685. Strontia, * * * and strontianite, or mineral carbonate of strontia [Free].

PAR. 615. Strontia, * * * and strontianite or mineral carbonate of strontia [Free].

STRONTIANITE AND CELESTITE.

(See Survey FL-22.)

Description and uses.—Strontianite, the natural carbonate of strontium, is of little commercial value; it is a rare mineral not generally found in deposits of commercial size. The more abundant ore and the one more used is celestite, the natural sulphate of strontium. Before 1915 very little strontium ore was used here, most of the compounds consumed being imported. With the war, there was an increased demand for strontium salts to be used in signal lights and this, combined with the embargo placed by England on all strontium compounds, compelled their domestic manufacture. Strontium compounds are used principally in red lights (the nitrate) and in the refining of beet sugar (the hydrate), and are employed to some extent in medicine.

Production.—In 1916 the domestic output of strontium ore was 250 short tons, not all marketed; in 1917, approximately 4,035 tons, over 70 per cent of consumption. Most of this was celestite. In 1918 the production was 400 tons of strontianite, but no celestite was produced, and in 1919 and 1920 none was recorded. The Western States are the principal producers.

Imports listed as "strontia, oxide of, protoxides of strontian, and strontianite or mineral carbonate of strontia" in 1913 were valued at \$474; in 1915, at \$7,268; in 1917, at \$21,184. Imports of salts of strontium in 1914 were 1,834,733 pounds of the nitrate, 55,134 pounds of the carbonate, 16,189 pounds of precipitated sulphate, and smaller amounts of other salts. Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|---------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$2,450 | |
| 1919..... | 1,228,932 | 3,390 | \$0.003 |
| 1920..... | 1,650,063 | 15,479 | .093 |
| 1921 (9 months)..... | 1,212,758 | 4,393 | .004 |

Exports.—Statistics not available.

Important changes in classification.—"Strontium" is substituted for "strontia," and "protoxides of strontian" is omitted. Celestite, or mineral strontium sulphate, is specifically mentioned for the first time.

PARAGRAPH 1663.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1663. Sulphur in any form, and sulphur ore, such as pyrites or sulphuret of iron in its natural state, and spent oxide of iron, containing more than 25 per centum of sulphur.

ACT OF 1909.

ACT OF 1913.

PAR. 688. Sulphur, lac or precipitated, and sulphur or brimstone, crude, in bulk, sulphur ore as pyrites, or sulphuret of iron in its natural state, containing in excess of twenty-five per centum of sulphur, and sulphur not otherwise provided for in this section [Free].

PAR. 817. Sulphur in any form, brimstone, and sulphur ore as pyrites, or sulphuret of iron in its natural state, containing in excess of 25 per centum of sulphur [Free].

PAR. 81. Sulphur, refined or sublimed, or flowers of, four dollars per ton.

SULPHUR.

(See Survey FL-18.)

Description and uses.—Sulphur or brimstone is a free chemical element found in the vicinity of volcanoes, active and extinct; it also occurs in nature in chemical combination with other elements, the most important compounds being the sulphides of iron, copper, lead, and zinc. Crude sulphur as mined in the United States is often 99 per cent pure. It is used chiefly in the production of sulphur dioxide, which in turn is used for digesting wood pulp, the manufacture of sulphuric acid, the bleaching of silk and straw, the preservation of beverages and foods, and the manufacture of sodium sulphite and bisulphite. Sulphur also serves to vulcanize rubber, in the manufacture of matches, carbon disulphide, sodium thiosulphate, and other chemicals; in the vulcanization of corn and linseed oils, for combating fungus diseases of plants, and in making lime-sulphur solution for spraying trees and for sheep dip.

Production.—The leading producers are the United States, Italy, Japan, and Chile, in order. The domestic output of sulphur increased from 327,634 long tons in 1914 to about 1,350,000 tons in 1918, owing to the large demand for sulphuric acid, which could not be supplied by either imported or domestic pyrites, previously used as the raw material. The large deposits in Louisiana and Texas, discovered in 1865, became commercial sources in 1903. The substance is mined in the United States by sinking a pipe to the deposits and forcing superheated water through another pipe to melt the sulphur, which is forced to the surface in liquid condition through the first pipe. This comparatively cheap method (reported by the Federal Trade Commission as costing about \$6 per ton in 1917), places the industry of this country in a dominant position.

The sulphur mined and shipped in the United States since 1914 is shown below:

| Year. | Mined. | Shipped. | Approximate value. |
|-----------|-------------------|-------------------|--------------------|
| | <i>Long tons.</i> | <i>Long tons.</i> | |
| 1914..... | 417,690 | 211,985 | \$6,214,000 |
| 1915..... | 620,593 | 208,803 | 4,959,000 |
| 1916..... | 649,683 | 706,835 | 12,246,000 |
| 1917..... | 1,134,412 | 1,130,378 | 23,987,000 |
| 1918..... | 1,853,525 | 1,236,709 | 27,868,000 |
| 1919..... | 1,190,576 | 678,257 | 10,252,000 |
| 1920..... | 1,245,249 | 1,517,625 | 20,000,000 |

Imports since the development of the domestic industry have been small. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|---------------------------------------|----------------|---------|-------------|
| SULPHUR, LAC, OR PRECIPITATED. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 48,712 | \$7,830 | \$0.16 |
| 1919..... | 54,268 | 6,421 | .12 |
| 1920..... | 93,889 | 23,576 | .24 |
| 1921 (9 months)..... | 17,757 | 2,412 | |

SULPHUR, REFINED.

| | <i>Tons.</i> | | |
|----------------------|--------------|-------|---------|
| 1919..... | | \$15 | |
| 1920..... | 50 | 2,530 | \$50.60 |
| 1921 (9 months)..... | 35 | 2,311 | |

SULPHUR, CRUDE.

| | | | |
|----------------------|----|---------|---------|
| 1918..... | 56 | \$1,692 | \$30.76 |
| 1919..... | 79 | 1,997 | 25.28 |
| 1920..... | 46 | 1,722 | 37.43 |
| 1921 (9 months)..... | 2 | 118 | |

Exports of sulphur, chiefly to Canada, increased from 45,595 long tons, valued at \$864,808 in 1910, to 177,548 long tons, valued at \$3,595,512 in 1917. Exports of crude sulphur for the calendar years 1918-1921 have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|----------------------|-------------|-------------|-------------|------------------|
| Quantity (tons)..... | 121,092 | 224,712 | 477,450 | 211,640 |
| Value..... | \$3,626,638 | \$6,225,652 | \$3,994,350 | \$3,366,815 |

Canada, France, and Australia are the principal markets for sulphur from this country.

PYRITES.

(See Survey FL-18.)

Description and uses.—The term "pyrites" generally refers to disulphide of iron, but more recently it has been used to designate a variety of sulphide minerals. Ordinary grades of "pyrites or sulphuret of iron" contain from 43 to 48 per cent of sulphur. An ore containing less than 35 per cent is seldom used for making sulphuric acid, as it will not support its own combustion. Commercial transactions in pyrites are based on a unit, 1 per cent of sulphur per ton of ore. The chief use of pyrites is for the manufacture of sulphuric acid. Prior to the war about 1,250,000 tons were consumed here annually.

Production.—Spain and Portugal possess the largest deposits, supplying about 75 per cent of the total consumption. Spanish ore, especially from the Rio Tinto mines (the important Spanish mines are controlled by French and English capital), has long been considered the best for manufacturing sulphuric acid; its pyrites contains about 3 per cent copper, and the residue, after the copper is extracted, is still suitable for making sulphuric acid. Spain's production of copper mineral and iron pyrites normally was between 3,000,000 and 5,000,000 tons. Domestic production of pyrites, which in 1913 was 341,338 long tons, valued at \$1,286,084, increased during the war by about 35 per cent, primarily from existing mines rather than new deposits. Prior to 1915 Virginia led, yielding about 50 per cent; California followed, increasing her output for 1914-1918 to nearly that of Virginia.

Imports of pyrites for 1910-1917 averaged about 980,000 long tons, with 1,244,662 long tons in 1916, the maximum. They furnished about 70 per cent of our consumption. Imports of pyrites from Spain and Portugal in 1918 were limited to 600,000 tons, owing to scarcity of shipping, the actual imports being 496,792 tons. Imports from Canada in 1917 were about six times the prewar volume. Imports since 1917, chiefly from Spain, Canada, and Cuba, are shown in the accompanying table:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|--------------|-------------|-------------|
| | <i>Tons.</i> | | |
| 1918..... | 496,792 | \$2,741,676 | \$5.52 |
| 1919..... | 388,973 | 2,176,565 | 5.59 |
| 1920..... | 332,606 | 1,660,832 | 4.99 |
| 1921 (9 months)..... | 142,427 | 589,643 | 4.13 |

Exports.—None separately recorded.

Important changes in classification.—"Spent oxide of iron," when containing more than 25 per centum of sulphur, has been added to this paragraph since it is used as a source of sulphur. "Brimstone" is omitted because covered by "sulphur."

PARAGRAPH 1664.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1664. Tagua nuts.

ACT OF 1909.

ACT OF 1913.

PAR. 596. * * * vegetable ivory in its natural state [Free].

620. Tagua nuts [Free].

TAGUA NUTS.

Description and uses.—Tagua nuts, also called corozzo nuts, are from a palm in the Peruvian Andes and other parts of South America. The kernel is so hard and white that it is fittingly called vegetable ivory. It is used in the manufacture of buttons, umbrella handles, and small trinkets. The refuse from these manufacturing operations is used to make lactic acid (par. 1). The coquilla nut, from another species of palm, also supplies a kind of vegetable ivory with like uses.

Imports of tagua nuts in 1914 were 26,736,148 pounds, valued at \$883,055—10,413,559 pounds from Ecuador, 7,917,433 pounds from Colombia, and 5,209,774 pounds from Panama. Imports since 1917, chiefly from Ecuador, Colombia, and Panama, have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-------------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 41,142,099 | \$1,323,494 | 30.03 |
| 1919..... | 31,779,090 | 1,172,080 | .04 |
| 1920..... | 49,660,478 | 2,550,667 | .05 |
| 1921 (9 months)..... | 20,001,279 | 685,836 | |

PARAGRAPH 1665.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1665. Tamarinds.

ACT OF 1909.

ACT OF 1913.

PAR. 688. Tamarinds [Free].

PAR. 623. Tamarinds [Free].

TAMARINDS.

(See Survey FL-2.)

Description and uses.—The tamarind is the fruit or pod of a leguminous tree. The pods are hard externally, but contain a juicy, pleasantly acid pulp. The fruit is used as a table preserve and in confections. A cooling laxative drink is made from the pulp.

Production.—The tree is a native of tropical Africa, but is found in Australia, India, South America, Mexico, and the West Indies.

Import values of tamarinds were \$4,211 in 1914 and \$7,038 in 1918. They reached \$21,606 in 1919 (calendar year) and declined to \$1,516 during the first nine months of 1921.

PARAGRAPH 1666.

H. R. 7466.

SENATE AMENDMENTS.

PAR. 1666. Tapioca, tapioca flour, and cassava.

ACT OF 1909.

ACT OF 1913.

PAR. 689. Tapioca, tapioca flour, cassava or cassady [Free].

PAR. 625. Tapioca, tapioca flour, cassava or cassady [Free].

TAPIOCA, TAPIOCA FLOUR, AND CASSAVA.

(See Survey G-33.)

Description and uses.—Cassava is a shrubby plant, native to tropical America, but grown extensively in the Dutch East Indies, Central America, the West Indies, Africa, and to some extent in southeastern United States. There are two principal types. The bitter cassava of Brazil contains considerable volatile poison, but this is dissipated by heat and the washing of the grated roots. The sweet cassava, or manihot, is cultivated, principally in Florida, for the starch, which is used in the textile and other industries. Cassava bread and cakes are made from both varieties. Pearl tapioca is formed when moist cassava starch is properly heated upon an iron plate. The granules rupture and agglomerate into irregular pellets which become hard and translucent when cooled. The flour is used chiefly for food preparations, for the manufacture of cassava dextrin (envelope gum), and for finishing in the textile industry.

The flake and pearl tapioca is made into material for puddings and other desserts.

Production.—Florida produces some cassava which is largely used for forage purposes.

Import figures for these various items are not given separately. Imports of tapioca, tapioca flour, and cassava or cassady in 1914 were 71,304,728 pounds, valued at \$1,590,614, practically all coming from the Dutch East Indies and the Straits Settlements. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|-------------|-------------|-------------|-----------------|
| Quantity (pounds)..... | 62,170,809 | 95,652,649 | 99,236,119 | 31,943,719 |
| Value..... | \$3,260,575 | \$5,014,316 | \$5,634,293 | \$1,226,054 |

In 1920 the bulk of the imports of farinaceous substances came from the Dutch East Indies and amounted to 80 per cent of the total.

Exports are not separately stated.

Important changes in classification.—The word "cassady" has been dropped; it is erroneously used for cassava.

PARAGRAPH 1667.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1667. Tar and pitch of wood.

ACT OF 1909.

ACT OF 1913.

PAR. 690. Tar and pitch of wood [Free].

PAR. 626. Tar and pitch of wood [Free].
 PAR. 452. * * * pitch of * * *
 wood * * * tar, * * * [Free].

TAR AND PITCH OF WOOD.

(See Surveys A-2 and FL-17.)

Description and uses.—Tar and pitch of wood are products obtained from the destructive distillation of wood. When tar is distilled, tar oils are produced and a residual product known as wood pitch is obtained. Tar is used in the manufacture of ropes, in the paint industry, and in making tar soaps. Pitch is used for calking wooden ships and for coating silos to render them impervious to moisture. Wood creosote is obtained from heavy tar oils by a refining process.

Production of tar by the wood distillation industry in 1914 was 2,965,354 gallons, of which 1,476,797 gallons were sold, valued at \$145,984. The production of wood creosote in 1914 was 2,073,057 pounds, valued at \$38,872. The figures for 1919 are not available.

Imports of tar and pitch of wood have been annually less than 1,000 barrels since 1911. Since 1917 they have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|-----------------|--------|-------------|
| | <i>Barrels.</i> | | |
| 1918..... | 49 | \$233 | \$4.76 |
| 1919..... | 135 | 347 | 2.57 |
| 1920..... | 451 | 2,393 | 5.31 |
| 1921 (9 months)..... | 593 | 3,433 | ..... |

Exports of tar, turpentine (crude gum turpentine), and pitch in 1914 were 351,353 barrels, valued at \$568,891, decreasing in 1916 to 67,963 barrels, valued at \$291,731. Subsequent figures are not available.

PARAGRAPH 1668.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1668. Tea not specially provided for, and tea plants: *Provided*, That all cans, boxes, and other immediate containers, including paper, and other wrappings of tea in packages of less than five pounds each, and all intermediate containers of such tea, except mats, shall be dutiable at the rate chargeable thereon if imported empty: *Provided further*, That nothing herein contained shall be construed to repeal or impair the provisions of an Act entitled "An Act to prevent the importation of impure and unwholesome tea," approved March 2, 1897, and any Act amendatory thereof.

ACT OF 1909.

PAR. 691. Tea and tea plants: [Free] *Provided*, That nothing herein contained shall be construed to repeal or impair the provisions of an Act entitled "An Act to prevent the importation of impure and unwholesome tea," approved March second, eighteen hundred and ninety-seven, and any Act amendatory thereof.

PAR. 195. Cans, boxes, packages, and other containers of all kinds (except such as are hermetically sealed by soldering or otherwise), composed wholly or in chief value of metal lacquered or printed by any process of lithography whatever, if filled or unfilled, and whether their contents be dutiable or free, four cents per pound and thirty-five per centum ad valorem: *Provided*, That none of the foregoing articles shall pay a less rate of duty than fifty-five per centum ad valorem; but no cans, boxes, packages, or containers of any kind, of the capacity of five pounds or under, subject to duty under this paragraph, shall pay less duty than if the same were imported empty; and the dutiable value of the same shall include all packing charges, cartons, wrappings, envelopes, and printed matter accompanying them when such cans, boxes, packages, or containers are imported wholly or partly filled with merchandise exempt from duty (except liquids and merchandise commercially known as drugs) and which is commonly dealt in at wholesale in the country of original exportation in bulk or in packages exceeding five pounds in capacity: *Provided further*, That paper, cardboard or pasteboard wrappings or containers that are made and used only for the purpose of holding or containing the article with which they are filled, and after such use are mere waste material, shall not be dutiable unless their contents are dutiable.

ACT OF 1913.

