

THIRD ANNUAL REPORT
OF THE
UNITED STATES TARIFF
COMMISSION

1919



WASHINGTON
• GOVERNMENT PRINTING OFFICE
1919

UNITED STATES TARIFF COMMISSION

Office: 1322 New York Avenue, Washington.

COMMISSIONERS.

-----, *Chairman.* WILLIAM KENT.
THOMAS WALKER PAGE, *Vice Chairman.* WILLIAM S. CULBERTSON.
DAVID J. LEWIS. EDWARD P. COSTIGAN.

JOHN F. BETHUNE, *Secretary.*

LETTER OF SUBMITTAL.

UNITED STATES TARIFF COMMISSION,
Washington, November 29, 1919.

MY DEAR MR. SPEAKER: In compliance with the provisions of section 703 of the act of Congress approved September 8, 1916, "to increase the revenue and for other purposes," I transmit herewith a copy of the third annual report of the United States Tariff Commission.

Very truly yours,

THOMAS WALKER PAGE,
Acting Chairman.

HON. FREDERICK H. GILLETT,
Speaker of the House of Representatives,
Washington, D. C.

TABLE OF CONTENTS.

	Page.
Letter of submittal.....	3
Introduction:	
Special war services.....	5
Handicap of reduced appropriation.....	6
Changes in personnel.....	6
Former recommendations of the Tariff Commission:	
Interim legislation.....	7
Customs administrative laws.....	8
Foreign-trade zones.....	10
Dumping and unfair competition in the United States.....	10
Reciprocity and commercial treaties.....	12
Summary of pending investigations of international tariff relations and commercial treaties:	
Preferential tariffs in Great Britain and the British self-governing dominions.....	14
Tariff policies for dependent colonies.....	15
Commercial treaties.....	15
The attempt to establish a reciprocity arrangement with Canada, 1911.....	16
Dr. Taussig's work at the Paris Peace Conference.....	17
Pending compilations for the Committee on Ways and Means:	
Summary of Tariff Information, 1919.....	18
Statistics of Imports and Duties, 1908-1918.....	19
Work of the Tariff Commission, by schedule:	
Schedule A—Chemicals, oils, and paints.....	19
Schedule B—Earths, earthenware, and glassware.....	26
Schedule C—Metals and manufactures of.....	27
Schedule D—Wood and manufactures of.....	41
Schedule E—Sugar, molasses, and manufactures of.....	42
Schedule G—Agricultural products.....	44
Schedule I—Cotton manufactures.....	46
Schedule J—Flax, hemp, jute, and manufactures of.....	50
Schedule K—Wool and manufactures of.....	50
Schedule L—Silks and silk goods.....	50
Schedule M—Papers and books.....	51
Schedule N—Sundries.....	53
The free list.....	55
Costs and prices.....	59
Investigations in foreign countries.....	60
Commission library.....	60
Finances and appropriation.....	61
Appendix:	
Act creating the Tariff Commission.....	62

THIRD ANNUAL REPORT
OF THE
UNITED STATES TARIFF COMMISSION.

INTRODUCTION.

WASHINGTON, D. C., *November 29, 1919.*

To the Congress:

The United States Tariff Commission begs to submit herewith its third annual report covering the fiscal year 1918-19.

In the main the program of work for the year as set forth in the commission's second annual report was followed. There were, however, two special difficulties in the way of the full attainment of the objects of its activities. One lay in the demand made upon individual members of the commission and its staff for war services of various descriptions, the other in the reduction by one-third of its appropriation for the year.

SPECIAL WAR SERVICES.

Until the signing of the armistice every member of the commission was called upon to devote a part of his time to the aid of one or more of the agencies created by the Government for war purposes. Indeed, the connection of Chairman Taussig with the price-fixing committee of the War Industries Board and with the Sugar Equalization Board did not end until his departure in March to attend the peace conference at Paris. Commissioner Lewis continued until the 20th of January his work with the Post Office Department in the administration of the telephone and telegraph system, a work to which he had been designated by the President under the act of May 20, 1918. The special experts assembled by the Tariff Commission for industrial investigation, inquiry into foreign commercial relations and agreements, statistical and accounting work on prices and costs, and for other appropriate duties formed a body of trained men and furnished a mass of information that has been constantly drawn upon by other Government departments and agencies. To all requests for cooperation a cordial response was dictated, not only by the nature of the emergency, but also by the act of Congress establishing the Tariff Commission, which provides that it "shall in appropriate matters act in conjunction and cooperation with the Treasury Department, the Department of Commerce, the Federal Trade Commission, or any other departments or independent establishments of the

Government * * *." Especially during the first half of the year under review, and to some extent also during the second half, the unavoidable demands upon the time and energies of the commission and its staff were a substantial interference with the prosecution of the work for which it was particularly created.

HANDICAP OF REDUCED APPROPRIATION.

Even more serious was the reduction of the commission's appropriation to \$200,000. In the expectation that \$300,000, the amount authorized by the act for its establishment, would be appropriated for its use the commission formed plans and employed men for such investigations in this country and abroad as would enable it to cover the field designated by law for its activities. The retrenchment made necessary by the diminished appropriation brought serious embarrassments. Important work that had been undertaken along many lines could not be abandoned immediately or reduced materially without unfortunate consequences. As rapidly, however, as the best interests of the public service permitted readjustments were effected that enabled the commission to keep faith with the will of Congress, as shown in the reduced appropriation.

It was necessary for the commission to give up many lines of work that it had planned to prosecute with vigor. A number of experienced men and women were permanently lost from its service. Its staff was so depleted as materially to reduce progress on the work that was continued. The resulting discouragement was increased by the omission of Congress to provide for employees of the commission the salary bonus given to those of other departments and establishments of the Government in Washington. In view of the growing cost of living and the increased remuneration offered in other occupations, the commission must express high appreciation of the loyalty and unselfish industry of those who remained in its service and enabled it to accomplish so large a part of its program. The greater part of their work could not be published because of the lack of money to pay for printing. Even the reports and studies requested by the Committee on Ways and Means had to be transmitted in manuscript, and were printed at the expense of that committee; and it was inevitable that some delay and confusion should result from this.