PAR. 627. Tea not specially provided for in this section, and tea plants: [Free] *Provided*, That the cans, boxes, or other containers of tea packed in packages of less than five pounds each shall be dutiable at the rate chargeable thereon if imported empty: *Provided further*, That nothing herein contained shall be construed to repeal or impair the provisions of an Act entitled "An Act to prevent the importation of impure and unwholesome tea," approved March second, eighteen hundred and ninety-seven, and any Act amendatory thereof.

TEA.

(See Survey FL-34.)

Description and uses.—The tea plant is an evergreen shrub of tropical and subtropical climates. Its tender leaves compose the tea of commerce; the older woody leaves, and tea dust, waste, siftings, and stalk are used for the manufacture of caffeine, for adulterating purposes, and in making brick and other low-grade teas.

Production.—The bulk of commercial teas may be divided into three general classes according to methods of preparation—black, green, and Oolong (an intermediate type). Subclasses such as

Orange Pekoe and Souchong indicate the gradation from the fine leaf bud to the expanded and woody leaf. Virtually the entire supply is produced in densely populated regions of the Orient having ample supplies of cheap labor. Producers are organized into strong guilds and associations, which regulate the trade and conditions of production. Definite figures of production are not available, but the annual combined exports of producing countries for 1909-1913 approximated 750,000,000 pounds. British India contributed about 34 per cent and Ceylon about 25 per cent, almost exclusively black teas; China about 26 per cent (chiefly green teas); the remainder came from Japan proper, Formosa, and Java. The plant is successfully grown in South Carolina and Georgia, local needs being supplied by tea gardens. Physical conditions are not so favorable as in the Orient, and the absence of cheap labor appears to be an insurmountable handicap to commercial production.

Imports of tea for 1910-1920 averaged about 100,000,000 pounds, valued at from \$17,000,000 to \$30,000,000. Over one-half came from Japan proper and the British East Indies, about one-eighth from China. The remainder consisted chiefly of Indian and Ceylon tea, most of which was reexported from England (about 14,000,000 pounds) and Canada (1,600,000 pounds). Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|------------------------|--------------|--------------|--------------|-----------------|
| Quantity (pounds)..... | 130,355,602 | 80,740,578 | 90,698,805 | 46,848,092 |
| Value..... | \$28,682,387 | \$20,108,045 | \$24,739,494 | \$8,473,092 |

Exports.—None recorded.

Important changes in classification.—The clause regarding tea containers has been amplified and strengthened, because many fancy and valuable boxes, etc., used as immediate containers, enter free of duty.

Suggested changes.—The importation of tea plants is negligible; they are subject to quarantine regulations. If it should not be desired to exempt from duty such as may come in, the words "and tea plants" might be stricken out of lines 16 and 17, page 198 of H. R. 7456. In such case, any importation of tea plants would probably come within the provision for "all nursery or greenhouse stock, not specially provided for," if the change suggested under paragraph 752, page 751, should be adopted.

There is a possibility that the words "in packages," in lines 18 and 19, page 198, of H. R. 7456, may be interpreted to mean that only immediate containers packed in intermediate containers would come within the proviso. This possible objection might be met by changing the proviso to read:

"*Provided*, That all cans, boxes, and other immediate containers, including paper and other wrappings, of less than five pounds of tea, and all intermediate containers of such tea, shall, when imported with tea, be dutiable at the rate or rates chargeable thereon if imported separately."

In any event, the words "except mats," in line 20, page 198, of H. R. 7456, should be stricken out, since tea in packages of less than 5 pounds is not imported in mats.

PARAGRAPH 1669.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1669. Teeth, natural, or unmanufactured.

ACT OF 1909.

ACT OF 1913.

PAR. 692. Teeth, natural, or unmanufactured [Free].

PAR. 628. Teeth, natural, or unmanufactured [Free].

TEETH, NATURAL.

(See Survey N-21.)

Description and use.—The teeth of some animals were formerly used in dentistry; only the manufactured article is now used. There is little, if any, commercial demand for natural teeth, except perhaps for decorative purposes.

Production data are not available.

Imports of teeth, natural or unmanufactured, in 1914 were valued at \$197. Statistics for later calendar years follow: 1919, \$703; 1920, \$2,185; 1921 (9 months), \$18,501.

Exports.—None recorded.

PARAGRAPH 1670.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1670. Tin ore or cassiterite, and black oxide of tin: *Provided*, That there shall be imposed and paid upon cassiterite, or black oxide of tin, a duty of 4 cents per pound, and upon bar, block, pig tin and grain or granulated, a duty of 6 cents per pound when it is made to appear to the satisfaction of the President of the United States that the mines of the United States are producing one thousand five hundred tons of cassiterite and bar, block, and pig tin per year. The President shall make known this fact by proclamation, and thereafter said duties shall go into effect.

ACT OF 1909.

ACT OF 1913.

PAR. 695. Tin ore, cassiterite or black oxide of tin, * * * [Free] *Provided*, That there shall be imposed and paid upon cassiterite, or black oxide of tin, and upon bar, block, pig tin and grain or granulated, a duty of 4 cents per pound when it is made to appear to the satisfaction of the President of the United States that the mines of the United States are producing one thousand five hundred tons of cassiterite and bar, block, and pig tin per year. The President shall make known this fact by proclamation, and thereafter said duties shall go into effect.

PAR. 631. Tin ore, cassiterite or black oxide of tin, * * * [Free] *Provided*, That there shall be imposed and paid upon cassiterite, or black oxide of tin, and upon bar, block, pig tin and grain or granulated, a duty of $\frac{1}{2}$ cents per pound when it is made to appear to the satisfaction of the President of the United States that the mines of the United States are producing one thousand five hundred tons of cassiterite and bar, block, and pig tin per year. The President shall make known this fact by proclamation, and thereafter said duties shall go into effect.

TIN ORE, CASSITERITE, OR BLACK OXIDE OF TIN.

(See Survey FL-35.)

Description.—Cassiterite, or oxide of tin, is the ore of tin. It is also known as black tin, stream tin, tin stone, etc. Black oxide of tin in the meaning of this paragraph is tin dross containing no lead; it is also commercially known as black-grain tin, scuff. and tin ash. In the import statistics "cassiterite" is erroneously classified with the artificial oxide or dross.

Production in the United States is insignificant. The recovery of tin from domestic ores in 1920 was only about 20 tons and in no year have more than 100 tons of metallic tin been obtained from ore mined in American territory; the small annual output is derived almost wholly from Alaska. Tin ore is mined in southeastern Asia, including the Malay Peninsula, Siam, China, and the Dutch East Indies. Bolivia is also a large producer and, from the standpoint of the American smelters, the most important, as Bolivian ore is the only tin ore that can be brought in any large quantity to the United States. Export duties on tin ore produced in territories under British control effectually prevent the smelting of such ore outside of the Empire.

Imports of "cassiterite, or black oxide of tin," in 1914 amounted to 19,549 pounds, valued at \$3,022. In the fiscal year 1918 they amounted to 29,014 pounds, valued at \$8,994. Imports of tin ore in the fiscal year 1918 were 13,960 long tons, valued at \$8,626,281. For the calendar years 1918 to 1921 imports of tin ore and black oxide have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|--------------|--------------|------------------|
| Tin ore: | | | | |
| Quantity (tons)..... | 13,014 | 31,602 | 30,647 | 12,123 |
| Value..... | \$8,975,764 | \$20,318,778 | \$18,775,926 | \$5,113,796 |
| Tin, black oxide of, or cassiterite: | | | | |
| Quantity (pounds)..... | 29,014 | 2,188 | 142 | 110 |
| Value..... | \$8,994 | \$547 | \$19,236 | \$4,412 |

¹ Tons.

Exports.—None separately recorded.

Important changes in classification.—The rate conditionally imposed in the proviso is two cents per pound greater on bar, block, pig, and grain or granulated tin (provided for in paragraph 386, H. R. 7456) than on cassiterite or black oxide of tin.

PARAGRAPH 1671.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1671. Tobacco stems not cut, ground, or pulverized.

ACT OF 1909.

ACT OF 1913.

PAR. 696. Tobacco stems [Free].

PAR. 632. Tobacco stems [Free].

TOBACCO STEMS NOT CUT, ETC.

Description and uses.—Tobacco stems are the midrib or stem of the leaf. When the cured leaf is used as wrapper or binder for cigars or in making chewing tobacco, etc., the midrib or stem (about 25 to 30 per cent of the leaf) is removed to reduce the weight and cost of transportation. Stems are manufactured into snuff and low grades of smoking tobacco, are a source of nicotine for insecticides, and fortify weaker tobaccos. They contain considerable potash and nitrogen and are extensively used as a fertilizer.

Production of stems as a by-product is large, exceeding 50,000,000 pounds in 1917 and 1919. About 20,000,000 pounds are annually used in tobacco manufacture.

Imports of tobacco stems normally averaged about 1,000,000 pounds. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|---------|---------|---------------------|
| Quantity (pounds)..... | 1,617,206 | 664,983 | 878,155 | 2,160,002 |
| Value..... | \$15,275 | \$7,284 | \$6,386 | \$16,273 |

Exports of stems (including trimmings) in the years immediately preceding the war averaged approximately 2,000,000 pounds, principally to the Netherlands and Germany. Statistics for later calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|-----------|------------|------------|---------------------|
| Quantity (pounds)..... | 2,955,443 | 10,764,971 | 12,237,908 | 4,718,050 |
| Value..... | \$318,384 | \$547,281 | \$634,882 | \$213,678 |

Important changes in classification.—There is a new limitation to tobacco stems not cut, ground, or pulverized.

PARAGRAPH 1672.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1672. Turpentine, gum and spirits of, and rosin.

ACT OF 1909.

ACT OF 1913.

PAR. 700. Turpentine, spirits of [Free].

PAR. 635. Turpentine, Venice, and spirits of [Free].

PAR. 699. Turpentine, Venice [Free].

PAR. 385. * * * unmanufactured articles not enumerated * * * 10 per centum ad valorem, * * *.

PAR. 559. Drugs, such as * * * gums, * * * not advanced * * * [Free].

PAR. 477. Drugs, such as * * * gums, * * * not advanced * * * [Free].

TURPENTINE AND ROSIN.

(See Survey FL-17.)

Description and uses.—Turpentine, strictly speaking, is the oleo-resin exudation of coniferous trees, but the term is also applied to the oil or spirits of turpentine which is obtained by distilling the crude gum. Venice or Venetian turpentine is the crude gum exudation of the European larch (*Pinus larix*). The larger part of the commercial article sold as Venice turpentine, is a factitious product made by dissolving rosin in spirits of turpentine. Spirits of turpentine, treated with caustic soda and redistilled, is known as "rectified spirits of turpentine" and has medicinal uses. Wood turpentine is oil of turpentine obtained from pine wood by destructive or steam distillation. Oil of turpentine is chiefly used in the manufacture of paints and varnishes. It is also used as a solvent for rubber and other gums and in making synthetic camphor.

Rosin is the brittle resin remaining after the turpentine is distilled. In commerce it is graded and sold according to color. The chief uses are as a size in paper making and in the manufacture of lead and manganese resins, which are used as paint driers. It is used also in soap making and in the textile industry.

Production.—Over 97 per cent of the oil of turpentine is produced from gum turpentine, the remainder from wood. The gum turpentine industry in 1914 was capitalized at \$20,745,000; there were 1,408 establishments, employing nearly 35,000 persons, with products valued at \$20,990,191. Oil of turpentine amounted to 27,648,939 gallons, valued at \$10,740,327 and rosin 2,944,900 barrels (280 pounds each), valued at \$10,572,300 in 1914. In 1919 (preliminary figures), 1,214 establishments produced 19,271,000 gallons of spirits of turpentine valued at \$21,918,100, and 2,272,100 barrels (280 pounds each) of rosin valued at \$34,695,000. The turpentine and rosin industry is located in the South Atlantic and Gulf States adjacent to the pine forests of those regions. Florida leads with about 45 per cent of the total output; Georgia follows with 22 per cent. The United States is the largest producer, with France ranking second.

Imports of turpentine are less than 1 per cent of the domestic production. Imports since 1917 of spirits of turpentine and crude rosin have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. | Duty. | Ad valorem rate. |
|------------------------|-----------------|----------|-------------|---------|------------------|
| SPIRITS OF TURPENTINE. | | | | | |
| | <i>Gallons.</i> | | | | <i>Per cent.</i> |
| 1918..... | 302 | \$168 | \$1.55 | | |
| 1919..... | 1,662 | 122 | .25 | | |
| 1920..... | 43,385 | 51,976 | 1.20 | | |
| 1921 (9 months)..... | 8,393 | 5,325 | .63 | | |
| ROSIN, CRUDE. | | | | | |
| | <i>Pounds.</i> | | | | |
| 1918..... | 210,443 | \$10,113 | \$0.05 | \$1,011 | 10 |
| 1919..... | 96,044 | 3,810 | .04 | 381 | 10 |
| 1920..... | 141,635 | 7,204 | .05 | 720 | 10 |
| 1921 (9 months)..... | 1,913 | 130 | .07 | | |

Exports of spirits of turpentine prior to 1915, were between 15,000,000 and 20,000,000 gallons, or about 60 per cent of the domestic production. During the war they decreased to about 8,000,000 gallons. The United Kingdom, prior to 1915, received about 35 per cent of the exports and during 1916 and 1917 about 60 per cent. The Netherlands, Germany, and Belgium were the other large consumers. Exports since 1917 by calendar years are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-------------------------|-------------|--------------|--------------|------------------|
| Spirits of turpentine: | | | | |
| Quantity (gallons)..... | 3,717,093 | 10,672,102 | 9,458,423 | 7,188,268 |
| Value..... | \$2,276,623 | \$10,448,234 | \$14,586,302 | \$4,470,490 |
| Rosin, crud: | | | | |
| Quantity (barrels)..... | 779,027 | 1,209,627 | 1,164,328 | 637,301 |
| Value..... | \$7,551,262 | \$20,433,970 | \$19,468,705 | \$3,446,079 |

Exports of turpentine go chiefly to England, Canada, Argentina, and Australia while rosin goes chiefly to England, Brazil, and Argentina.

Important changes in classification.—Gum is substituted for "Venice" and gum turpentine is specifically mentioned. First specific mention of rosin.

PARAGRAPH 1673.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1673. Turtles.

ACT OF 1909.

ACT OF 1913.

PAR. 701. Turtles [Free].

PAR. 636. Turtles [Free].

TURTLES.

(See Survey FL-32.)

Description and uses.—The best known varieties of turtles are the edible terrapin and green turtle, highly prized for soup making. The hawksbill turtle furnishes the tortoise shell.

Production in 1908 (latest figures available) amounted to 1,088,000 pounds, valued at \$40,000, of which the States of Illinois, Louisiana, and Florida reported about 65 per cent.

Imports and exports are not separately stated. (See par. 1649, p. 1428.)

PARAGRAPH 1674.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1674. Uranium, oxide and salts of.

ACT OF 1909.

ACT OF 1913.

PAR. 703. Uranium, oxide and salts of [Free].

PAR. 638. Uranium, oxide and salts of [Free].

URANIUM COMPOUNDS.

(See Survey FL-22.)

Description and uses.—Uranium is one of the rare metals. Its ores are not abundant and occur in workable quantities in only a few localities. The most important ores are pitchblend, an oxide, and carnotite, a mineral containing potassium, vanadium, and uranium. Uranium minerals and salts contain and are the source of radium. The most important compounds of uranium are the oxide, the nitrate, the acetate, the double ammonium-uranium carbonate, and sodium uranate. Uranium is used only in alloys, principally steel. The compounds are used for coloring glass and enamels, in china painting, as a mordant in dyeing and calico printing and to some extent in photography and medicine. Uranium ore is used chiefly for the production of radium. Uranium compounds may be obtained from the residue and may, therefore, be considered as by-products of the radium industry.

Production.—This country is the largest producer of uranium ores and uranium products and salts, and in case of adequate demand, the output could be increased by utilizing residues that now go to waste. Separate figures for uranium compounds are not shown. Ferrouanium (par. 302) is produced by at least one company, but the output is small, as the use of this alloy is largely in the experimental stage.

Imports of uranium compounds in 1913 were valued at \$21,435; in 1914, at \$5,782; and in 1917, at \$3,018. Before the war they came largely from Germany. In 1918 (calendar year) the imports of uranium oxide and salts of uranium were valued at \$1,309, and in 1920 at \$1,318, with none in 1919, or 1921 (nine months).

Exports.—Statistics not available.

PARAGRAPH 1675.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1675. Vegetable tallow.

ACT OF 1909.

ACT OF 1913.

PAR. 580. * * * vegetable tallow, * * * such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather, and which are fit only for such uses, and not specially provided for in this section [Free].

PAR. 498. * * * vegetable tallow, * * * such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather, not specially provided for in this section [Free].

VEGETABLE TALLOW.

(See Survey FL-15.)

Description and uses.—“Chinese vegetable tallow” obtained from the hard fat which coats the seeds of a Chinese tree, is the most important vegetable tallow, and is used largely in soap making, which industry employed 6,417,000 pounds in 1917.

The consumption of Chinese vegetable tallow was 3,654,682 pounds in 1914, 3,157,215 pounds in 1920, and for the first nine months of 1921 (preliminary figures) 2,339,108 pounds.

Imports and exports.—Statistics are not available.

Important changes in classification.—The restriction to vegetable tallow, "commonly used in soap making or in wire drawing, or for stuffing or dressing leather," has been removed.

PARAGRAPH 1676.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1676. Wax, animal; vegetable, or mineral, crude.

ACT OF 1909.

ACT OF 1913.

PAR. 707. Wax, vegetable or mineral [Free].

PAR. 641. Wax, vegetable or mineral [Free].

PAR. 506. Beeswax [Free].

PAR. 412. Beeswax [Free].

ANIMAL, VEGETABLE, AND MINERAL WAXES.

(See Survey FL-7.)

Description and uses.—The waxes of this paragraph are substances which in physical properties resemble beeswax (see par. 1457) and are mixtures of compounds containing carbon, hydrogen, and oxygen. Vegetable waxes are obtained from the fruit, leaves, or stems of many plants, a small number only being of commercial value. The principal vegetable waxes are carnauba, candelilla, Japan wax; myrtle or bayberry, and Cochin China or cay-cay. Chinese or insect wax, though classed as a vegetable, is really an animal wax. The mineral waxes, similar to paraffin (par. 1627), come from natural bituminous substances; the most important are ceresin and montan.

Carnauba wax is obtained from the leaves of a palm growing in Brazil. The wax coats both the upper and lower surfaces of the young leaves, and is removed therefrom by beating the dried leaves over a cloth. It is then purified by wetting with a little water. It is used in making hard candles, leather polishes and floor waxes, and certain varnishes, in phonograph records, and for adulterating beeswax. Mixed with paraffin, ceresin, or beeswax, it increases the hardness of these substances.

Candelilla wax occurs as a secretion covering all parts, except the roots, of a plant growing abundantly in northern Mexico and southwestern United States. It is obtained by boiling the plant with water and skimming off the melted wax. It can be used for making varnishes, insulating material, shoe polishes, floor wax, dental molding, compositions, sealing wax, waterproof papers, lacquers for metals, and in other waxes to raise the melting point.

Japan wax, one of the most important vegetable waxes, comes from the berries of certain species of *rhus* in Japan and China. The wax is obtained by crushing the berries and pressing out the wax, extracting it with volatile solvents, or by boiling with water. The crude wax is of a greenish color, but may be bleached in the sun. It is used in polishes, floor waxes, and for currying leather. Japan wax is essentially a by-product of the lacquer industry, the tree exuding a lacquer for which it is principally cultivated; the wax is prepared only in India and China.

Myrtle or bayberry wax is obtained by boiling the berries of various species of *Myrica* with water. Owing to chlorophyll it is green in

color but can be bleached on exposure to sunlight or air. Its principal use is in candles.

Cochin China wax or cay-cay is obtained from the seed kernels of a tree growing in Cochin China. Its principal use is in candles.

Chinese or insect wax is a secretion of an insect, cultivated for the purpose, which feeds on a certain species of Chinese tree. It is yellowish white and crystalline, odorless and tasteless, and is used as a polish for furniture and jade ware, as a sizing for paper, silk, and cotton goods, and as exterior coating for candles.

Ceresin (ozokerite paraffin) is a mineral wax obtained from the natural bituminous substance ozokerite. The best-known deposits of ozokerite are in Galicia; it is also found in Roumania, Utah, Argentina, and the Orange River Colony. To obtain ceresin the crude ozokerite is stirred constantly while being heated with sulphuric acid. The resulting material is decolorized with char and filtered through a filter press. Ceresin thus obtained is yellow, but can be made white by further refining. It is largely adulterated with paraffin wax and bleached rosin, and is used in candles, as a constituent of wood fillers and floor polishes, in insulating compounds, for making black shoe polish, and as an adulterant of beeswax.

Montan wax is obtained by extraction from certain lignites found in Saxony and Thuringia. The crude wax is brown in color, but by distillation with superheated steam may be obtained nearly white. It is used as a substitute for carnauba wax in polishes; in place of ceresin in insulating materials; for phonograph records; and, mixed with tar, for waterproofing roofs.

Imports of mineral waxes varied from 8,123,243 pounds, valued at \$586,076 in 1910, to 5,352,362 pounds, valued at \$439,376 in 1912. In 1914 the imports were 8,086,422 pounds, valued at \$543,103, decreasing to 1,708,514 pounds, valued at \$135,920 in 1918 (fiscal year). The largest imports were formerly from Germany and Austria-Hungary; in 1917 and 1918, mostly from British India. Imports of vegetable waxes for 1910-1915 averaged about 5,000,000 pounds annually, but increased in 1916 to 9,727,312 pounds, valued at \$1,580,530. Imports of the above materials since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|-------------|-------------|
| MINERAL WAX. | | | |
| | <i>Pounds.</i> | | |
| 1918..... | 1,809,459 | \$147,805 | \$0.08 |
| 1919..... | 3,748,080 | 454,840 | .12 |
| 1920..... | 4,272,341 | 499,758 | .12 |
| 1921 (9 months)..... | 5,962,216 | 415,665 | .07 |
| VEGETABLE WAX. | | | |
| 1918..... | 9,815,527 | \$3,659,146 | \$0.37 |
| 1919..... | 10,813,939 | 3,809,635 | .35 |
| 1920..... | 6,553,512 | 2,168,410 | .33 |
| 1921 (9 months)..... | 5,143,482 | 901,149 | .17 |
| BEESWAX. | | | |
| 1918..... | 1,613,224 | \$603,993 | \$0.37 |
| 1919..... | 2,366,632 | 891,606 | .38 |
| 1920..... | 4,143,031 | 1,418,023 | .34 |
| 1921 (9 months)..... | 1,820,870 | 375,273 | .21 |

Imports of mineral wax are chiefly from England, British India, and Germany; vegetable waxes, from Brazil, Japan, and Mexico; and beeswax from Portugal, England, and Canada.

Exports of beeswax since 1917 by calendar years have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|----------|----------|-----------|------------------|
| Quantity (pounds)..... | 165,382 | 210,046 | 632,811 | 80,650 |
| Value..... | \$65,244 | \$92,285 | \$294,592 | \$24,908 |

Countries of destination are chiefly Russia in Europe, European Turkey, and Canada.

Important changes in classification.—Animal wax, crude, has been mentioned specifically for the first time.

PARAGRAPH 1677.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1677. Disks of soft wax, commonly known as master records, or metal matrices obtained therefrom, for use in the manufacture of sound records for export purposes.

ACT OF 1909.

PAR. 462. Manufactures of * * * wax, or of which these substances or any of them is the component material of chief value, not specially provided for in this section, twenty-five per centum ad valorem; * * *.

ACT OF 1913.

PAR. 367. Manufactures of * * * wax, or of which these substances or any of them is the component material of chief value, not specially provided for in this section, 10 per centum ad valorem; * * *.

MASTER RECORDS, ETC.

Description and uses.—Disks of soft wax, commonly known as master records, are the initial stage in manufacturing phonograph records. On the wax surface the needle of the recording machine impresses vibrations caused by the sounds which are to be reproduced. The disks are subjected to electroplating which results in a metallic duplicate, except that in one case the lines are etched into the surface and in the other they are in relief. From this electrotype another is taken which is an exact counterpart in metal of the wax record, and from this second electrotype metal matrices are made for turning out the commercial record. Neither the wax disk nor the metal counterparts are actually used, nor are they suitable for use, on phonographs or graphophones.

Production data are not separately shown, as these are not commercial articles, but stages in the process of manufacture.

Imports are not separately shown. The wax disks were formerly imported as manufactures of wax.

Exports.—None.

Important changes in classification.—This is a new provision.

Suggested changes.—The limitation to use in the manufacture of sound records for export purposes is difficult of administration since records may be used instead for domestic purposes.

If the provision should remain as it is now worded, specific authority for the Secretary of the Treasury to prescribe regulations would facilitate administration by inserting the words "shall be admitted free of duty under such regulations as the Secretary of the Treasury may prescribe" after the word "purposes."

PARAGRAPH 1678.

H. R. 7456.

SENATE AMENDMENTS

PAR. 1678. Wearing apparel, articles of personal adornment, toilet articles, and similar personal effects of persons arriving in the United States; but this exemption shall include only such articles as were actually owned by them and in their possession abroad at the time of or prior to their departure from a foreign country, and as are necessary and appropriate for the wear and use of such persons and are intended for such wear and use, and shall not be held to apply to merchandise or articles intended for other persons or for sale: *Provided*, That in case of residents of the United States returning from abroad all wearing apparel, personal and household effects taken by them out of the United States to foreign countries shall be admitted free of duty, without regard to their value, upon their identity being established under appropriate rules and regulations to be prescribed by the Secretary of the Treasury: *Provided further*, That up to but not exceeding \$250 in value of articles acquired abroad by such residents of the United States for personal or household use or as souvenirs or curios, but not bought on commission or intended for sale, shall be admitted free of duty.

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PAR. 709. Wearing apparel, articles of personal adornment, toilet articles, and similar personal effects of persons arriving in the United States; but this exemption shall only include such articles as actually accompany and are in the use of, and as are necessary and appropriate for the wear and use of such persons, for the immediate purposes of the journey and present comfort and convenience, and shall not be held to apply to merchandise or articles intended for other persons or for sale: [Free] *Provided*, That in case of residents of the United States returning from abroad, all wearing apparel and other personal effects taken by them out of the United States to foreign countries

PAR. 642. Wearing apparel, articles of personal adornment, toilet articles, and similar personal effects of persons arriving in the United States; but this exemption shall include only such articles as were actually owned by them and in their possession abroad at the time of or prior to their departure from a foreign country, and as are necessary and appropriate for the wear and use of such persons and are intended for such wear and use, and shall not be held to apply to merchandise or articles intended for other persons or for sale: [Free] *Provided*, That in case of residents of the United States returning from abroad all wearing apparel, personal and household effects taken by them out

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shall be admitted free of duty, without regard to their value, upon their identity being established, under appropriate rules and regulations to be prescribed by the Secretary of the Treasury, but no more than one hundred dollars in value of articles purchased abroad by such residents of the United States shall be admitted free of duty upon their return.

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of the United States to foreign countries shall be admitted free of duty, without regard to their value, upon their identity being established under appropriate rules and regulations to be prescribed by the Secretary of the Treasury: *Provided further*, That up to but not exceeding \$100 in value of articles acquired abroad by such residents of the United States for personal or household use or as souvenirs or curios, but not bought on commission or intended for sale, shall be admitted free of duty.

TRAVELERS' WEARING APPAREL, ETC.

Important changes in classification.—The allowance accorded to returning residents of the United States for the free entry of personal and household effects and souvenirs and curios is increased from \$100 to \$250.

Suggested changes.—With the increase from \$100 to \$250, there would probably be more tourists crossing the border to buy articles in Canada for bringing into the United States without payment of duty. Would it, therefore, not be well to name a minimum time, say two weeks, for persons to remain in the foreign country in order to get the benefit of the proviso?

PARAGRAPH 1679.

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SENATE AMENDMENTS.

PAR. 1679. Whalebone, unmanufactured.

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PAR. 710. Whalebone, unmanufactured [Free].

PAR. 643. Whalebone, unmanufactured [Free].

WHALEBONE, UNMANUFACTURED.

(See Survey N-21.)

Description and uses.—Whalebone is a light, flexible, strong, elastic substance obtained from the plates that serve as teeth in baleen whales. These plates vary in length from a few inches to 10 or even 12 feet. Chemically the substance is composed of albumen, hardened by phosphate of lime. From it are made bristles for brushes and stuffing for mattresses; knobs for canes, umbrellas, and parasols; whips and artificial flowers; and, formerly, this material was used for umbrella ribs, and ribs for stiffening corsets and waists. It has been supplanted by steel in umbrellas, while gutta-percha, celluloid, featherbone, and similar materials are used in dressmaking.

Production.—Alaska, Washington, and British Columbia in 1914 produced 2,800 pounds, 3,000 pounds, and 10,000 pounds, respectively; in 1915, 120,717 pounds, 15,000 pounds, and 31,000 pounds;

in 1916, 26,624 pounds, 10,000 pounds, and 60,000 pounds. In 1918 the Alaskan output was 9,250 pounds.

Imports of whalebone, unmanufactured, in 1914 were 9,524 pounds, valued at \$11,781. Later statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 42,299 | \$25,901 | \$0.61 |
| 1919..... | 9,371 | 6,659 | .71 |
| 1920..... | 2,779 | 1,251 | .45 |
| 1921 (9 months)..... | 231 | 5 | |

Exports in 1914 were 35,034 pounds, valued at \$58,165—23,525 pounds to France and the balance to Germany; in 1917, 40,717 pounds, valued at \$53,717, chiefly to England, France, and Canada. Statistics for later years are not shown.

PARAGRAPH 1680.

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SENATE AMENDMENTS.

PAR. 1680. All barbed wire, whether plain or galvanized.

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PAR. 135. * * * barbed fence wire, three-fourths of one cent per pound, but the same shall not be subject to any additional or other rate of duty hereinbefore provided; * * *.

PAR. 645. All barbed wire, * * * [Free].

BARBED WIRE.

(See Survey C-8.)

Production of barbed wire in 1914 was 343,693 tons, and in 1919 341,130 tons, valued at \$30,895,600. The capacity of the country has been regarded as 50,000 tons per month and the normal output as 30,000. Under war demands the output rose to 40,000 tons per month. Pennsylvania, Illinois, Ohio, and Indiana are important producing States. Imports in 1914 formed only 0.002 per cent of production; exports, 26 per cent. In 1919 imports formed about 0.0001 per cent of the domestic output; and exports, about 30 per cent.

Imports.—The largest recorded import was 247 tons, in 1916. In the fiscal year 1918 imports were 67 tons. For the calendar years 1918–1921 they were as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|---------|---------|-------|------------------|
| Quantity (pounds)..... | 132,390 | 88,930 | 1,761 | ..... |
| Value..... | \$3,215 | \$5,002 | \$105 | \$19 |

Exports.—The largest export was 407,952 short tons in 1916. Since 1917 by calendar years they have been as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|------------------------|--------------|--------------|--------------|------------------|
| Quantity (pounds)..... | 526,586,382 | 227,250,062 | 290,550,449 | 50,488,570 |
| Value..... | \$23,492,540 | \$11,354,207 | \$16,066,246 | \$2,529,376 |

The exported material goes mainly to Brazil, Argentina, Canada, and Australia. During the war there was a considerable exportation of barbed wire to France, Italy, and the United Kingdom for war purposes.

Important changes in classification.—“Whether plain or galvanized” has been added.

PARAGRAPH 1681.

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PAR. 1681. Witherite.

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PAR. 711. Witherite [Free].

PAR. 646. Witherite [Free].

WITHERITE.

Description and uses.—Witherite is a mineral consisting chiefly of barium carbonate. It is sparingly distributed, England and Germany having the only deposits that can be mined economically. It is used principally as a mineral filler in the rubber industry and to some extent in the manufacture of barium chemicals. (See pars. 11 and 64 for other barium products.)

Production.—A deposit of witherite was discovered in California in 1914, but it has not proved to be of commercial importance.

Imports of witherite in 1914 were 1,223,936 pounds, valued at \$7,927, entirely from England. Latest statistics follow:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | 723,676 | \$14,134 | \$0.02 |
| 1919..... | 224,000 | 4,739 | .02 |
| 1920..... | 3,020,304 | 61,284 | .02 |
| 1921 (9 months)..... | 968,384 | 19,801 | .02 |

Exports.—None recorded.

PARAGRAPH 1682.

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PAR. 1682. Wood charcoal.

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PAR. 10. Charcoal in any form, not specially provided for in this Act; * * * twenty per centum ad valorem.

PAR. 447. Charcoal, * * * [Free].

WOOD CHARCOAL.

(See Survey A-2.)