CHANGES IN PERSONNEL.

In the resignation of Dr. F. W. Taussig, which took effect August 1, 1919, the commission sustained an irreparable loss. For many years his knowledge of the tariff history and the tariff policies of the United States has surpassed that of any other living man. His books and numerous papers on these subjects form a collection of ably interpreted information to which students and lawmakers have long turned for guidance. At the same time his work and his views have manifested none of the narrow-sightedness of the specialist, for the reason that his wide learning in other fields and his acquaintance with business affairs and business men have enabled him to see in the proper perspective the significance of tariff policies and the details of tariff measures. He has combined in high degree the vision of the educator and of the theorist with the sane judgment and common

sense of the practical business man. To these qualities he adds a forceful personality and great energy. His selection by the President as the chairman of the Tariff Commission gave universal satisfaction and inspired in all quarters confidence in the fairness, accuracy, and usefulness of the commission's work. At no little personal sacrifice during more than two years his wisdom was of indispensable aid in shaping its organization, initiating and planning its investigations, guiding its counsels, and directing its activities.

On August 4 the commission received the resignation of its secretary, Mr. W. M. Steuart, who had been named by the President as Assistant Director of the Census. First engaged as chief statistician Mr. Steuart had, at the commission's request, undertaken the duties of its secretary, while he continued to perform many of those for which he was first employed. In this double capacity, which was made necessary by the difficulty during the war of finding men qualified to relieve him, he rendered indispensable service. His long connection as statistician and investigator with the Bureau of the Census, his familiarity with the requirements and regulations of the public service, his experience in directing the work of large groups of employees, his general sagacity and high character enabled him to contribute to the success of the commission's efforts in a degree that merited and received its warm appreciation. When he was called by the President to a position of greater prominence his resignation was accepted by the commission with sincere regret.

After many weeks of careful inquiry the commission selected as its secretary Mr. John F. Bethune, whose experience in various branches of the public service indicated his exceptional fitness for the position. He entered upon his new duties on September 19.

FORMER RECOMMENDATIONS OF THE TARIFF COMMISSION.

INTERIM LEGISLATION.

The cessation of war activities once more makes opportune a reference to a recommendation, originally made by the commission to Congress in 1917, of noncontroversial legislation with important revenue features. For its fuller discussion, the commission's interim report should be consulted. In that report, in response to a request from the Ways and Means Committee for suggestions of possible revenue legislation, the commission urged that, independently and in advance of other tariff and revenue enactments, especially prior to tariff and internal revenue increases, statutory provision be made whereby duties and taxes shall attach to merchandise previous to the date of the final passage of tariff and internal revenue laws. In making its recommendation the commission designated as "the interim" the period between a time to be fixed in a revenue bill, or between the time of the report of such measure by the Ways and Means Committee to the House of Representatives, and the date of the definite enactment of the measure into law. With statistical corroboration, the familiar fact was pointed out, that, where increases in customs duties and internal taxes are under consideration and probable, importations are "rushed" and withdrawals from bonded warehouses multiplied, with the manifest purpose of avoiding the anticipated new duties and taxes. The result is a loss of possible revenue to the Government, and, as business is ordinarily conducted, the consumers do not

benefit by the process, since the merchandise can be, and commonly is, thereafter sold at prices in which are included the increased duties of the subsequently enacted legislation.

European countries and Canada do not neglect this available and fruitful field for revenue. The United States, by disregarding it, has frequently overlooked a very considerable possible income which might have been collected without increasing the tax on consumption. In the five months during which the revenue law of 1897 was under consideration the potential duties thus collectible amounted to approximately \$74,000,000. In a like interim period, prior to the adoption of the revenue law of 1909, more than \$2,500,000 of procurable revenue was similarly passed by. In the field of internal revenue taxes, the withdrawals of distilled spirits from warehouses, prior to the enactment of the law of 1894, which provided for increases, deprived the Government of more than \$18,000,000, which anticipatory legislation would have secured; and, in 1898, there was a corresponding immunity extended with reference to fermented liquors, manufactured tobacco, snuff, cigars, and cigarettes of approximately \$8,700,000. Again, in 1917, when increases in customs duties and internal revenue taxes were under debate, withdrawals from bonded warehouses assumed proportions which gave a new object lesson in the wisdom of providing for such recurring contingencies.

Attention may be called again to the fact that Congress has at times recognized the practicability and soundness of the legislative policy under consideration. By the war revenue acts alike of 1898 and 1917, Congress provided that goods, even though withdrawn from bonded warehouses, if still within reach in trade, should be, at least partially, subject to increases. Under the revenue act of 1864, which provided for increased taxes, vendors were allowed to collect from vendees any taxes unexpectedly imposed on goods sold. Unexpected tax burdens, due to the performance of bona-fide contracts, were similarly relieved by section 1007 of the revenue act of 1917.

Prior to making its original recommendation to Congress, and again, before renewing the suggestion in its first annual report, the commission investigated with some care the possible consequences of such legislation, in the case of imported merchandise, both on outstanding bona-fide contracts and on general business conditions. As a result of its inquiries, the commission is persuaded that no serious burdens would be imposed on business by such legislation, if accompanied by the safeguards thrown around bonafide outstanding contracts for future delivery by the acts of 1864 and 1917. In fact, where importations are concerned, contracts for future delivery very generally provide that increase in duties, subsequent to the agreement to deliver, are to be paid by the purchasers.

It may be added that the administrative problems involved would be sufficiently solved by authorizing the Secretary of the Treasury to require the giving of a bond to cover subsequently enacted increases.

CUSTOMS ADMINISTRATIVE LAWS.