Description and uses.—Wood charcoal is the charred wood remaining from the destructive distillation of hardwoods for the production of wood alcohol, acetic acid, and other derivatives. Considerable amounts are also made in ordinary charcoal pits, where the volatile products are not recovered. The chief uses of wood charcoal are as a decolorizing and filtering medium in the chemical industries, in the manufacture of gunpowder, and for many other purposes.

Production of wood charcoal in 1914 amounted to 44,828,000 bushels, valued at \$2,829,600, and in 1919 (preliminary figures), to 48,499,000 bushels, valued at \$8,231,400. Michigan and New York are the largest producing States.

Imports since 1917 have been as follows:

| Calendar year. | Quantity. | Value. | Unit value. |
|----------------------|----------------|----------|-------------|
| | <i>Pounds.</i> | | |
| 1918..... | | \$34,464 | |
| 1919..... | 1,914,628 | 45,250 | \$0.02 |
| 1920..... | 9,115,825 | 140,395 | .01 |
| 1921 (9 months)..... | 620,053 | 8,185 | .01 |

Exports of charcoal, chiefly to Canada, increased from \$25,310 in 1910 to \$155,470 in 1917. Statistics for subsequent years are not available.

Important changes in classification.—First specific mention of wood "charcoal."

PARAGRAPH 1683.

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PAR. 1683. Wood: Logs and round, unmanufactured timber, firewood, handle bolts, shingle bolts, gun blocks for gunstocks, rough hewn or sawed or planed on one side, sawed boards, planks, deals, and other lumber, not further manufactured than sawed, planed, and tongued and grooved; clapboards, laths, ship timber; all of the foregoing not specially provided for: *Provided*, That if there is imported into the United States any of the

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foregoing lumber, planed on one or more sides and tongued and grooved, manufactured in or exported from any country, dependency, province, or other subdivision of government, which imposes a duty upon such lumber exported from the United States, the President may enter into negotiations with such country, dependency, province, or other subdivision of government to secure the removal of such duty, and if such duty is not removed he may by proclamation declare such failure of negotiations, and in such proclamation shall state the facts upon which his action is taken together with the rates imposed, and make declaration that like and equal rates shall be forthwith imposed as herein-after provided; whereupon, and until such duty is removed, there shall be levied, collected, and paid upon such lumber, when imported directly or indirectly from such country, dependency, province, or other subdivision of government, a duty equal to the duty imposed by such country, dependency, province, or other subdivision of government upon such lumber imported from the United States.

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PAR. 712. Wood: Logs and round unmanufactured timber, including pulp woods, firewood, handle bolts, shingle bolts, gun blocks for gunstocks rough hewn or sawed or planed on one side. * * * ship timber * * * all the foregoing not specially provided for in this section [Free].

PAR. 201. Sawed boards, planks, deals, and other lumber of whitewood, sycamore, and basswood, fifty cents per thousand feet board measure; sawed lumber, not specially provided for in this section, one dollar and twenty-five cents per thousand feet board measure; but when lumber of any sort is planed or finished, there shall be levied in addition to the rates herein provided, the following:

For one side so planed or finished, fifty cents per thousand feet board measure; for planing or finishing on one side and tonguing and grooving or for planing or finishing on two sides, seventy-five cents per thousand feet board measure; for planing or finishing on three sides, or planing and finishing on two sides and tonguing and grooving, one dollar and twelve and one-half cents per thousand feet board measure; for planing and finishing on four sides, one dollar and fifty cents per thousand feet board measure; and in estimating board meas-

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PAR. 647. Wood: Logs, timber, round, unmanufactured, hewn or sawed, sided or squared; pulp woods, * * * firewood, * * * handle bolts, shingle bolts, gun blocks for gunstocks rough hewn or sawed, or planed on one side; * * * sawed boards, planks, deals, and other lumber, not further manufactured than sawed, planed, and tongued and grooved; clapboards, laths, * * * ship timber, * * * all the foregoing not specially provided for in this section [Free].

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ure under this schedule no deduction shall be made on board measure on account of planing, tonguing, and grooving.

PAR. 205. Clapboards, one dollar and twenty-five cents per thousand.

PAR. 207. Laths, twenty cents per one thousand pieces.

LOGS, LUMBER, AND TIMBER.

(See Survey FL-37.)

Description and uses.—Logs include the cut trunks of trees not further advanced in manufacture than is implied by the removal of branches. Common lengths are 16 and 32 feet. Logs of smaller diameters, designed for use in the manufacture of wood pulp are frequently known as pulp wood. Short logs, designed for the manufacture of shingles, handles, heading, staves, etc., are often known as bolts. When slender and of considerable length logs are known as poles. The terms timber and lumber overlap. Timber is the broader term including at the one extreme a stand of growing trees of merchantable size and at the other the same trees sawed and squared for building purposes. Ordinarily the pieces of smaller cross section, such as boards, planks, deals, clapboard, and laths, are known as lumber, while the term timber is applied to the pieces of larger cross section, such as studding, floor beams, and rafters. The larger pieces of timber may be hewn with an axe or adze, though now sawing is more common for timber of all sizes. The gun blocks described in the paragraph are self-explanatory. Clapboards are pieces of lumber with a wedge-shaped cross section and are used for the siding of buildings. Laths are thin strips of lumber, left rough, to be nailed to walls and ceiling, with spaces between adjacent laths in order to hold the plaster.

Production.—All forms of logs, lumber, and timber are derived from forests. The total stands in the United States are now estimated at about 460,000,000,000 board feet of hardwoods, 390,000,000,000 feet of eastern softwoods, and 1,364,000,000,000 feet of western softwoods. The forests have been much depleted, the present stand being only about one-half of the original.

The annual cut for the United States was about 34,552,100,000 board feet in 1919 and 44,509,800,000 board feet in 1909. These figures show a decline of about 10,000,000,000 board feet in the decade. One reason for the decline is the great and increasing use of substitutes—iron, steel, reinforced concrete, brick, etc.

The States of greatest importance in production in 1919 (figures in billions of board feet) are Washington, 4.96; Louisiana, 3.2; Oregon, 2.6; Mississippi, 2.4; Alabama, 1.8; Arkansas, 1.8; North Carolina, 1.6; Texas, 1.4; California, 1.3; Florida, 1.1; Wisconsin, 1.1; Virginia, 1.1. It will be seen that the South and Pacific Northwest constitute the regions of most importance.

Of the total cut (1919) about 37.8 per cent was yellow pine; 17.1 per cent, Douglas fir; 7.8 per cent, oak; 5.1 per cent, western yellow pine; 5.1 per cent, hemlock; 5 per cent, white pine; 2.8 per cent, spruce; 2.5 per cent, maple; 2.5 per cent, red gum; 1.9 per cent, cypress; 1.6 per cent, chestnut; and 10.8 per cent other species.

Classified by utilization it is estimated that of the total cut 78.4 per cent is consumed as lumber; 5.1 per cent as hewn ties; 3.1 per cent as pulp wood; 1.4 per cent as round mine timber; 1.6 per cent as fencing; 0.6 per cent as poles; 1.7 per cent as shingles; 1.7 per cent as vehicle stock, handles, woodenware, and furniture; 1.5 per cent as veneer logs; 0.8 per cent as tight staves; 0.3 per cent as tight heading; 0.6 per cent as slack staves; 0.4 per cent as slack heading; 0.2 per cent as hoops; 0.2 per cent as piling; 0.9 per cent as laths; 0.7 per cent for distillation; 0.3 per cent for tanning extract; 0.1 per cent for excelsior; and 0.4 per cent is exported. A quantity nearly equal to the amount used for hewn ties is annually lost by fire (4.3 per cent) and about the same quantity (4.8 per cent) is lost because of insects and disease.

The lumber industry includes five stages: (1) The ownership of standing timber; (2) logging, or cutting trees into logs, and delivering them to the sawmills; (3) manufacturing logs into lumber, including seasoning, surfacing, and finishing into special forms; (4) wholesale lumber distribution; and (5) retail distribution. The logging and milling branches rank first among manufactures in the employment of labor—736,000 employees, or 10½ per cent of wage earners in all manufacturing industries; they are third among manufacturing industries in value of annual product, \$1,156,000,000 in 1909. Retail establishments numbered 42,000 in 1914, with 126,000 employees. The manufacturing and retail branches have a combined investment of over \$2,000,000,000. A summary of data for sawmills and planing mills (1914) shows 33,070 establishments, 576,000 wage earners, \$1,283,378,871 in capital, \$301,925,792 paid in wages, and \$1,022,982,811 value of products. The States, ranked in importance with reference to value of output in millions of dollars, are: Washington, 78 (i. e., \$78,000,000); Louisiana, 62; Arkansas, 39; Wisconsin, 37; Mississippi, 36; Michigan, 34; Minnesota, 32; North Carolina, 30; Oregon, 27; West Virginia, 24; California, 23; Texas, 23; Virginia, 23; Maine, 22; Tennessee, 22; and Alabama, 21. This includes only States with an output exceeding \$20,000,000 in value. The industry is important, however, in many other States.

Imports and exports are made comparable in the following tables as far as data will admit. Pulp wood is not separately listed in the export trade. Paving posts, railroad ties, telephone, trolley, electric-light, and telegraph poles (not included because dutiable) should be added in order to obtain the imports and exports of wood only slightly advanced beyond the round-timber stage. Canadian percentages of exports and imports are given because of their importance and because it is with Canada that the most serious tariff problems arise. Over 90 per cent of the total log and lumber imports are from Canada. About 20 per cent of the total log and lumber exports are to Canada; the remaining 80 per cent are widely distributed, nearly all countries receiving part of their lumber supply from the United States. The chief purchasers in normal times are the United Kingdom, Mexico, Cuba, Germany, the Netherlands, France, Argentina, Panama, and the West Indies. The kinds of wood entering the export trade, with value in millions of dollars (1914), are: Yellow pine (long leaf, short leaf, and other), 23.1 (i. e., \$23,100,000); oak, 10.6; fir, 8.7; gum, 2.2; redwood, 1.9; white pine, 1.6; poplar, 1.4; spruce, 0.5; cypress, 0.4; and

all other, 6.9. Imports for the fiscal years 1914 and 1918 are shown in the following table:

| Item. | 1914 | | 1918 | |
|--|-----------|---------------------|-----------|---------------------|
| | Quantity. | Value. | Quantity. | Value. |
| IMPORTS OF LOGS AND LUMBER NOT FURTHER ADVANCED THAN FINISHED BOARDS. | | | | |
| Logs, round timber (M feet) | 148,938 | \$1,657,605 | 65,394 | \$815,247 |
| Percentage from Canada | 94.4 | 94.5 | 99.4 | 98.3 |
| Pulp wood (cords) | 1,073,023 | \$7,245,466 | 1,172,033 | \$11,088,422 |
| Percentage from Canada | 100.0 | 100.0 | 100.0 | 100.0 |
| All other unmanufactured woods | | \$559,036 | | \$1,281,626 |
| Percentage from Canada | | 31.1 | | 50.8 |
| Total unmanufactured | | \$9,462,107 | | \$13,185,295 |
| Percentage from Canada | | 95.0 | | 93.2 |
| Sawed boards, planks, deals (M feet) | 924,567 | \$17,511,627 | 1,278,482 | \$32,428,405 |
| Percentage from Canada | 96.6 | 96.6 | 98.2 | 98.4 |
| All other lumber | | \$815,279 | | \$881,122 |
| Percentage from Canada | | 78.7 | | 91.6 |
| Total manufactured | | \$18,326,906 | | \$33,309,527 |
| Percentage from Canada | | 95.8 | | 98.3 |

IMPORTS OF OTHER ITEMS IN PARAGRAPH 647 OF THE ACT OF 1913.

| | | | | |
|--|---------|-----------|---------|-----------|
| Kindling wood (bundles) | 1,830 | \$1,014 | | |
| Firewood (cords) | 16,217 | 57,378 | 26,872 | \$125,197 |
| Hop poles, hoop poles | | 2,557 | | 804 |
| Fence posts (number) | 433,207 | 32,901 | 994,705 | 86,029 |
| Handle bolts, shingle bolts (cords) | 10,366 | 31,760 | 1,853 | 5,956 |
| Gun blocks for gunstocks | | 10,258 | | 39,319 |
| Hubs for wheels, posts, heading bolts, stave bolts, last blocks, wagon blocks, car blocks, heading blocks, and like blocks | | 16,540 | | 55,660 |
| Clapboards (M) | 2,934 | 99,221 | 3,819 | 110,220 |
| Laths (M) | 571,472 | 1,616,515 | 410,535 | 1,376,273 |
| Pickets and palings (M) | 39,174 | 183,829 | 398,766 | 163,234 |
| Ship planking (M feet) | | 25,758 | 51 | 7,133 |
| Sawdust | | 21,634 | | 956 |

Statistics of imports for the calendar years 1918-1921 are as follows:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|--------------|--------------|--------------|---------------------|
| Logs and round unmanufactured timber: | | | | |
| Quantity (M feet) | 44,611 | 93,356 | 76,212 | 99,866 |
| Value | \$582,011 | \$1,690,672 | \$2,060,188 | \$1,860,727 |
| Firewood: | | | | |
| Quantity (cords) | 23,993 | 23,048 | 26,830 | 11,375 |
| Value | \$133,978 | \$130,218 | \$159,509 | \$78,838 |
| Handle bolts and shingle bolts: | | | | |
| Quantity (cords) | 294 | 466 | 2,391 | 441 |
| Value | \$1,064 | \$2,511 | \$17,313 | \$2,630 |
| Gun blocks for gunstocks, rough hewn or sawed or planed on one side: | | | | |
| Number | | 17,621 | 28,163 | 2,558 |
| Value | \$22,742 | 1,762 | \$6,900 | \$2,498 |
| Sawed lumber, n. s. p. f., not planed or finished: | | | | |
| Quantity (M feet) | 987,171 | 776,472 | 950,258 | 381,207 |
| Value | \$27,672,590 | \$25,508,689 | \$40,112,799 | \$11,832,161 |
| Sawed lumber, n. s. p. f., planed or finished: | | | | |
| Quantity (M feet) | 181,778 | 325,023 | 343,551 | 182,852 |
| Value | \$5,229,648 | \$9,913,976 | \$14,205,394 | \$4,585,046 |
| Sawed lumber, n. s. p. f., planed, tongued, and grooved: | | | | |
| Quantity (M feet) | 34,856 | 41,110 | 40,370 | 10,405 |
| Value | \$1,058,373 | \$1,406,618 | \$1,976,007 | \$382,242 |

| | 1918 | 1919 | 1920 | 1921 (9 months) |
|---|-----------|-------------|-------------|--------------------|
| Boards, planks, and deals of whitewood, sycamore, and basswood, not planed or finished: | | | | |
| Quantity (M feet)..... | 3,625 | 1,210 | 3,633 | 1,516 |
| Value..... | \$98,220 | \$41,041 | \$215,279 | \$63,626 |
| Boards, planks, and deals of whitewood, sycamore, and basswood, planed or finished: | | | | |
| Quantity (M feet)..... | 486 | 181 | 211 | 143 |
| Value..... | \$14,802 | \$5,112 | \$7,075 | \$5,513 |
| Boards, planks, and deals of whitewood, sycamore, and basswood, planed, tongued, and grooved: | | | | |
| Quantity (M feet)..... | 28 | 88 | | |
| Value..... | \$1,108 | \$2,469 | | |
| Ship planking: | | | | |
| Quantity (M feet)..... | 530 | 103 | 487 | |
| Value..... | \$31,203 | \$6,083 | \$125,459 | \$20 |
| Ship timber: | | | | |
| Quantity (M feet)..... | | 3,513 | 2,049 | 690 |
| Value..... | \$696,237 | \$292,576 | \$473,557 | \$114,164 |
| Laths: | | | | |
| Quantity (thousand)..... | 282,318 | 802,651 | 441,567 | 581,844 |
| Value..... | \$964,796 | \$3,037,000 | \$4,172,595 | \$3,199,668 |
| Clapboards, pine: | | | | |
| Quantity (thousand)..... | 862 | 1,110 | 328 | 384 |
| Value..... | \$3,244 | \$31,222 | \$16,100 | \$8,818 |
| Clapboards, spruce: | | | | |
| Quantity (thousand)..... | 2,132 | 4,295 | 1,408 | 685 |
| Value..... | \$60,223 | \$94,258 | \$80,308 | \$35,645 |
| Timber, hewn or sawed, squared or sided: | | | | |
| Quantity (cubic feet)..... | 151,525 | 28,478 | 143,097 | 18,967 |
| Value..... | \$16,957 | \$3,922 | \$66,752 | \$6,704 |
| Hop and hoop poles: | | | | |
| Quantity (number)..... | | 63,380 | 14,760 | 6,053 |
| Value..... | \$336 | \$1,143 | \$378 | \$359 |
| Kindling wood: | | | | |
| Quantity (bundles)..... | 10,610 | 5,842 | | |
| Value..... | \$1,592 | \$378 | | |
| Sawdust, (value)..... | \$1,143 | \$39,869 | \$123,769 | \$45,289 |
| Wood flour: | | | | |
| Quantity (pounds)..... | 1,220,800 | | 9,191,993 | 6,085,775 |
| Value..... | \$13,702 | \$53,830 | \$180,075 | \$89,276 |
| Broom handles: | | | | |
| Number..... | | 326,900 | 1,103,939 | 1,541,093 |
| Value..... | \$42,750 | \$11,666 | \$59,094 | \$65,121 |