The commission would be unmindful of its obligations if it omitted to renew the suggestions that its report of August 26, 1918, on the operation of the customs administrative laws of the United States

deserves immediate and independent attention. The subject matter is of prime importance. The work done by the commission was undertaken without predisposition, and, with expert assistance, was continued through many months. Moreover, scarcely a day of the recent extra session of Congress failed to emphasize the desirability, if not the necessity, of consideration being given to the fundamental phases of that report.

By way of illustration, it is appropriate to mention the proposals pending in Congress for the establishment of foreign-trade zones and for anti-dumping legislation. In each of these measures, as in all tariff legislation, the proper bases of dutiable values are indispensable considerations, and it is clear that these bases should be re-examined, and, after every applicable reason has been weighed, should be determined in the existing customs administrative laws of the country. For instance, there is much considered opinion, as well as experience, requiring review, in order adequately to answer the occasional inquiry whether it is wise to substitute the American selling price, as a primary basis, for the actual foreign market value of merchandise. This problem is one, among many, which can best be dealt with in hearings on and discussions of the proposed complete codification of our customs administrative statutes.

It is scarcely necessary to repeat that certain of these laws are an inheritance from the stage-coach days of 1799, and are ill adapted to the present age; also that present customs administrative enactments contain much surplusage, frequent obscurity, and provisions so severe in their practical operation that they have long and continuously led to just complaints that the Government is placing unreasonable burdens on commerce.

Among the recommendations in the commission's report which promise increased customs efficiency, or relief from antiquated requirements, may be enumerated the following: A reduction to a minimum of the number of bonds to be exacted from importers; less burdensome conditions surrounding and preceding the payment of drawbacks; the freer use of bonded warehouses and the removal of vexatious restrictions on handling, sorting, manipulating, and manufacturing merchandise; the authorization of direct shipment of merchandise to its customs destination and its appraisalment there; readjustment of the bases of dutiable values, so that the actual foreign market value and the American selling price of goods shall both precede, in the order just stated, the foreign cost of production; the appointment of collectors and other customs officials by the Secretary of the Treasury instead of by the President; and, in cases either of unintentional undervaluation or unintentional overvaluation, authority, on satisfactory proof of good faith, permitting the Secretary of the Treasury to remit or refund any duties in excess of those which would otherwise be collectible.

That such codification may properly be undertaken separately and prior to tariff revision is evident, when it is remembered that such revision normally deals with the rates of duty levied on imports, whereas customs administrative laws prescribe the procedure governing the collection of such duties. Therefore, wholly without reference to any tariff policies Congress may hereafter determine to adopt, the changes above cited and others provided for in the commission's draft are considered of immediate urgency, particularly

because of altered conditions due to the war, as a means of establishing an up-to-date, satisfactory, and scientific American customs administrative system.

FOREIGN-TRADE ZONES.

In connection with its investigation begun shortly after the organization of the Tariff Commission, the assembling of data on the subject of "free" or "foreign-trade" zones in ports of entry has been continued. The inquiry has been exhaustive and complete, covering not only the practice and results in foreign countries and the adaptability of the device to the needs of American commerce, but extending as well to the legal questions raised by the proposed legislation.

Upon request of the Committee on Commerce of the United States Senate, a report was compiled and submitted to the Sixty-fifth Congress in connection with bills introduced at that session providing permissive legislation for the establishment of foreign-trade zones. The report has been revised and, upon request, submitted to the Committee on Ways and Means of the House of Representatives.

Bills are pending in the present Congress, before the Committee on Commerce of the Senate and the Committee on Ways and Means of the House of Representatives, and hearings have been held by both committees. This proposed legislation has been carefully drawn. The amendments suggested by the Tariff Commission to the legislation previously proposed have been agreed upon after consultation between members of this commission, officials of the Treasury Department, the Department of Commerce, and representatives of the leading commercial organizations, merchants, manufacturers, shippers, importers, and exporters.

Although not included in the report, the Tariff Commission, upon the request of the Senate Committee on Commerce, filed an informal memorandum with that committee showing conclusively, in the opinion of the commission, that objections to the legislation on constitutional grounds are not well founded.

As a result of this investigation, the Tariff Commission, acting under the provisions of law, recommended the adoption of permissive legislation for the establishment of foreign-trade zones. The building up and maintenance of an American merchant marine and the facilitating of our foreign commerce justify and demand the elimination of unnecessary hindrances and delays incident to the present system of bonded warehouses and drawback, and the adoption of the foreign-trade zone is an alternative and supplementary device.

In this connection acknowledgment should be made of the cooperation of the Department of State, the Department of Commerce, and the United States Shipping Board in securing data concerning foreign and domestic ports, and especially of the Consular Service for reports and documents relative to the spread and administration of the free-port policy in Europe.

7

DUMPING AND UNFAIR FOREIGN COMPETITION IN THE UNITED STATES.

The commission is empowered, by the act creating it, to investigate "conditions, causes, and effects relating to competition of for-

foreign industries with those of the United States, including dumping * * *” Under this authority the commission in 1918 invited from representative American business firms expressions of opinion and statements of fact on unfair foreign competitive practices in the United States. At the same time the commission also sent a special agent to Canada to examine and report on the operation of Canada's anti-dumping law, as enacted in 1904 and as amended in 1907. The results of the commission's investigations are set forth in its report on “Dumping and other unfair foreign competition in the United States and Canada's anti-dumping law,” transmitted on October 4, 1919, in response to official request, to the Ways and Means Committee of the House of Representatives.

By reference to existing anti-dumping legislation of the United States, Canada, Australia, and the Union of South Africa, the report makes clear that dumping is generally regarded as occurring whenever there is a sale of imported merchandise at less than its prevailing market or wholesale price in the country of production. The report distinguishes this usage from other commercial practices commonly considered unfairly competitive, and contrasts with the latter practices simultaneous sales at home and abroad and ordinary low-priced sales, which, in the absence of some unusual and unfair advantage, are generally deemed proper features of successful competition. The commission indicates that tariff impositions naturally express the degree to which Congress intends that ordinary forms of successful foreign competition shall be sanctioned. It is pointed out that, in the field of unfair methods, this country has various legislative enactments, including those offsetting the effects of foreign grants and bounties through countervailing duties, restricting the practice known as “full-line forcing,” and penalizing undervaluation in making entry of imported goods.