The following table shows exports by fiscal years of logs and lumber not further advanced than finished boards:

| Item. | 1914 | | 1918 | |
|--|-----------|--------------|-----------|--------------|
| | Quantity. | Value. | Quantity. | Value. |
| Logs, round timber (M feet)..... | 138,067 | \$3,286,023 | 33,917 | \$703,809 |
| Percentage to Canada..... | 35.2 | 18.4 | 59.7 | 50.4 |
| Hewn and sawed timber (M feet)..... | 441,166 | \$9,172,411 | 106,217 | \$3,255,545 |
| Percentage to Canada..... | 8.5 | 11.4 | 18.7 | 22.3 |
| Total unmanufactured..... | 579,233 | \$12,428,434 | 140,134 | \$3,960,354 |
| Percentage to Canada..... | 14.9 | 13.2 | 28.6 | 27.3 |
| Boards, planks, scantlings (M feet)..... | 2,417,439 | \$57,781,467 | 1,067,709 | \$44,307,977 |
| Percentage to Canada..... | 18.0 | 18.0 | 21.2 | 18.9 |

Later statistics for calendar years follow:

| Item. | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|----------------|----------------|----------------|------------------|
| Logs and round timber: | | | | |
| Quantity (M feet)..... | 24, 011 | 36, 798 | 83, 739 | 64, 773 |
| Value..... | \$530, 052 | \$663, 895 | \$2, 984, 988 | \$2, 161, 089 |
| Sawed timber: | | | | |
| Quantity (M feet)..... | 69, 184 | 174, 294 | 160, 384 | 91, 316 |
| Value..... | \$2, 295, 311 | \$7, 729, 033 | \$7, 901, 988 | \$2, 874, 106 |
| Firewood, (value)..... | \$176, 319 | \$365, 107 | \$413, 355 | \$278, 698 |
| Lumber, boards, planks, and scantlings: | | | | |
| Quantity (M feet)..... | 1, 023, 769 | 1, 311, 210 | 1, 551, 358 | 821, 400 |
| Value..... | \$49, 177, 518 | \$64, 860, 806 | \$96, 380, 344 | \$32, 389, 046 |
| Lumber, all other, (value)..... | \$2, 348, 459 | \$3, 790, 325 | \$5, 093, 074 | \$2, 001, 824 |

Important changes in classification, etc.—See General Notes on Paragraph, page 1475.

PULP WOOD.

Description and uses.—The item, pulp wood, appearing in paragraph 647 of the act of 1913 but omitted from H. R. 7456, is of sufficient importance to call for separate treatment. Pulp-wood logs differ only from other logs in that trees of a smaller diameter may be more profitably cut for pulp wood than for saw timber. Such logs are manufactured into wood pulp, mechanical or chemical, which in turn is the raw material for the greater part of the output of paper. The most important woods are spruce, hemlock, balsam fir, poplar, jack pine, and yellow pine, though other species are used.

Production.—The consumption of pulp wood in the United States in 1920 was 6,114,072 cords. Of this quantity, 1,241,444 cords were imported, almost exclusively from Canada. Exports are not segregated, but as they are small, the difference, 4,872,628 cords, represents approximately the domestic production. It will be noted that imports represent about 20 per cent of the domestic consumption. The States of chief importance in the consumption of pulp wood are Maine, New York, Wisconsin, Pennsylvania, New Hampshire, Minnesota, and Michigan, these seven States accounting for nearly 80 per cent of the entire consumption. In a general way, except for the large importation from Canada, the pulp wood is produced in the States in which it is consumed. It thus appears that the production and consumption of pulp wood are industries concentrated in the northeastern and middle northern portions of the country.

Imports.—As shown in the above paragraph, the domestic output falls far short of meeting the demand. The relative importance of imports has been increasing, and owing to the approaching exhaustion of American pulp-wood forests is likely to increase in the future at accelerated ratio. The last statement must be qualified. The Canadian provinces permit the exportation of pulp wood only when cut on privately owned lands, and this source of supply is also approaching exhaustion. The increasing importations in the future may be wood pulp and paper rather than pulp wood. Pulp wood may be imported rough or with the bark removed by the processes of peeling or rossing. Importations for the fiscal years 1914 and 1918 are shown in the following table:

| Form. | 1914 | | | 1918 | | |
|-------------|---------|-----------|-----------------|-----------|-----------|-----------------|
| | Cords. | Per cent. | Value per cord. | Cords. | Per cent. | Value per cord. |
| Rough..... | 198,414 | 19.8 | \$6.04 | 240,491 | 18.0 | \$6.15 |
| Peeled..... | 599,299 | 60.0 | 6.40 | 964,804 | 72.4 | 9.63 |
| Rossed..... | 201,936 | 20.2 | 8.61 | 128,579 | 9.6 | 12.04 |
| Total..... | 999,649 | 100.0 | ..... | 1,333,874 | 100.0 | ..... |

Later statistics for the calendar years 1918-1921 follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|-----------------------|-------------|-------------|--------------|------------------|
| Pulp wood, rough: | | | | |
| Quantity (cords)..... | 240,491 | 241,420 | 260,914 | 222,075 |
| Value..... | \$2,200,923 | \$2,315,059 | \$3,241,523 | \$2,843,698 |
| Pulp wood, peeled: | | | | |
| Quantity (cords)..... | 964,804 | 698,785 | 824,328 | 698,051 |
| Value..... | \$9,295,009 | \$6,778,540 | \$10,820,550 | \$9,649,830 |
| Pulp wood, rossed: | | | | |
| Quantity (cords)..... | 128,579 | 107,094 | 156,204 | 72,231 |
| Value..... | \$1,548,278 | \$1,365,144 | \$2,840,866 | \$1,327,896 |

Exports.—Statistics not available.

Suggested changes.—See General Notes on Paragraph below.

GENERAL NOTES ON PARAGRAPH.

Important changes in classification.—Some of the articles specifically provided for in paragraph 647 of the act of 1913 are made dutiable in H. R. 7456. They are hubs for wheels, posts, heading bolts, stave bolts, last blocks, wagon blocks, heading blocks, and all like blocks or sticks, rough hewn, sawed, or bored (par. 406), pickets, palings, and staves (par. 407), and shingles (par. 408). Car blocks are made dutiable (par. 406), but oar blocks are not mentioned. Other commodities specifically provided for in paragraph 647 of the act of 1913 and not mentioned in H. R. 7456 are pulp woods, kindling wood, hop poles, hoop poles, ship planking, broom handles, sawdust, and wood flour.

The proviso to paragraph 1683 is new.

Suggested changes.—The proviso to this paragraph conditionally makes dutiable lumber planed on one or more sides and tongued and grooved, but makes no provision for lumber planed on any side or sides and not tongued and grooved.

Some of the articles omitted from paragraph 647 of the act of 1913 might be specifically provided for in H. R. 7456. The most important appear to be broom handles and wood flour.

There is doubt whether the words "rough hewn or sawed or planed on one side" in lines 23 and 24, page 200, are intended to apply only to "gun blocks for gunstocks," or to include as well the other preceding specific enumerations. If the intention is to limit the qualifying phrase "gun blocks for gunstocks," a semicolon should be substituted for the comma after "timber" and after "shingle bolts," in line 22, page 200, and "and" should be inserted before "shingle bolts" in line 22. A semicolon in place of the comma after the word "side" in line 24, page 200, would also be advisable.

PARAGRAPH 1684.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1684. Woods: Sticks of partridge, hair wood, pimento, orange, myrtle, bamboo, rattan, india malacca joints, and other woods not specially provided for in this section in the rough, or not further advanced than cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, fishing rods, or walking canes.

ACT OF 1909.

PAR. 713. Woods: * * * sticks of partridge, hair wood, pimento, orange, myrtle, bamboo, rattan, reeds unmanufactured, india malacca joints, and other woods not specially provided for in this section, in the rough, or not further advanced than cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, fishing rods, or walking canes [Free].

ACT OF 1913.

PAR. 648. Woods: * * * sticks of partridge, hair wood, pimento, orange, myrtle, bamboo, rattan, reeds unmanufactured, india malacca joints, and other woods not specially provided for in this section, in the rough, or not further advanced than cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, fishing rods, or walking canes [Free].

STICKS OF WOOD IN THE ROUGH.

Description and uses.—Partridge, named from a wavy pattern in the grain, is the variegated wood of certain South American and East Indian trees, used mostly for umbrella handles and walking sticks. The name is also given to an extremely heavy, hard, dense, dark-brown wood from Brazil, used in marquetry.

Pimento (*Pimenta vulgaris*), both the black and the red, belongs to the myrtle family found in Jamaica, Trinidad, and St. Lucia; it is also called allspice, baywood, and Jamaica pepper. It attains a height of 50 feet and a diameter of 20 inches, is imported in the form of timbers 20 feet long by 12 inches square, and is used for posts, fences, sleepers, naves and felloes for wheels, and for umbrellas and walking sticks. Bay rum is distilled from the leaves, which have a strong, pleasant smell. The berries are known as a spice. Oil of pimento is obtained by distillation from the fruit.

Orange (*Citrus aurantium*), familiar for its fruit, is also used as a cabinet wood, in turnery, and in a superior grade of toothpicks. The wood is of great beauty, has a fine grain, compares with boxwood in hardness, and is scarcely distinguishable from lemon wood (*Citrus medica*). The chief sources are southern Europe, Asia, America, and Africa.

Myrtle wood (*Fagus betuloides* and *Fagus cunninghami*) is derived from the Victorian or Tasmanian beech found in Tierra del Fuego and Tasmania. It attains a diameter of from 3 to 4 feet. The wood has a silky luster and is used in bedroom furniture.

The bamboos (*Bambuseæ*) are giant grasses, including some 20 genera and 200 species. They are tropical plants, but may be grown in California and along the south Atlantic coast, and are of surprisingly rapid growth, Florida stalks having attained a height of 72 feet in a single season. The foliage consists of delicate ostrich-like plumes. The stems, upward of 70 feet high, with a diameter of 4 to 6 inches,

are broken by knots or joints. The Chinese eat tender bamboo shoots with bamboo chopsticks; paper is made from the fiber and pencils from small joints in which are inserted tufts of goat's hair. The hard siliceous exterior is impervious to water, while the fresh, uncured stems may be bent to many purposes. It is used for masts, cables, rafters, chains, flutes, rattles, posts, poles, utensils, troughs, pipes, roofing, balloon frames, and incandescent lamps. A common use in this country is for fishing rods.

Rattan, reeds: (See par. 411, p. 580.)

India malacca joints: Canes from various species of the genus *Calamus*, as *Calamus scipionum*, *Calamus latifolium*, and others, are imported from the Orient as malacca joints or canes, used as walking sticks or umbrella handles.

Hair wood: No information secured.

Production.—Orange is grown for fruit in the United States and the bamboo may be grown in Florida and California, but for the most part the woods mentioned in paragraph 1684 are imported woods, not growing in the United States. No data as to the orange and bamboo that may be grown for wood are obtainable.

Imports.—Red cedar, mentioned in paragraph 648 of the act of 1913 but dropped from the enumeration of woods in paragraph 1684, shows the following imports for the calendar years 1918–1921:

| | 1918 | 1919 | 1920 | 1921(9 months). |
|------------------------|----------|-------|----------|-----------------|
| Quantity (M feet)..... | 2,527 | 8 | 206 | ..... |
| Value..... | \$44,031 | \$675 | \$22,385 | ..... |

Imports of certain cabinet woods in the rough, enumerated in paragraph 648 of the free list of the act of 1913 but transferred to the dutiable list in H. R. 7456, will be found in connection with paragraph 404. Imports (calendar years) of the items remaining in paragraph 1684, i.e., sticks of partridge, hair wood, pimento, orange, myrtle, bamboo, rattan, india malacca joints, and other woods, in the rough or not, further advanced than cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, fishing rods, or walking canes, have been by calendar years as follows: 1918, \$152,923; 1919, \$206,264; 1920, \$675,101; 1921, (nine months), \$271,844.

Exports.—None recorded.

Important changes in classification.—The following items, enumerated in paragraph 648 of the free list of the act of 1913, have been transferred to the dutiable list, paragraph 404 in H. R. 7456: Spanish cedar, lignum-vitæ, lancewood, ebony, box, granadilla, mahogany, rosewood, and satinwood, in the log, rough, or hewn only. Red cedar (*Juniperus virginiana*) timber, hewn, sided, squared, or round, in the free list (par. 648) of the act of 1913 is dropped from specific mention altogether in H. R. 7456, but logs of cedar are provided for in paragraph 402, and timber hewn, sided, or squared otherwise than by sawing (not less than 8 inches square) and round timber used for spars or in building wharves, in paragraph 401. Red cedar in the form of round unmanufactured timber, not included in the foregoing, or such cedar sawed, would apparently be admitted free under paragraph 1683, but the latter would be subject to the dutiable proviso for certain lumber.

Cabinet woods not specifically enumerated, in the log, rough or hewn, have also been omitted, thus falling within the general provisions.

Suggested changes.—Page 201, line 25, of H. R. 7456: Insert a comma after “for.”

Page 201, line 25, and page 202, line 1, of H. R. 7456: Strike out “in this section.”

PARAGRAPH 1685.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1685. Original paintings in oil, mineral, water, or other colors, pastels, original drawings and sketches in pen and ink or pencil and water colors, artists' proof etchings unbound, and engravings and woodcuts unbound, original sculptures or statuary, including not more than two replicas or reproductions of the same; but the terms “sculpture” and “statuary” as used in this paragraph shall be understood to include professional productions of sculptors only, whether in round or in relief, in bronze, marble, stone, terra cotta, ivory, wood, or metal, or whether cut, carved, or otherwise wrought by hand from the solid block or mass of marble, stone, or alabaster, or from metal, or cast in bronze or other metal or substance, or from wax or plaster, made as the professional productions of sculptors only; and the words “painting” and “sculpture” and “statuary” as used in this paragraph shall not be understood to include any articles of utility, nor such as are made wholly or in part by stenciling or any other mechanical process; and the words “etchings,” “engravings,” and “woodcuts” as used in this paragraph shall be understood to include only such as are printed by hand from plates or blocks etched or engraved with hand tools and not such as are printed from plates or blocks etched or engraved by photochemical or other mechanical processes.

ACT OF 1909.

PAR. 717. Works of art, including paintings in oil, mineral, water, or other colors, pastels, original drawings and sketches, etchings and engravings, and sculptures, which are proved to the satisfaction of the Secretary of the Treasury under rules prescribed by him to have been in existence more than twenty years prior to the date of their importation, but the term “sculptures” as herein used shall be understood to include professional productions of sculptors only, whether round or in relief, in bronze, marble, stone, terra cotta, ivory, wood, or metal; and the word “painting,” as used in this Act, shall not

ACT OF 1913.

PAR. 652. Original paintings in oil, mineral, water, or other colors, pastels, original drawings and sketches in pen and ink or pencil and water colors, artists' proof etchings unbound, and engravings and woodcuts unbound, original sculptures or statuary, including not more than two replicas or reproductions of the same; but the terms “sculpture” and “statuary” as used in this paragraph shall be understood to include professional productions of sculptors only, whether in round or in relief, in bronze, marble, stone, terra cotta, ivory, wood, or metal, or whether cut, carved, or otherwise

ACT OF 1909.

be understood to include any article of utility nor such as are made wholly or in part by stenciling or any other mechanical process; and the words "etchings" and "engravings," as used in this Act, shall be understood to include only such as are printed by hand from plates or blocks etched or engraved with hand tools, and not such as are printed from plates or blocks etched or engraved by photochemical processes. * * * [Free.]