In the light of its investigations, the commission also scrutinizes in its report the anti-dumping enactment of Congress of September 8, 1916, which provides both for punishment and civil liability for damages in cases where goods are commonly and systematically imported or sold in the United States at prices substantially less than their actual market value or wholesale price at the time of exportation, with intent to destroy, injure, or prevent the establishment of an industry in the United States, or to restrain or monopolize any part of trade or commerce in such articles in the United States.

The report summarizes specific complaints, filed with the commission in the course of its inquiry in the United States, on dumping, severe competition, deceptive imitation of goods, false labeling, deceptive use of trade-marks, and undervaluation. The difficulty of proving dumping, without the aid of governmental machinery particularly devoted to its detection, is noted; the economic aspects of dumping are discussed; and the difficulty of proving any definite intention to destroy or prevent the establishment of an industry in the country in which goods are dumped is emphasized.

It is observed that the commission's investigation in Canada on the operation of Canada's anti-dumping law disclosed the existence of numerous actual efforts to practice dumping in that country during the 15 years in which the Canadian clause has been in force, and that, on the whole, the Canadian provision has served effectively to check such attempted evasions. The report traces the history of

the Canadian legislation. It reviews the clause as originally enacted in 1904; the reasons assigned for the legislation; the chief objections to and indorsements of the legislation recorded in the Canadian tariff hearings of 1905-6; and the amendments of 1907, which gave the clause the form it still retains. The methods of administering the Canadian provision are also detailed. Its relatively minor revenue features are shown, and comments by representative observers on its effectiveness are quoted.

In the appendix of the report the existing anti-dumping enactments of the United States, Canada, Australia, and the Union of South Africa are assembled, and the report itself comments on noteworthy differences between the respective statutes. Certain obstacles to the practical enforcement of the act of September 8, 1916, are considered, and the commission expresses the view that these difficulties somewhat support the contention that administrative remedies are superior to criminal laws in preventing dumping.

On the assumption that the act of 1916 expresses the continuing restrictive purpose of Congress, the commission concludes in its report that sufficient disclosure has been made of the existence of dumping and certain ensuing abuses to warrant added legislation. In this connection attention is directed to the somewhat adaptable statutory and administrative aspects of the Canadian law and to the importance of protecting consumers against legislative enactments of too sweeping or rigid a character. On the side of constructive legislation the report suggests that the act of 1916, if retained, should be revised and strengthened, and that some official body, moving along lines sanctioned by Congress in the Federal Trade Commission act, may reasonably be specifically instructed to deal with dumping as a manifestation of unfair foreign competitive methods. The commission also indicates that in the case of imports bonds providing for the collection of dumping duties subsequently assessed may be useful, and that the President or the Secretary of the Treasury may be empowered to impose additional duties, or even to refuse entry when industrially destructive dumping is proven or impending.

RECIPROCITY AND COMMERCIAL TREATIES.

The Tariff Commission in February, 1919, submitted to Congress a comprehensive report on reciprocity and commercial treaties. This report discusses in detail the reciprocity and tariff experiences of the United States. Among the subjects thus covered are the Canadian reciprocity treaty of 1854, the Hawaiian reciprocity treaty of 1875, the agreements under the tariff acts of 1890, 1897, and 1909, the Brazilian preferential arrangement, the Cuban reciprocity treaty of 1902, and the attempt to establish commercial reciprocity with Canada by concurrent legislation in 1911. The report also discusses fully the complicated subject of the most-favored-nation clause in commercial treaties and, finally, surveys the tariff systems of Germany, France, and Russia.

The report is prefaced by recommendations with regard to the use of tariffs as a means of preventing discriminations to the disadvantage of American citizens and their products in foreign markets. The recommendations emphasize the principle that "the United States should ask no special favors and should grant no special

favors," and that "it should exercise its powers and should impose its penalties not for the purpose of securing discriminations in its favor but to prevent discriminations to its disadvantage." The commission recommends the enactment of legislation authorizing the imposition of additional or penalty duties by proclamation of the President on imports from countries not according to the United States the same treatment accorded to other "most-favored" nations.

The report maintains that it should be the policy of our Government to offer equality of tariff treatment to all who grant like treatment to the United States and its products, and to penalize with a higher tariff those countries which refuse us equality of treatment. It urges that in order to obtain the desired flexibility Congress should define in general terms the kind and degree of unequal treatment which is to be penalized, but should leave to the President the application of the law to particular cases. The mere possibility of the imposition of maximum or penalty duties will tend to secure equality of treatment for the United States and its products without formal action. By virtue of the need for prompt and effective action it also points out that when agreements within the provisions of the law are entered into further ratification by the Senate or approval by Congress should not be required.

As a result of the commission's exhaustive review of the subject the following additional constructive legislative suggestions may be made. The law should be sufficiently inclusive to enable the President to penalize not merely open discriminations, but also discriminations more or less concealed in customs regulations, transportation rates, sanitary provisions, or even in classification where the effect is to place American products at a serious disadvantage. Congress should enumerate the articles or commodities on which the maximum or penalty duties may be imposed and should specify the upward injury to American consumers; and, second, those products should be borne in mind: First, a variety of products should be named, selected with the view of inflicting in operation a genuine penalty on foreign countries discriminating against us, with the minimum injury to American consumers, and, second, those products should be chosen which are imported in substantial amounts from more than one source in order that the imposition of the additional duties on imports from the country to be penalized may result in a diversion of that trade to another country without great inconvenience to importers and consumers in the United States. An imported commodity, which is also produced in large amounts in this country and the production of which could be increased, would be suitable for the list, even though it were imported from a single country.