ACT OF 1913.

wrought by hand from the solid block or mass of marble, stone, or alabaster, or from metal, or cast in bronze or other metal or substance, or from wax or plaster, made as the professional production of sculptors only; and the words "painting" and "sculpture" and "statuary" as used in this paragraph shall not be understood to include any articles of utility, nor such as are made wholly or in part by stenciling or any other mechanical process; and the words "etchings," "engravings," and "woodcuts" as used in this paragraph shall be understood to include only such as are printed by hand from plates or blocks etched or engraved with hand tools and not such as are printed from plates or blocks etched or engraved by photochemical or other mechanical processes [Free].

ORIGINAL PAINTINGS, ORIGINAL DRAWINGS AND SKETCHES, ARTISTS' ETCHINGS AND ENGRAVINGS AND WOODCUTS UNBOUND, ORIGINAL SCULPTURES OR STATUARY, ETC.

(See Survey N-24.)

For description and uses of works of art, original paintings, etc., see paragraph 1447, page 1195.

Imports of works of art, etc., in 1914 were valued at \$11,303,541. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|-------------|-----------|-------------|---------------------|
| Original paintings in oil, mineral, water, or other colors, pastels, original drawings, sketches in pen and ink, etc..... | \$1,579,850 | \$108,964 | \$6,270,348 | \$4,107,851 |
| Artists' proof etchings unbound, and engravings and woodcuts unbound..... | 84,151 | 392,879 | 588,388 | 266,123 |
| Original sculptures or statuary, including not more than two replicas or reproductions of same..... | 58,148 | 108,964 | 171,889 | 103,136 |

Exports of art works are shown under paragraphs 1447.

Suggested changes.—Page 202, lines 10 and 18 of H. R. 7456: Strike out the word "paragraph" and insert "Title and in Title I."

Page 202, lines 5 and 6, of H. R. 7456: Substitute "pen and ink, pencil or water colors, in whole or in combination," for "pen and ink or pencil and water colors," if it is desired to exempt from duty all such sketches; otherwise the provision should be so worded as to exclude sketches or designs of utilitarian or industrial nature.

It is represented to the Tariff Commission that artists' proof etchings to be admitted without payment of duty must be signed in pencil, and that omission from the bill H. R. 7456 of the provision in paragraph 425 of the act of 1913 for etchings printed more than 20 years at the date of importation will exclude from free entry artists' proof etchings unbound, printed before the practice of signing artists' proofs arose (25 years ago). Such etchings of high merit as artistic productions would be dutiable although more modern signed artists' proof etchings would be exempt from duty under the bill as passed by the House of Representatives.

It has been represented to the Tariff Commission that engravings, etchings, and lithographic prints, bound or unbound, which shall have been printed more than 20 years at the date of importation, should be exempted from duty, which, if desired, could be done by insertion of the provision followed by a comma and the words "and all" before "hydrographic charts" in paragraph 1529, page 1259.

PARAGRAPH 1686.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1686. Works of art, drawings, engravings, photographic pictures, and philosophical and scientific apparatus brought by professional artists, lecturers, or scientists arriving from abroad for use by them temporarily for exhibition and in illustration, promotion, and encouragement of art, science, or industry in the United States, and not for sale, shall be admitted free of duty, under such regulations as the Secretary of the Treasury shall prescribe; but bonds shall be given for the payment to the United States of such duties as may be imposed by law upon any and all such articles as shall not be exported within six months after such importation: *Provided*, That the Secretary of the Treasury may, in his discretion, extend such period for a further term of six months in cases where application therefor shall be made.

ACT OF 1909.

ACT OF 1913.

PAR. 714. Works of art, drawings, engravings, photographic pictures, and philosophical and scientific apparatus brought by professional artists, lecturers, or scientists arriving from abroad for use by them temporarily for exhibition and in illustration, promotion, and encouragement of art, science, or industry in the United States, and not for sale, shall be admitted free of duty, under such regulations as the Secretary of the Treasury shall prescribe; but bonds shall be given for the payment to the United States of such duties as may be imposed by law upon any and all such articles as shall not be exported within six months after such importation: *Provided*, That the Secretary of the Treasury may, in his discretion, extend such period for a further term of six months in cases where applications therefor shall be made.

PAR. 653. Works of art, drawings, engravings, photographic pictures, and philosophical and scientific apparatus brought by professional artists, lecturers, or scientists arriving from abroad for use by them temporarily for exhibition and in illustration, promotion, and encouragement of art, science, or industry in the United States, and not for sale, shall be admitted free of duty, under such regulations as the Secretary of the Treasury shall prescribe; but bonds shall be given for the payment to the United States of such duties as may be imposed by law upon any and all such articles as shall not be exported within six months after such importation: *Provided*, That the Secretary of the Treasury may, in his discretion, extend such period for a further term of six months in cases where application therefor shall be made.

WORKS OF ART, ETC., IMPORTED TEMPORARILY, ETC.

(See Survey N-24.)

Description and uses.—See paragraph 1447, page 1195.
Import and export statistics are not separately shown.

PARAGRAPH 1687.

H. R. 7456.

SENATE AMENDMENTS.

¶ PAR. 1687. Works of art, collections in illustration of the progress of the arts, sciences, agriculture, or manufactures, photographs, works in terra cotta, parian, pottery, or porcelain, antiquities and artistic copies thereof in metal or other material, imported in good faith for exhibition at a fixed place by any State or by any society or institution established for the encouragement of the arts, science, agriculture, or education, or for a municipal corporation, and all like articles imported in good faith by any society or association, or for a municipal corporation, for the purpose of erecting a public monument, and not intended for sale nor for any other purpose than herein expressed; but bond shall be given, under such rules and regulations as the Secretary of the Treasury may prescribe, for the payment of lawful duties which may accrue should any of the articles aforesaid be sold, transferred, or used contrary to this provision, and such articles shall be subject at any time to examination and inspection by the proper officers of the customs: *Provided*, That the privileges of this and the preceding paragraph shall not be allowed to associations or corporations engaged in or connected with business of a private or commercial character.

ACT OF 1909.

ACT OF 1913.

PAR. 715. Works of art, collections in illustration of the progress of the arts, sciences, or manufactures, photographs, works in terra cotta, parian, pottery, or porcelain, antiquities and artistic copies thereof in metal or other material, imported in good faith for exhibition at a fixed place by any State or by any society or institution established for the encouragement of the arts, science, or education, or for a municipal corporation, and all like articles imported in good faith by any society or association, or for a municipal corporation for the purpose of erecting a public monument, and not intended for sale, nor for any other purpose than herein expressed; [Free] but bonds shall be given under such rules and regulation as the Secretary of the Treasury may prescribe, for the payment of lawful duties which may accrue should any of the articles aforesaid be sold, transferred, or used contrary to this provision, and such articles shall be subject, at any time, to examination and inspection by the proper officers of the customs: *Provided*, That the privileges of this and the preceding section shall not be allowed to associations or corporations engaged in or connected with business of a private or commercial character.

PAR. 654. Works of art, collections in illustration of the progress of the arts, sciences, agriculture, or manufactures, photographs, works in terra cotta, parian, pottery, or porcelain, antiquities and artistic copies thereof in metal or other material, imported in good faith for exhibition at a fixed place by any State or by any society or institution established for the encouragement of the arts, science, agriculture, or education, or for a municipal corporation, and all like articles imported in good faith by any society or association, or for a municipal corporation, for the purpose of erecting a public monument, and not intended for sale nor for any other purpose than herein expressed; [Free] but bond shall be given under such rules and regulations as the Secretary of the Treasury may prescribe, for the payment of lawful duties which may accrue should any of the articles aforesaid be sold, transferred, or used contrary to this provision, and such articles shall be subject, at any time, to examination and inspection by the proper officers of the customs: *Provided*, That the privileges of this and the preceding paragraph shall not be allowed to associations or corporations engaged in or connected with business of a private or commercial character.

WORKS OF ART, ETC., FOR EXHIBITION, ETC.

(See Survey N-24.)

Description and uses.—For works of art for exhibition, see paragraph 1447, page 1195.

Imports of works of art imported for exhibition in 1914 were valued at \$936,642. Later imports by calendar years have been valued as follows: 1918, \$241,737; 1919, \$84,139; 1920, \$172,210; 1921 (nine months), \$232,337.

Exports of art works are shown under paragraph 1447.

PARAGRAPH 1688.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1688. Works of art, productions of American artists residing temporarily abroad, or other works of art, including pictorial paintings on glass, imported expressly for presentation to a national institution or to any State or municipal corporation or incorporated religious society, college, or other public institution, including stained or painted window glass or stained or painted glass windows imported by houses of worship, and excluding any article, in whole or in part, molded, cast, or mechanically wrought from metal within twenty years prior to importation; but such exemption shall be subject to such regulations as the Secretary of the Treasury may prescribe.

ACT OF 1909.

ACT OF 1913.

PAR. 716. Works of art, productions of American artists residing temporarily abroad, or other works of art, including pictorial paintings on glass, imported expressly for presentation to a national institution, or to any state or municipal corporation or incorporated religious society, college, or other public institution, except stained or painted window glass or stained or painted glass windows, and except any article, in whole or in part, molded, cast, or mechanically wrought from metal within twenty years prior to importation; but such exemption shall be subject to such regulations as the Secretary of the Treasury may prescribe [Free].

PAR. 655. Works of art, productions of American artists residing temporarily abroad, or other works of art, including pictorial paintings on glass, imported expressly for presentation to a national institution or to any State or municipal corporation or incorporated religious society, college, or other public institution, including stained or painted window glass or stained or painted glass windows imported to be used in houses of worship, and excluding any article, in whole or in part, molded, cast, or mechanically wrought from metal within twenty years prior to importation; but such exemption shall be subject to such regulations as the Secretary of the Treasury may prescribe [Free].

WORKS OF ART, OF AMERICAN ARTISTS, ART WORKS FOR PRESENTATION, ETC.

(See Survey N-24.)

Description and uses.—For works of art, productions of American artists, see paragraph 1447, page 1195.

Imports of works of art, productions of American artists residing temporarily abroad, etc., in 1914, were valued at \$287,418. Later statistics for calendar years follow:

| | 1918 | 1919 | 1920 | 1921 (9 months). |
|---|----------|-----------|-----------|------------------|
| Art works, production of American artists residing abroad..... | \$25,863 | \$228,796 | \$224,591 | \$92,039 |
| Art works, pictorial paintings on glass, etc., imported for presentation to institutions or societies, excluding articles wrought from metal within 20 years..... | 92,066 | 372,811 | 163,921 | 250,687 |

Exports of art works are shown under paragraph 1447.

Important changes in classification.—In this paragraph the stained or painted glass windows are required to be imported by houses of worship. In the act of 1913 (par. 665) they are required to be imported to be used in houses of worship.

PARAGRAPH 1689.

H. R. 7456.

SENATE AMENDMENTS.

PAR. 1689. Works of art (except rugs and carpets), collections in illustration of the progress of the arts, works in bronze, marble, terra cotta, parian, pottery, or porcelain, artistic antiquities, and objects of art of ornamental character or educational value which shall have been produced more than one hundred years prior to the date of importation, but the free importation of such objects shall be subject to such regulations as to proof of antiquity as the Secretary of the Treasury may prescribe.

ACT OF 1909.

ACT OF 1913.

PAR. 717. * * * works of art (except rugs and carpets), collections in illustration of the progress of the arts, works in bronze, marble, terra cotta, parian, pottery, or porcelain, artistic antiquities, and objects of art of ornamental character or educational value which shall have been produced more than one hundred years prior to the date of importation, but the free importation of such objects shall be subject to such regulations as to proof of antiquity as the Secretary of the Treasury may prescribe [Free].

PAR. 656. Works of art (except rugs and carpets), collections in illustration of the progress of the arts, works in bronze, marble, terra cotta, parian, pottery, or porcelain, artistic antiquities, and objects of art of ornamental character or educational value which shall have been produced more than one hundred years prior to the date of importation, but the free importation of such objects shall be subject to such regulations as to proof of antiquity as the Secretary of the Treasury may prescribe [Free].

WORKS OF ART, 100 YEARS OLD.

(See Survey N-24.)

Description and uses.—For works of art produced more than 100 years previous to importation, see paragraph 1447, page 1195.

Imports in 1914 of works of art produced more than 100 years prior to date of importation were valued at \$22,302,626; mostly from France, England, Germany, and Italy. Later statistics for calendar years are as follows: 1918, \$6,023,673; 1919, \$15,119,614; 1920, \$20,256,347; 1921 (nine months), \$7,482,250.

Exports of art works are shown under paragraph 1447.

Suggested changes.—Importations under this provision in the act of 1913 (par. 656) run into the millions in value, those in 1920 amounting to \$20,256,000. Every importation must be examined in its entirety and occasionally experts are called in to assist the examiners in determining the question of antiquity. In 1919, apart from the work in the collector's office, 8 to 10 examiners and from 25 to 30 employees in New York devoted a large part of their time to the examination of such importations. A provision reimbursing the Government for the heavy expenses incurred might be given consideration if there shall be no restriction upon importation incorporated in the bill. A definite date instead of 100 years might also be advisable; 1820 would be especially appropriate for furniture and might be applied also to other articles enumerated in the paragraph.

PARAGRAPH 1690.

H. B. 7456.

SENATE AMENDMENTS.

PAR. 1690. Zaffer.

ACT OF 1909.

ACT OF 1913.

PAR. 718. Zaffer [Free].

PAR. 657. Zaffer [Free].

ZAFFER.

(See Survey FL-6.)

Description and uses.—Zaffer is the name given to an impure variety of cobalt oxide obtained by roasting speiss or carefully picked cobalt ores. This name is often loosely applied to mixtures of zaffer proper with silica, oxides of iron, manganese, etc. It is used to produce a blue color in porcelain painting and in enameling pottery.

Production.—Little, if any, zaffer is produced in the United States.

Imports of zaffer are included with those of cobalt and cobalt ore (see par. 1547, p. 1279).

LISTS OF ARTICLES TRANSFERRED FROM THE DUTIABLE SCHEDULES AND THE FREE LIST, RESPECTIVELY, OF THE TARIFF ACT OF OCTOBER 3, 1913, MODIFIED BY THE ACT OF SEPTEMBER 8, 1916, TO THE FREE LIST AND DUTIABLE SCHEDULES OF THE BILL H. R. 7456, AS PASSED BY THE HOUSE OF REPRESENTATIVES JULY 21, 1921.

LIST NO. 1.

Articles transferred from the dutiable schedules of the act of 1913 to the free list of the bill H. R. 7456.

| Act of 1913, paragraph. | Commodity. | H. R. 7456, paragraph. |
|-------------------------|---|------------------------|
| 49 | Ambergris not containing alcohol. Civet, and musk grained or in pods, not containing alcohol. | 1506 |
| 144 | Matte containing antimony but not containing more than 10 per centum of lead. | 1509 |
| 31 | Saffron and safflower, and extract of, and saffron cake:..... | 1510 |
| | Carbazole having a purity of between 25 and 65 per cent, and anthracene having a purity of between 25 and 30 per cent [Group II, act of 1918.] | 1546 |
| 147 | Copper in rolled plates..... | 1553 |
| 143 | Barium, calcium, sodium, and potassium, and alloys of which said metals are the component material of chief value. | 1559 |
| 154 | Metallic mineral substances in a crude state, and metals unwrought. | 1559 |
| 46 | Oils, jasmine or jasimine..... | 1566 |
| 49 | Enfleurage greases and floral essences, not containing alcohol... | 1566 |
| 36 | Gums: Amber, and amberoid, unmanufactured or crude gum; arabic or senegal. | 1577 |
| 369 | Ivory tusks in their natural state, or cut vertically across the grain only, with the bark left intact. | 1591 |
| 381 | Meerschaum, crude or unmanufactured..... | 1612 |
| 154 | Monazite sand and thorite..... | 1616 |
| 46 | Oils, distilled and essential: Anise or anise seed, bergamot, almond, bitter; caraway, cassia, cinnamon, citronella, lavender, lemon-grass, lime, neroli or orange flower, origanum, red or white; attar of roses (otto of roses in H. R. 7456), rosemary or anthoss, aspic or spike lavender, thyme. In addition to the foregoing, camphor, geranium, lignaloe, palmarosa, pettigrain, and ylang ylang oils, mentioned specifically on free list of H. R. 7456, are dutiable under paragraph 46 of the act of 1913 as essential and distilled oils, n. s. p. f. | 1625 |
| 45 | Oils expressed: Almond oil, sweet, and sesame or sesamum seed or bean oil. | 1626 |
| 193 | Rice cleaned for use in the manufacture of canned foods..... (Par. 9 of the emergency tariff act imposes a duty. | 1643 |
| 385 | Rosin..... | 1672 |
| 367 | Disks of soft wax, commonly known as master records, or metal matrices obtained therefrom, for use in the manufacture of sound records for export purposes. | 1677 |
| 367 | Manufactures of wax..... | 1677 |
| 642 | Personal effects of returning residents of the United States: Exemption raised from \$100 to \$250. | 1678 |

LIST NO. 2.