Having enumerated the articles and specified the maximum penalty duty Congress should leave the President wide discretion in administering the law within these limits. The necessary flexibility can not be obtained unless the President has power to proclaim, at his discretion and without further action by Congress, the maximum tariff on any or all of the articles enumerated in the law, or to impose such additional duty up to the maximum authorized in the law, as the circumstances may require. Many discriminations can not be reached at all unless in the administration of the additional tariff thus provided the penalty can be fitted to the offense.

The enactment of such an additional tariff schedule need not wait upon the general revision of the tariff law. The protection of our commercial interests requires prompt action.

Before the larger task of a general revision is taken up Congress may provide an effective means of enforcing equality of treatment for the United States and its products in foreign markets. It may enact a law providing that the free list and the dutiable list of the present tariff act shall constitute the minimum tariff of the United States and that the rates fixed shall be applicable to the products of all countries except in those cases in which the President shall ascertain that any country or subdivision thereof, whether by law or administrative measure, imposes tariff rates, discriminatory provisions, regulations, or other exactions unfavorable to American commerce which are not equally applicable to the commerce of all other countries. The law may then establish a maximum tariff, enumerating the articles it shall cover, fixing the maximum duties, empowering the President within the limits of the law to determine the articles to be penalized and to fix and apply the amount of the duties in each particular case, with further authority to withdraw the penalty duties as circumstances may require.

SUMMARY OF PENDING INVESTIGATIONS OF INTERNATIONAL TARIFF RELATIONS AND COMMERCIAL TREATIES.

Reference was made in the second annual report of the Tariff Commission to various reports in process of preparation on foreign tariffs and commercial treaties. These reports were undertaken under the authority given to the commission by section 704 of the act creating it. During the war and in the discussion arising out of the peace conference urgent demands were made upon the commission for this type of information, and in many cases the commission cooperated actively with other branches of the Government in providing pertinent and reliable data on commercial treaties and colonial tariffs. Substantial progress has been made toward the preparation of this material for final publication.

PREFERENTIAL TARIFFS IN GREAT BRITAIN AND THE BRITISH SELF-GOVERNING DOMINIONS.

The subjects thus dealt with include a report on colonial tariff policies, of which Part I will review preferential tariffs in Great Britain and the British self-governing dominions. This is a subject of considerable commercial importance. Canada, Australia, New Zealand, and South Africa have for some years granted to Great Britain and to some other parts of the Empire preferential tariff treatment, and very recently Great Britain herself has put into force preferential tariffs in favor of a limited list of colonial products. The West Indies also discussed in Part I because, although not self-governing, they have a greater fiscal independence than most of the Crown colonies, and also because many of them have adopted preferences on a scale unknown in other Crown colonies. Newfoundland also gives a preference to West Indies molasses. A historical study of the development of this movement toward a preferential system has been made for each of the five dominions, the West

Indies, and Great Britain. The forces favoring the movement and the arguments which prevail with statesmen and people are set forth in relation to the successive steps in the application of the policy.

TARIFF POLICIES FOR DEPENDENT COLONIES.

Part II of the report on colonial tariff policies will include a survey of the colonial tariff policies of France, Germany, Italy, Spain, Portugal, the Netherlands, Belgium, Great Britain (Crown colonies), Japan, and the United States. These are treated separately, and the discussion of tariff policy is preceded by a survey of the population, products, and trade of each group of colonies, their government, their methods of tariff making, and other relevant information bearing on colonial conditions. The United States, France, Portugal, Italy, and Spain are to-day giving their own goods substantial preferences in their colonial markets, and in the case of the first three the policy may be characterized as an attempt to monopolize these markets. In her Crown colonies Great Britain, with few exceptions, practically all of which are recent, still maintains the open door. These exceptions are significant mainly as a possible indication of a growing disposition to abandon the open-door policy which Great Britain has pursued for the last half century.

Although this report on colonial tariff policies deals primarily with tariff rates, other methods of discrimination against foreign trade have been noted. Among these are discriminations in classification, in methods of valuation, in insistence on the payment of certain rates in gold, and in the requirement of direct transportation or transportation in national ships. In the case of the Congo Free State (before it became a possession of Belgium in 1908) a more extended investigation has been made of the reasons why and the methods by which, in spite of the open-door guaranty of the treaty of Berlin in 1885, the Belgian people under Leopold II succeeded in doing a greater share of colonial business than usually falls to the mother country under the most restrictive tariff policy.

This report will be preceded by a summary presenting the value of colonial trade, the effect of tariffs, the existing open-door treaties, and tariff policies and tendencies in the British Empire and dependent colonies.

COMMERCIAL TREATIES.

The commission has in course of preparation a digest of the commercial treaties of the world. This work is near completion. It will contain a digest not only of the commercial treaties of the United States with other countries, but also of commercial treaties, conventions, and tariff agreements between all nations which were in force at the outbreak of the European war in 1914, and of others which have been concluded since that date. It will make accessible for the first time within the compass of a single volume and in the English language a summary or synopsis of the stipulations contained in the world's commercial treaties.

The work is arranged by topics under various heads, and will show, for instance, between what countries, and in respect to what matters, most favored nation or national treatment is stipulated, i. e., in what countries aliens are treated like native citizens in af-

fairs of commerce, navigation, industry, the administration of justice, taxation, the acquisition and disposal of property, and numerous other matters of international agreement. The full text of a given treaty or of any of its stipulations will readily be found through the citation, by volumes and sections, of authentic texts in the various languages.

An introduction to the work will set out the established principles of international law in the negotiation and operation of treaties; will explain their technical terms; will discuss the treaty policies of the different nations; and will endeavor to show the effect of the treaty of peace on existing commercial treaties.

Most governments have published official compilations of the texts of their international agreements, and several general collections of such texts are also available; but no analysis or synopsis of their provisions has ever been published, even for the treaties of a single nation. In this field, therefore, the commission's work promises to be unique.

THE ATTEMPT TO ESTABLISH A RECIPROCITY ARRANGEMENT WITH CANADA, 1911.

A report upon the proposed reciprocity agreement of 1911 between the United States and Canada, which is being prepared at the request of the Committee on Ways and Means, will contain an historical account of the negotiation of the agreement, a detailed analysis of the measure, and a comparison of the rates proposed in 1911 with the then existing tariffs of the two countries and with the tariffs at present in force.

The analysis and discussion will show, with the aid of statistical tables, the importance of the trade between the two countries; the proportion of that trade which would have been affected if the reciprocity agreement had been ratified; the reductions in duties proposed for each country; the amount by which these reductions, on the part of Canada, would have been extended to other countries than the United States; the degree to which the United States tariff act of 1913 adopted reductions equivalent to those proposed in the agreement; the extent to which Canadian tariff amendments since 1911 have changed the rates upon imports into Canada; and the volume of trade that would be involved if the schedules of the reciprocity agreement were enacted to-day.

The report will show that the provisions of the reciprocity agreement, at the date they were framed, would have resulted in considerably heavier reductions by the United States of the comparatively high rates of the tariff of 1909, than of the lower tariff rates of Canada. Since 1911, however, the situation has been in large measure reversed, because of the adoption by the United States of extensive reductions in the rates on foodstuffs and raw materials, and the imposition by Canada, upon many manufactured articles, of an additional war tax of $7\frac{1}{2}$ per cent. This tax, moreover, does not apply to imports from other parts of the British Empire, and constitutes for that reason, an additional preference against products from the United States and other non-British countries. The report will show that, as a result the volume of imports into the United States that would to-day be affected by the inauguration of the agreement has decreased both absolutely and relatively; although

the total imports from Canada into the United States during the same period, have greatly increased. In fact, duties upon flaxseed and hay are now the only rates of importance that would be reduced in the United States tariffs by the adoption of the reciprocity agreement of 1911. On the other hand, the imports into Canada that would feel the effect of the agreement, have greatly increased in value. The decision of the Customs Court of Appeals, relating to the present validity of section 2 of the United States statute of 1911 which embodied the agreement, the resolution offered in March, 1919, in the Dominion House of Commons favoring the adoption by Canada of the reciprocity offer, and the similar resolution passed at the recent Liberal Party convention will be included in appendices to the report.

DR. TAUSSIG'S WORK AT THE PARIS PEACE CONFERENCE.

Toward the close of February, 1919, the chairman of the commission was directed by the President to proceed to Paris in order to serve on the staff of advisers appointed to consider the economic aspects of the treaty of peace with Germany. The chairman accordingly went to Paris, and remained there until early in the month of July. During his stay he acted as chairman of the international sub-commission which had charge of the drafting of those clauses of the treaty of peace which referred to customs legislation. He served also as adviser on other parts of the treaty which had to do with economic questions, such as the renewal and remodeling of commercial treaties and the treatment of the property, debts, and contracts of ex-enemies. Matters of this nature came up for consideration not only in the drafting of the treaty with Germany but of that with Austria also, and subsequently of the treaties concluded between the allied and associated Governments on the one hand and the newly established nations on the other, such as Poland, Czechoslovakia, Jugo-Slavia.

The most important general provision relating to customs matters which was incorporated in the treaty of peace with Germany was that by which Germany was required to give for a period of five years—and for a prolongation beyond the five-year period if so required by the council of the league of nations—most-favored-nation treatment to the allied and associated countries. This treatment was to be given by Germany without obligation on the part of the Allies to give similar treatment to Germany. The unilateral character of the obligation rested upon the circumstance that in the course of the war Germany had endeavored to destroy the industries of invaded countries, and more particularly of France and Belgium, with the intention of displacing them on the conclusion of peace as competitors in the world market. It was thought possible that this displacement might take place, even after Germany's defeat, if she were allowed to make special commercial arrangements with neutral or other countries in such manner that they would grant customs favors to Germany in return for customs favors granted to them by Germany. The requirement embodied in the treaty of peace by which Germany must give most-favored-nation treatment to the Allies was regarded as the most effective way of preventing maneu-

vers of this sort, since Germany could gain nothing by such special commercial negotiations if any favors granted by her to neutrals or others should ipso facto inure to the benefit of all the Allies. The limitation of the arrangement to a five-year period rested on the assumption that within that period industrial recovery would have been attained in Belgium, France, and other invaded countries, and that thereafter international competition would proceed upon equal terms.

Some further modifications of Germany's freedom of action were imposed in other directions also, all with the same design and all of a temporary character.

The consideration of these measures led to discussion of the general commercial and treaty relations of the different European countries and of their relations with the United States. In connection with the treaty negotiations the chairman had repeated conferences with members of the French Government concerning the relations between France and the United States. These conferences had to do with the reciprocity arrangements of the United States, the discriminations against the United States in the existing tariff system of France, and the policy which might be expected in both countries in the future. The information secured in them has been embodied in the files of the commission.

The services of the chairman on other parts of the treaty were largely of an editorial character. The drafting and arrangement of the economic clauses of the treaty were supervised by him, as well as the preparation of a special edition of these clauses for the use of the American commission. This edition has been printed as one of the exhibits relating to the treaty of peace.

PENDING COMPILATIONS FOR THE COMMITTEE ON WAYS AND MEANS.

Two reference books are in preparation for Congress at the request of the Ways and Means Committee, to be respectively entitled, "Summary of Tariff Information, 1919," and "Statistics of Imports and Duties, 1908-1918, Inclusive."

SUMMARY OF TARIFF INFORMATION, 1919.