Articles transferred from the free list of the act of 1913 to the dutiable schedules of the bill
H. R. 7456.

| Act of 1913, paragraph. | Commodity. | H. R. 7456, paragraph. |
|----------------------------|---|---------------------------|
| SCHEDULE I. | | |
| 387 | Acids: Acetic or pyroligneous, arsenic or arsenious, phosphoric, prussic, silicic. | 1 |
| 393 | Alcohol, methyl, or wood..... | 4 |
| 449 | Chromium, hydroxide of, crude..... | 5 |
| 547 | Sugar of milk..... | 5 |
| 561 | Ichthyol oil..... | 5 |
| 395 | Ammonia, sulphate of, perchlorate of, and nitrate of..... | 7 |
| 440 | Calcium carbide..... | 15 |
| | Cresol containing 5 per cent or more of tar acid, and distillates which yield 5 per cent of tar acids between 190° and 200° C. [Group I, act of 1916.] | 25 |
| | Quinolin [Group I, act of 1916]..... | 25 |
| 501 | Explosive substances of coal-tar origin used for mining, blasting, and artillery purposes. | 26 |
| 538 | Madder and munjeet, ground or prepared, and all extracts of... | 26 |
| 409 | Balm of Gilead, when advanced..... | 31 |
| 592 | Salep, or salop, when advanced..... | 31 |
| 388 | Aconite, when advanced..... | 32 |
| 405 | Asafetida, when advanced..... | 32 |
| 454 | Cocculus indicus, when advanced..... | 32 |
| 516 | Ipecac, when advanced..... | 32 |
| 519 | Jalap, when advanced..... | 32 |
| 541 | Manna, when advanced..... | 32 |
| 477 | Belladonna, digitalis, henbane, and stramonium, when not advanced. | 33 |
| 624 | Tanning materials: Extracts of quebracho, and of hemlock bark; extracts of oak and chestnut and other barks and woods other than dyewoods commonly used for tanning; all the foregoing not containing alcohol. Extracts of divi-divi, mangrove, myrobolan, valonia, and wattle mentioned in H. R. 7456 but not in the act of 1913. | 36 |
| 526 | Lac dye..... | 36 |
| 515 | Iodine, resublimed..... | 42 |
| 433 | Bromin..... | 43 |
| 539 | Magnesite, crude or calcined, not purified..... | 47 |
| 498 | Grease, fats, and oils such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather. | 49 |
| 561 | Cod and cod-liver oil..... | 49 |
| 561 | Coconut, cottonseed, and soya bean oil [Emergency tariff act of 1921 (par. 11) imposes a duty]. | 50 |
| 561 | Birch tar, cajeput, and juglandium oil..... | 54 |
| 569 | Paris green and London purple..... | 59 |
| 575 | Phosphorus..... | 60 |
| 447 | Blood char, bone black or bone char, not suitable for use as a pigment. | 66 |
| 580 | Potash, carbonate of, hydrate of, when not containing more than 15 per centum of caustic soda, and crude nitrate of, or saltpetre. | 75 |
| 594 | Santonin and its combinations with acids..... | 76 |
| 593 | Salt..... | 78 |
| 605 | Soda, arseniate of, soda ash, silicate of soda..... | 78 |
| 615 | Strontia, oxide of, or protoxide of strontian..... | 82 |
| 616 | Strychnia or strychnine and its combinations with acids..... | 83 |

Articles transferred from the free list of the act of 1913 to the dutiable schedules of the bill
H. R. 7456—Continued.

| Act of 1913, paragraph. | Commodity. | H. R. 7456, paragraph. |
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| SCHEDULE 2. | | |
| 444 | Roman, Portland, and other hydraulic cement..... | 203 |
| 614 | Limestone, unmanufactured..... | 204 |
| 411 | Bauxite or beauxite, crude, not advanced..... | 207 |
| 450 | Common blue clay and Gross-Almerode glass-pot clay, in cases or casks..... | 207 |
| 629 | Terra alba..... | 207 |
| 621 | Talcum, steatite, and French chalk, crude, unground..... | 209 |
| 579 | Plumbago..... | 211 |
| 494 | Glass plates or disks, rough-cut or unwrought, for use in manu- facture of optical instruments..... | 227 |
| 493 | Glass enamel, white, for watch and clock dials..... | 231 |
| 438 | Burrstones, manufactured..... | 234 |
| 470 | Curling stones..... | 235 |
| SCHEDULE 3. | | |
| 518 | Iron in pigs, iron kentledge, spiegeleisen, wrought iron, and scrap and scrap steel..... | 301 |
| 518 | Ferromanganese..... | 302 |
| 540 | Manganese, oxide and ore of..... | 302 |
| 549 | Molybdenum ore..... | 302 |
| 633 | Tungsten-bearing ores of all kinds..... | 302 |
| 518 | Iron in slabs, blooms, loops, or other forms less finished than iron bars, and more advanced than pig iron..... | 303 |
| 613 | Steel ingots, clogged ingots, blooms and slabs, die blocks or blanks, and billets, not containing alloy..... | 304 |
| 509 | Hoop or band iron or hoop or band steel, cut to lengths or wholly or partly manufactured into hoops or ties, for baling cotton or any other commodity..... | 314 |
| 554 | Horseshoe-nail rods..... | 315 |
| 645 | Galvanized wire..... | 317 |
| 587 | Railway bars, iron or steel, T-rails, punched iron or steel flat rails..... | 322 |
| 554 | Cut nails and cut spikes of iron or steel, horseshoe nails, hob- nails, wire staples, wire nails, spikes of iron or steel, and cut tacks, brads, or sprigs..... | 331 |
| 554 | Horse, mule, or ox shoes of iron or steel..... | 333 |
| 612 | Steel engraved forms for bonds, debentures, stock certificates, etc..... | 341 |
| 555 | Needles for shoe machines..... | 343 |
| 573 | Philosophical and scientific apparatus, etc., for institutions.... | 360 |
| 578 | Vases, retorts, and other apparatus, vessels, and parts thereof composed of platinum for chemical uses..... | 360 |
| 441 | Cream separators valued at not exceeding \$75..... | 372 |
| 631 | Tin in bars, blocks, pigs, or grain or granulated and scrap tin.... | 386 |
| 572 | Pewter and Britannia metal, old, fit only to be remanufactured.. | 386, 389 |
| 637 | Type, stereotype metal, electrotype metal, linotype composi- tion, old, fit only to be remanufactured..... | 389 |
| 470 | Quoits, and curling-stone handles..... | 393 |
| 560 | Miners' rescue appliances, designed for emergency use in mines where artificial breathing is necessary in the presence of poisonous gases, to aid in the saving of human life, and miners' safety lamps, and parts, accessories, and appliances for cleaning, repairing, and operating all the foregoing..... | 393 |
| 578 | Platinum in sheets and platinum wire..... | 393 |
| 612 | Engraved steel dies and rolls, suitable for use in engraving and printing bonds, etc..... | 393 |

Articles transferred from the free list of the act of 1913 to the dutiable schedules of the bill
H. R. 7456—Continued.

| Act of 1913, paragraph. | Commodity. | H. R. 7456, paragraph. |
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| SCHEDULE 4. | | |
| 647 | Timber, hewn, sided, or squared..... | 401 |
| 648 | Red cedar (<i>Juniperus virginiana</i>) timber, hewn, sided, or squared otherwise than by sawing. | 401 |
| 647 | Round, unmanufactured timber when used for spars or in building wharves; logs (including pulp woods) of fir, spruce, cedar, and western hemlock (conditionally). | 402 |
| 648 | Cedar, including Spanish cedar, lignum-vitæ, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all forms of cabinet woods, in the log, rough or hewn only. | 404 |
| 647 | Fence posts, hubs for wheels, posts, heading bolts, stave bolts, last blocks, wagon blocks, oar blocks, heading blocks, and all like blocks or sticks, rough hewn, sawed, or bored. | 406 |
| 647 | Pickets, palings, and staves..... | 407 |
| 647 | Shingles..... | 408 |
| 647 | Kindling wood, hop poles, hoop poles, ship planking, broom handles, sawdust, and wood flour. | 414 |
| SCHEDULE 5. | | |
| 591 | Salicin..... | 505 |
| SCHEDULE 6. | | |
| None. | | |
| SCHEDULE 7. | | |
| 545 | Fresh beef and veal..... (Par. 14 of the emergency tariff act imposes a duty.) | 701 |
| 562 | Oleo stearin..... | 701 |
| 619 | Cattle..... (Par. 12 of the emergency tariff act imposes a duty.) | 701 |
| 622 | Tallow..... | 701 |
| 545 | Fresh mutton and lamb..... (Par. 14 of the emergency tariff act imposes a duty.) | 702 |
| 619 | Sheep and all other domestic live animals suitable for human food. (Par. 13 of the emergency tariff act imposes a duty on sheep.) | 702 |
| 528 | Lard, lard compounds, and substitutes..... | 703 |
| 545 | Fresh pork, bacon, and hams..... (Par. 14 of the emergency tariff act imposes a duty.) | 703 |
| 619 | Swine..... | 703 |
| 419 | Bladders and all integuments, tendons, and intestines of animals, crude, dried, or salted for preservation only. | 706 |
| 545 | Meats of all kinds, prepared or preserved..... (Par. 14 of the emergency tariff act imposes a duty.) | 706 |
| 547 | Milk and cream..... (Par. 23 of the emergency tariff act imposes a duty.) | 707 |
| 547 | Milk and cream preserved or condensed or sterilized..... (Par. 24 of the emergency tariff act imposes a duty.) | 708 |
| 416 | Birds and land and water fowls..... | 711 |
| 478 | Eggs of poultry..... | 713 |
| 619 | Domestic live animals suitable for food..... | 716 |
| 483 | Fresh-water fish and all other fish not specially provided for.... | 718, 719, 720, 721 |
| 435 | Buckwheat and buckwheat flour..... | 724 |
| 465 | Corn or maize..... (Par. 4 of the emergency tariff act imposes a duty.) | 725 |

Articles transferred from the free list of the act of 1913 to the dutiable schedules of the bill
H. R. 7456—Continued,

| Act of 1913, paragraph. | Commodity. | H. R. 7456, paragraph. |
|--|--|---------------------------|
| SCHEDULE 7—Continued. | | |
| 466 | Corn meal..... | 725 |
| 589 | Rye and rye flour..... | 729 |
| 644 | Wheat, wheat flour, semolina, and other wheat products..... (Pars. 1 and 2 of the emergency tariff act impose a duty.) | 730 |
| 417 | Biscuits and wafers, when not containing chocolate, nuts, fruit, or confectionery..... | 734 |
| 640 | Wafers, unleavened or not edible..... | 734 |
| 488 | Fruits, green, ripe, or dried (bananas)..... | 736 |
| 488 | Berries, green, ripe, or dried..... | 737 |
| 488 | Fruits in brine (cherries)..... (Par. 27 of the emergency tariff act imposes a duty upon cherries, raw, preserved in brine (cherries), or otherwise.) | 738 |
| 488 | Fruits, green, ripe, or in brine (citrons and citron peel, crude or in brine)..... | 740 |
| 563 | Orange and lemon peel, not preserved, candied, or dried..... | 740 |
| 488 | Fruits, green, ripe, or dried, and fruits in brine..... | 749 |
| 510 | Hop roots for cultivation..... | 751 |
| 595 | Bulbs and bulbous roots, not edible. [This provision is omitted from H. R. 7456 and probably falls within the provision for "all other bulbs and roots" in paragraph 751.] | 751 |
| 595 | Coniferous evergreen seedlings..... | 752 |
| 489 | Fruit plants, tropical and semitropical, for the purpose of propa- gation or cultivation. [This provision is omitted in H. R. 7456 and such fruit plants probably fall within the provision for "other fruit vines or bushes" in paragraph 753.] | 753 |
| 557 | Marrons, crude..... | 755 |
| 557 | Coconuts in the shell..... | 756 |
| 595 | All flower seeds (sunflower)..... | 760 |
| 595 | All grass seeds. [This provision covers all those seeds specifi- cally mentioned in paragraph 761 of H. R. 7456.] | 761 |
| 595 | Seeds: Cauliflower, celery, mangelwurzels, sugar beet, and flower seeds..... | 762 |
| 595 | Seeds: Cotton, hemp, hoarhound, rape, Saint John's bread or bean, sorghum, and sugar cane, for seed. [These seeds are not specifically mentioned in H. R. 7456 and probably fall within the provision for "all other garden and field seeds not specially provided for" in paragraph 762.] | 762 |
| 606 | Soya beans. [No specific provision is made for soya beans in H. R. 7456 and they will probably fall within the provision in paragraph 763 for dried beans.] | 763 |
| 581 | Potatoes [conditionally]..... (Par. 7 of the emergency tariff act imposes a duty.) | 769 |
| 434 | Broom corn..... | 774 |
| 389 | Acorns, raw, dried, or undried, but unground..... | 775 |
| 473 | Dandelion roots, raw, dried or undried, but unground..... | 775 |
| 595 | Seeds: Cardamom, coriander, cummin, fennel, and mustard.... | 780 |
| 471 | Curry and curry powder..... | 780 |
| 634 | Turmeric..... | 780 |
| SCHEDULE 8. | | |
| None. | | |
| SCHEDULE 9. | | |
| Cotton having a staple of 1½ inches or more in length, dutiable at 7 cents per pound under par. 16, emergency tariff act. | | |

Articles transferred from the free list of the act of 1913 to the dutiable schedules of the bill
H. R. 7456—Continued.

| Act of 1913, paragraph. | Commodity. | H. R. 7456, paragraph. |
|--|---|---------------------------|
| SCHEDULE 10. | | |
| 485 | Flax straw, flax, not hackled or dressed, flax hackled, known as "dressed line," tow of flax and flax noils; hemp and tow of hemp, hemp hackled, known as "line of hemp," | 1001 |
| 408 | Plain woven fabrics of single jute yarns, not bleached, dyed, colored, stained, printed, or rendered noninflammable by any process. | 1008 |
| SCHEDULE 11. | | |
| 650 | Wool and hair (Dutiable under pars. 18 and 19 of the emergency tariff act.) | 1101, 1102 |
| 651 | Wool wastes..... | 1105 |
| SCHEDULE 12. | | |
| None. | | |
| SCHEDULE 13. | | |
| 481 | Felt, adhesive for sheathing vessels..... | 1302 |
| 530 | Leather board or compressed leather..... | 1302 |
| 567 | Decalcomania paper, not printed..... | 1305 |
| 425 | Books, maps, music, engravings, photographs, etchings, lithographic prints, bound or unbound, and charts, printed more than 20 years. | 1310 |
| 426 | Books and pamphlets printed wholly or chiefly in languages other than English, and all textbooks used in schools. | 1310 |
| 650 | Paper twine for binding wool..... | 1313 |
| SCHEDULE 14. | | |
| 479 | Crude artificial abrasives..... | 1415 |
| 491 | Silver or black fox skins, undressed..... | 1420 |
| 422 | Press cloths composed of camel's hair, imported expressly for oil milling purposes, and marked. | 1426 |
| 495 | Gloves, made wholly or in chief value of leather made from horsehides, pigskins, and cattle hides of cattle of the bovine species. | 1433 |
| 443 | Catgut, whip gut, or worm gut, unmanufactured..... | 1434 |
| 576 | Photographic and moving-picture films, sensitized but not exposed or developed. | 1451 |
| 412 | Beeswax, white, bleached..... | 1457 |
| 618 | Sumac, ground..... | 1458 |
| PERSONAL, HOUSEHOLD, OR PROFESSIONAL EFFECTS TRANSFERRED FROM THE FREE LIST TO DUTIABLE SCHEDULES ACCORDING TO THE NATURE OF THE ARTICLE. | | |
| 428 | Books and libraries exceeding \$250 in value, and household effects, of persons from abroad. [See par. 1632, H. R. 7456.] | |
| 571 | Personal effects, exceeding \$300 in value, of United States citizens dying abroad. [See par. 1631, H. R. 7456.] | |
| 582 | Professional books, implements and instruments and tools of trade, exceeding \$250 in value, of immigrants. [See par. 1637, H. R. 7456.] | |

INDEX.

[Abbreviations: n. s. p. f.—not specially provided for; *—more specially provided for in act of 1909 or 1913 than in H. R. 7456.]

| | Paragraph of H. R. 7456. | Page. |
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| Abrasives..... | 335, 1415 | 499, 1120 |
| Absinthe..... | 802 | 828 |
| Acenaphthene..... | 1546 | 1276 |
| Acetaldehyde..... | 2 | 24 |
| Acetaldol..... | 2 | 24 |
| Acetanilide (acetanilid *): | | |
| Medicinal..... | 26 | 76 |
| Not medicinal..... | 25 | 73 |
| Acetate: | | |
| Amyl *..... | 35 | 101 |
| Benzyl..... | 26 | 76 |
| Calcium..... | 1540 | 1267 |
| Copper..... | 1554 | 1288 |
| Ethyl, esters..... | 35 | 103 |
| Lead..... | 44 | 129 |
| Acetic: | | |
| Acid..... | 1 | 10 |
| Anhydride (anhydrid *). | 1 | 11 |
| Ether * (ethyl acetate)..... | 35 | 103 |
| Acetone and acetone oil..... | 3 | 25 |
| Acetphenetidine (acetphenetidin *). | 26 | 76 |
| Acetylsalicylic acid..... | 26 | 76 |
| Acids: | | |
| Acetic..... | 1 | 10 |
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| Anhydrides..... | 1, 1501 | 11, 1217 |
| Arsanilic..... | 25 | 73 |
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| Benzoic, medicinal..... | 26 | 76 |
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| Boric (boracic *). | 1 | 11 |
| Carbolic *..... | 25 | 74 |
| Chloroacetic..... | 1 | 12 |
| Chlorophthalic..... | 25 | 73 |
| Chromic..... | 1501 | 1218 |
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| Hydroxyphenylarsenic..... | 25 | 73 |
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| Nitropicric *..... | 26 | 79 |
| N. s. p. f..... | 1 | 28 |
| Oil of vitriol..... | 1501 | 1220 |
| Oleic..... | 1 | 19 |
| Oxalic..... | 1 | 20 |
| Phenylglycineortho-carboxylic..... | 25 | 73 |
| Phosphoric..... | 1 | 21 |
| Phthalic..... | 25 | 73 |
| Picric..... | 26 | 83 |
| Prussic *..... | 1 | 23 |
| Pyrogallic..... | 1 | 21 |
| Pyroligneous * (acetic)..... | 1 | 11 |
| Ricinoleic * (alizarin assistant)..... | 51 | 159 |
| Salicylic, medicinal..... | 26 | 78 |
| Salicylic, not medicinal..... | 25 | 73 |
| Silicic *..... | 1 | 23 |
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| Sulpho, of coal-tar products *..... | 25 | 75 |
| Sulphoricinoleic * (alizarin assistant)..... | 51 | 159 |
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| Alabaster, manufactures of..... | 233 | 347 |
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| Bindings: | | |
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| Birds: | | |
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| Eggs of..... | 1564 | 1301 |
| Game*..... | 712 | 660 |
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| Live..... | 711 | 658 |
| Of paradise..... | 1419 | 1128 |
| Skins..... | 1419 | 1128 |
| Stuffed*..... | 1419 | 1129 |
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| Bitartrate, potassium..... | 9 | 43 |
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| Bitter almond oil..... | 1625 | 1387 |
| Bitters, containing spirits..... | 802 | 826 |
| Bitumen..... | 1603 | 1364 |
| Bituminous coal..... | 1545 | 1273 |
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| Bone..... | 66 | 191 |
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| Cotton..... | 911, 920 | 878, 899 |
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| Aluminum..... | 374 | 510 |
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| Bolt..... | 330 | 431 |
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| N. s. p. f..... | 1411 | 1109 |
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| Crude..... | 1546 | 1276 |
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| Pitch of..... | *1546 | 1276 |
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| Caps..... | 1418 | 1128 |
| Explosives..... | 1578 | 1323 |
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| Print, metal..... | 392 | 550 |
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| Blue vitriol..... | 1554 | 1287 |
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| Bockings, wool *..... | 1118 | 998 |
| Bodkins, metal..... | 343 | 450 |
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| Bologna sausages *..... | 706 | 647 |
| Bolt blanks, iron or steel..... | 330 | 431 |
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| Bond paper..... | 1307 | 1072 |
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| Ash..... | 1527 | 1257 |
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| Dust..... | 1527 | 1257 |
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| Packing, empty..... | 409 | 576 |
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| Ramie, hat..... | 1404 | 1096 |
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| Potassium..... | 75 | 215 |
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| Carded: | | |
| Silk * | 1201 | 1006 |
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| Christmas, greeting, or post | 1310 | 1081 |
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| Wool * | 1118 | 996 |
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| Crude or manufactured..... | 1661 | 1444 |
| Iron or steel..... | 335 | 439 |
| Monazite..... | 1616 | 1377 |
| Sandalwood oil..... | 54 | 168 |
| Sandarac..... | 1577 | 1321 |
| Sand-blast machines..... | 1541 | 1270 |
| Sandstone, monumental and building..... | 235 | 350 |
| Sandstone, unmanufactured..... | 1661 | 1445 |
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| Sarsaparilla root..... | 33 | 99 |
| Sashes, iron or steel*..... | 393 | 551 |
| Satchels, leather or parchment..... | 1432 | 1166 |
| Sateens, cotton, woven with 8 or more harness..... | 905 | 864 |
| Satin white..... | 71 | 203 |
| Satinwood..... | 404 | 563 |
| Sauce, fish..... | 722 | 681 |
| Sauces, n. s. p. f..... | 748 | 739 |
| Sausage, bologna*..... | 706 | 647 |
| Sausage casings..... | 706 | 646 |
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| Sawdust*..... | 414 | 589 |
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| Plates*..... | 308 | 390 |
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| Saxony carpets and rugs*..... | 1118 | 997 |
| Scale, copper..... | 1553 | 1284 |
| Scalpings, grain or seed..... | 732 | 705 |
| Scarfs, cotton..... | 911 | 878 |
| Scenery, theatrical..... | 1637 | 1416 |
| Schappe silk yarn..... | 1202 | 1011 |
| Schmaschen gloves*..... | 1433 | 1170 |
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| Albums..... | 1311 | 1085 |
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| Gas mantle..... | 84 | 247 |
| Gutta-percha..... | 1587 | 1334 |
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| Lead..... | 389 | 538 |
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| Rubber..... | 1687 | 1332 |

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| Tin..... | 386 | 533 |
| Tin plate..... | 301 | 358 |
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| Screen, wire..... | 318 | 412 |
| Screens, bamboo, wood, etc..... | 413 | 584 |
| Screens, of carpets or rugs..... | 1119 | 1001 |
| Screws, wood, of iron or steel..... | 338 | 442 |
| Screw wire rods..... | 315 | 402 |
| Scroll iron or steel: | | |
| Galvanized or coated..... | 309 | 391 |
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| Casts of, for models..... | 1660 | 1442 |
| Definition..... | 1685 | 1478 |
| N. s. p. f..... | 1447 | 1195 |
| Original..... | 1685 | 1478 |
| Twenty years old*..... | 1685 | 1478 |
| Sea grass, manufactured or dyed..... | 1440 | 1186 |
| Sea herring, fresh, frozen or packed in ice..... | 1645 | 1425 |
| Seal oil..... | 49 | 143 |
| Seaweeds, crude, n. s. p. f..... | 1617 | 1378 |
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| Seed cane for Department of Agriculture..... | 1633 | 1411 |
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| Seeds: | | |
| Alfalfa..... | 761 | 769 |
| Alsike clover..... | 761 | 771 |
| Anise..... | 780 | 813 |
| Apricot kernels..... | 760 | 767 |
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| Advanced..... | 31 | 90 |
| Crude..... | 1562 | 1298 |
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| Beet (except sugar)..... | 762 | 776 |
| Cabbage..... | 762 | 776 |
| Canary..... | 762 | 777 |
| Caraway..... | 780 | 813 |
| Cardamom..... | 780 | 813 |
| Carrot..... | 762 | 777 |
| Cassia..... | 780 | 814 |
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| Cauliflower..... | 762 | 777 |
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| Clover, n. s. p. f..... | 761 | 771 |
| Cloves..... | 780 | 817 |
| Collard *..... | 762 | 782 |
| Coriander..... | 780 | 815 |
| Corn salad *..... | 762 | 782 |
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| Cummin..... | 780 | 815 |
| Drugs— | | |
| Advanced..... | 31 | 90 |
| Crude..... | 1562 | 1298 |
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| Fennel..... | 780 | 816 |
| Fenugreek *..... | 762 | 783 |
| Flaxseed..... | 760 | 765 |
| Flower..... | 762 | 782 |
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| Linseed *..... | 760 | 765 |
| Mangelwurzel..... | 762 | 779 |
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| Advanced..... | 31 | 90 |
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| Nutmeg..... | 780 | 820 |
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| Parsley..... | 762 | 779 |
| Parsnip..... | 762 | 780 |
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| Peas..... | 767 | 792 |
| Pepper..... | 762 | 780 |
| Pepper, spice..... | 780 | 820, 821 |
| Poppy..... | 760 | 766 |
| Radish..... | 762 | 780 |
| Rape *..... | 762 | 768 |
| Red clover..... | 761 | 770 |
| Rutabaga..... | 762 | 781 |
| St. John's bread or bean * | 762 | 785 |
| Sorghum *..... | 762 | 784 |
| Spice..... | 780 | 811 |
| Spinach..... | 762 | 781 |
| Spring vetch..... | 761 | 773 |
| Sugar beet..... | 762 | 775 |
| Sugar cane *..... | 762 | 784 |
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| Sesquicarbonate, sodium..... | 78 | 228 |
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| Machine needles..... | 343 | 450 |
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| Needles, hand..... | 1618 | 1379 |
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| Thread, cotton..... | 902 | 848 |
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| Bronze..... | 378 | 519 |
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| Copper, with layers of other metal..... | 309 | 391 |
| Cotton..... | 911 | 878 |
| Flax..... | 1013 | 927 |
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| Metal, decorated or coated *..... | 309 | 392 |
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| Shells: | | |
| Cartridge, empty..... | 1418 | 1125 |
| Cocoa *..... | 1617 | 1378 |
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| Shingle bolts..... | 1683 | 1470 |
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| Chronometers..... | 367 | 489 |
| Planking *..... | 414 | 589 |
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| Artificial silk..... | 1210 | 1035 |
| Cotton..... | 918 | 895 |
| Flax..... | 1016 | 931 |
| Silk..... | 1210 | 1035 |
| Shirts: | | |
| Cotton, knit *..... | 916 | 892 |
| Silk and artificial silk..... | 1211 | 1030 |
| Shoddy..... | 1105 | 958 |
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| Buckles..... | 346 | 455 |
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| Knives..... | 355 | 469 |
| Laces, leather..... | 1600 | 1361 |
| Lacings, cotton..... | 912 | 882 |
| Machine needles..... | 343 | 450 |
| Machinery..... | 1541 | 1270 |
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| Horse, mule, or ox, iron or steel..... | 333 | 438 |
| Leather..... | 1601 | 1361 |
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| Shooks: | | |
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| Box, foreign..... | 409 | 576 |
| Fruit box, exported and returned..... | 410 | 578 |
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| Shovels, metal..... | 373 | 510 |
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| Chemically treated, etc..... | 1419 | 1127 |
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| Silicate, sodium..... | 78 | 237 |
| Silicic acid *..... | 1 | 23 |
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| Braids*..... | 1430 | 1155 |
| Collars, shirt..... | 1210 | 1035 |
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| Embroideries*..... | 1430 | 1155 |
| Fabrics of, n. s. p. f..... | 1215 | 1041 |
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| Filaments..... | 1215 | 1041 |
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| Neck ruffling*..... | 1430 | 1155 |
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| Ruchings*..... | 1430 | 1155 |
| Shirt collars..... | 1210 | 1035 |
| Shirts, for men and boys..... | 1211 | 1036 |
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| Silk: | | |
| Appliquéd articles*..... | 1430 | 1155 |
| Articles, lever or go-through machine *..... | 1430 | 1155 |
| Ascertainment of weight or number..... | 1214 | 1039 |
| Ascertainment of width..... | 1206 | 1026 |
| Assessment of duty on yarn..... | 1202 | 1008 |
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| Beaded goods*..... | 1430 | 1155 |
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| Bindings*..... | 1207 | 1030 |
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| Braces..... | 1207 | 1030 |
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| Crocheted goods..... | 1208 | 1032 |
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| Embroideries*..... | 1430 | 1155 |
| Fabrics, knit, in the piece..... | 1208 | 1032 |
| Fabrics, pile..... | 1206 | 1027 |
| Fabrics with fast edges, not exceeding 12 inches in width..... | 1207 | 1029 |
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| Gloves, knit..... | 1208 | 1032 |
| Gorings*..... | 1207 | 1030 |
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| Hatbands*..... | 1207 | 1030 |
| Hatters' plush..... | 1453 | 1208 |
| Hose and half-hose, knit..... | 1208 | 1032 |
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| Insertings*..... | 1430 | 1155 |
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| Laces*..... | 1430 | 1155 |
| Linings, sleeve, cotton*..... | 907 | 870 |
| Manufactures of, n. s. p. f..... | 1213 | 1039 |
| Mufflers, woven..... | 1209 | 1033 |
| Neck ruffings*..... | 1430 | 1155 |
| Nets and nettings*..... | 1430 | 1155 |
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| Number, ascertainment of..... | 1214 | 1039 |
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| Ornaments*..... | 1430 | 1155 |
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| Pile fabrics..... | 1206 | 1027 |
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| Plush ribbons..... | 1206 | 1027 |
| Plushes..... | 1206 | 1027 |
| Raw..... | 1651 | 1430 |
| Ready-made clothing..... | 1212 | 1038 |
| Ribbons, n. s. p. f..... | 1207 | 1029 |
| Ribbons, ornamented *..... | 1430 | 1155 |
| Ribbons, plush..... | 1206 | 1027 |
| Ribbons, velvet..... | 1206 | 1027 |
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| Ruchings *..... | 1430 | 1155 |
| Ruffings *..... | 1430 | 1155 |
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| Sleeve linings, cotton *..... | 907 | 870 |
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| Spangled goods *..... | 1430 | 1155 |
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| Tamboured articles *..... | 1430 | 1155 |
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| Thrown..... | 1203 | 1013 |
| Tram..... | 1203 | 1013 |
| Trimnings *..... | 1430 | 1155 |
| Tubings..... | 1207 | 1030 |
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| Underwear, knit..... | 1208 | 1032 |
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| Velvets..... | 1206 | 1027 |
| Waste..... | 1650 | 1429 |
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| Wearing apparel, not knit or crocheted..... | 1212 | 1038 |
| Wets and webbings *..... | 1207 | 1030 |
| Weight, ascertainment of..... | 1214 | 1039 |
| Width, ascertainment of..... | 1206 | 1026 |
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| In the piece..... | 1205 | 1022 |
| Jacquard woven..... | 1205 | 1022 |
| Yarn— | | |
| Method of assessing duty..... | 1202 | 1008 |
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| Albata or Argentine*..... | 377 | 516 |
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| Cables..... | 1005 | 912 |
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| Skates..... | 1402 | 1093 |
| Skelt tons..... | 1652 | 1431 |
| Skelp, iron or steel..... | 308 | 390 |
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| Sketches, original..... | 1685 | 1478 |
| Skewers..... | 412 | 583 |
| Skins: | | |
| Bird..... | 1419 | 1130 |
| Chamois..... | 1431 | 1161 |
| Dressed, etc.*..... | 1600 | 1345 |
| Fish..... | 1570 | 1306 |
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| Slate | 237 | 355 |
| Steel | 304 | 379 |
| Slack, coal | 1545 | 1273 |
| Slag, basic | 1576 | 1318 |
| Slate: | | |
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| Pencils | 1449 | 1198 |
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| Sleeve linings * | 907 | 870 |
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| Hemp | 1002 | 904 |
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| Vegetable fiber, n. s. p. f. | 1002 | 904 |
| Slubbing waste, wool | 1105 | 957 |
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| Artificial silk | 1215 | 1040 |
| Cotton | 912 | 882 |
| Silk | 1207 | 1029 |
| Vegetable fiber | 1014 | 928 |
| Wool | 1114 | 985 |
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| Lead-bearing ores | 388 | 536 |
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| Smelts, fresh or frozen * | 718 | 670 |
| Smokers' articles | 1452 | 1206 |
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