Volume I will give in parallel columns the tariff acts of October 3, 1913, and of August 5, 1909. Then will follow "General information," under which is to be given, as concisely as clearness will permit, a description of each of the several thousand commodities affected, the uses and the circumstances of production, as well as significant changes of imports and the latest available information as to exports, with special reference to the related experience immediately preceding the war. Finally, under the caption, "Interpretation and comments," will appear pertinent decisions of the Treasury Department, of the Board of General Appraisers, and of the courts. Under this head will also appear a statement of the inconsistencies and inequalities referred to in the commission's second annual report at pages 34 and 35, as follows:

The investigations of the commission in various directions have brought to its attention inconsistencies and inequalities of various kinds in the texts of the tariff laws as they now stand. The classification of commodities is some-

times illogical. Duties upon finished products are not properly proportioned to the duties upon raw materials. The same or similar articles are mentioned in different paragraphs, causing uncertainty to arise as to the rate of duty to be imposed. With the accumulation of information on items of this sort, the commission has undertaken to systematize the material and to be prepared for an eventual simplification and smoothing of the language of the statute. This task is closely connected with that of the revision of the customs administrative laws, and of taking cognizance of the interpretation of those laws by the Board of General Appraisers, the Treasury Department, and the Court of Customs Appeals.

While neither rates of duties nor tariff policies will be discussed in this work, the commission has endeavored, in the light of executive and judicial construction, and in view of indefinite and inharmonious provisions of the tariff acts, to place before Congress by way of comments such facts as may aid in tariff revision.

STATISTICS OF IMPORTS AND DUTIES, 1906-1918.

Volume II will be a compilation, alphabetically arranged, of the imports entered for consumption as itemized in the annual reports of the foreign commerce and navigation of the United States by the Department of Commerce. The period covered is the fiscal years ended June 30, 1908 to 1918, inclusive. The statistics will show the quantities, values, value per unit of quantity, duties collected, and rates of duty, to which the commission has added the equivalent ad valorem rate of duty for each commodity imported under the general tariff laws of 1897, 1909, and 1913, the war revenue act of 1916, and special acts, treaties, and reciprocal agreements.

WORK OF THE TARIFF COMMISSION, SCHEDULE BY SCHEDULE.

SCHEDULE A: CHEMICALS, OILS, AND PAINTS.

Dyes and other coal-tar chemicals.—On December 12, 1918, the commission sent to the Committee on Ways and Means a report entitled, "Dyes and other coal-tar chemicals," which discussed, in detail, Title V of the act of September 8, 1916, imposing duties on dyes and other chemicals of coal-tar origin. The report pointed out the ways by which the evident intent of Congress in passing this legislation may be evaded. Attention was also called to certain questions on which, in view of developments which have occurred since the passage of the act, Congress might wish to reconsider its original policy. The commission suggested 45 amendments to the language of the present law, calculated to give more complete effect to its obvious purpose.

Census of dyes and other coal-tar chemicals, 1918.—Under the continuing direction of the President, in anticipation of certain administrative requirements of the revenue act of September 8, 1916, the commission completed and published a second census of dyes and other products of coal-tar origin, covering the year 1918. The results of this census are contained in a report entitled, "Dyes and related coal-tar chemicals, 1918," transmitted on June 12, 1919, to the Committee on Ways and Means. A revised edition of this report was transmitted to the Committee on Ways and Means on July 15, 1919.

This census for 1918 shows that there is no insuperable obstacle to the growth of this industry in the United States. The finished products are now made almost entirely from American raw materials and intermediates. One hundred and seventy-six intermediates were made on a commercial scale, and in addition 23 others were made in relatively small quantities for sale, research, or experimental purposes. The intermediates most needed are now available, although many important ones are still missing, and the prices of many most needed are still abnormally high. The report shows that there were over 200 firms, including 78 manufacturers of dyes, that manufactured coal-tar chemicals in 1918.

The total production of dyes in 1918 was 58,464,446 pounds, valued at \$62,026,390, which is an encouraging gain over the 1917 output. The report also shows that, with comparatively few exceptions, prices of individual dyes were lower in 1918 than in 1917 in spite of the general rise in wages and in prices of most other commodities. More than 300 different dyes were made in the United States during 1918. Many of the dyes which were lacking in 1917 appeared on the market in 1918. The report shows that the American industry is especially strong in the classes of dyes known as "azo," "sulphur," and "induline" dyes. Alizarin and two alizarin derivatives were made, but in amounts considerably below the normal demand. These dyes are an important group of fast mordant dyes for wool. No dyes derived from carbazol were made in 1918, and only a bare beginning was made in the production of the extremely important class of vat dyes derived from anthracene, known as indanthrene dyes, which are fast dyes for cotton.

Important progress has been made in the production of synthetic medicinals, so that dependence on Germany is now at an end. Thirty-two different synthetic drugs of coal-tar origin were made during 1918. Three of these—*aspirin*, *salol*, and *acetphenetidin*—were in great demand during the influenza epidemic.

Pyrites and sulphur industry.—During the first session of the Sixty-sixth Congress, at the request of the chairman of the Committee on Ways and Means, the commission transmitted a report on the pyrites and sulphur industry for the use of the committee in consideration of the bill H. R. 5215. The tariff problem connected with this industry is greatly complicated by the fact that pyrites and sulphur are potential rivals in supplying the raw material for the manufacture of sulphuric acid, the largest of all chemical industries, and by the revolutionary changes in the competitive situation which have occurred during the war.

The only important use of pyrites is for the manufacture of sulphuric acid. Sulphur, on the other hand, has additional important outlets in the paper, rubber, dye, insecticide, and other industries. Prior to the war pyrites exclusively was used for sulphuric-acid manufacture, and over 70 per cent of the consumption was supplied by Spain and Portugal. The United States is the world's largest sulphur producer, and prior to the war the domestic producers made no attempt to supply sulphuric-acid manufacturers in competition with pyrites. They were able to realize larger profits by maintaining the price of sulphur at \$22 per ton f. o. b. New York and supplying the sulphur required by other industries.

The war more than doubled the demand for sulphuric acid and at the same time interfered with imports of the raw material, Spanish pyrites. The demand was met in part by a 35 per cent increase in the domestic output of pyrites, but mainly by substitution of sulphur for pyrites, which resulted in an increase of more than 300 per cent in the domestic output of sulphur.

The competitive conditions in the sulphur industry alone have changed greatly during the war. The original French patents owned by the Union Sulphur Co., which formerly gave this company a practical monopoly of the sulphur market in this country, have expired, and later patents on modifications of this process have recently been declared void by the Circuit Court of Appeals of the Third Circuit. The Freeport Sulphur Co. has developed a large output during the war. A third large company, The Texas Gulf Sulphur Co., began production on a large scale in March, 1919. It is expected that there will be sharp competition between these producers. Should this occur and these sulphur companies undertake to supply the requirements of the sulphuric-acid manufacturers in the United States, it may be assumed that the price of sulphur will fall below the prewar level.

Under such conditions American pyrites producers could expect little, if any, benefit either from a duty on sulphur or one on pyrites. The serious competition which domestic pyrites producers face comes from American sulphur, not from imported pyrites.

The potash industry.—In response to a like official request, a report on the potash industry was prepared for the Committee on Ways and Means in connection with the bill H. R. 4870. This report shows that prior to the war Germany held an almost complete monopoly on the world's trade in potash. This was made possible by the possession of the only known large deposits of soluble potash salts, located in the vicinity of Stassfurt, Germany, and near Mulhausen in Alsace.

The normal prewar consumption of the United States was approximately 270,000 short tons of actual potash (K_2O) per year; Germany supplied 99 per cent of our requirements. At the outbreak of war there was no potash industry in this country. The urgent need for potash, especially for fertilizer, caused a rise to about ten times the normal price, and this in turn resulted in the creation of the new American potash industry. In 1918 there were 78 firms with an output of 52,135 short tons of actual potash, or only 20 per cent of our normal consumption.

The permanency of the domestic industry is greatly complicated by the fact that American supplies come from widely different sources. In some cases the potash is a by-product of other industries; in others it is a primary product. The source which gives the most promise of permanency under competitive conditions is the dust from cement mills. The collection of the dust abates a nuisance and gives a valuable by-product. If practiced in all cement mills it is likely that 75,000 tons of actual potash could be obtained.

The collection of potash from dust of blast furnaces offers another possible permanent source of potash. Apparently only southern and Cuban ores contain sufficient potash to warrant its commercial recovery. A production of 20,000 tons of actual potash from this source may be possible. The permanency of potash production

under competitive conditions from other domestic sources is highly doubtful.

Dextrin, starch, and other potato products.—On September 4, 1919, at the request of the chairman of the Ways and Means Committee, the commission submitted, for use in consideration of the bill H. R. 6814, a report on "The domestic potato-product industries." These industries, which include the manufacture of potato flour, starch, dextrin, and dried potatoes, afford an outlet for millions of bushels of cull and low-grade potatoes and may absorb the surplus in years when the crop is exceptionally large.

The manufacture of potato flour is a recent development in the United States, and the potato-starch industry, although long established, has been declining of late, principally because of the severe competition of foreign potato starch and of the lower-priced domestic cornstarch. Imports increased nearly fourfold between 1904 and 1914. Germany and Holland possess especially well-developed potato-product industries, and before the war the imports of potato starch from these two countries were only slightly less than the domestic production. Recently Japan has entered the field, and in 1918 she exported to the United States approximately 22,000,000 pounds of potato starch, or 92 per cent of the total imports.

Potato dextrine is a gum manufactured from starch and used chiefly in the textile industry. It is competitive with dextrine from cornstarch and tapioca, but it has certain advantages which give it a market even at a higher price.

During our participation in the war, dried or dehydrated potatoes were prepared for Army use, and the industry assumed considerable importance. Sixteen factories were drying potatoes in 1918, and their output was approximately 7,000,000 pounds.

Dried or dehydrated potatoes may be considered also as an intermediate product in the manufacture of potato flour, and potato starch is the raw material for the preparation of potato dextrine. The tariff problem of primary importance, therefore, lies in the proper adjustment of the differential in the rates of duty on these closely related products.

Acids of paragraph 1 and related materials.—A report has been prepared which discusses in detail the acids dutiable under paragraph 1 of the tariff act of 1913, as well as the raw materials from which such acids are made, and several closely allied commodities which are dutiable under other paragraphs. This report has been sent to the Government Printing Office and will soon be available for distribution.

These acids present tariff problems of a most varied character. In several cases there were notable developments of the industry in the United States during the war. This was particularly true with reference to formic, oxalic, and gallic acids. These acids, formerly almost entirely secured from Germany, are now being made in the United States in substantial amounts.

Formic acid was controlled by the German industry before the war, not through lack of essential raw materials in other countries, but because German chemists had discovered and developed the best-known method of making sodium formate, which serves as the basis for making formic acid. Formic acid was made in the United States before the war from imported sodium formate. The Germans had

an advantage in technical experience and commercial connections that would have made it difficult for any American manufacturer to make a successful start in this industry, if competition from Germany had not ceased. During the war the complete process of making formic acid from caustic soda and coke has been developed in the United States.

Oxalic acid is closely related to formic acid, since sodium formate is also the basis of one of the methods for its manufacture. During the war a promising beginning was made in the United States in the manufacture of oxalic acid by this method from locally available raw materials. The process in use by the only American manufacturer before the war depends upon heating sawdust with caustic potash imported from Germany or made in this country from imported German potash salts. The scarcity of potash seriously affected the industry and caused the price of oxalic acid to increase sixfold. During 1918 and 1919, however, large importations from England, Norway, and Holland have brought the price down to a somewhat lower level.

In the case of citric acid the American industry has been dependent on citrate of lime imported from Sicily. Citrate of lime is made from "cull" lemons and may thus be regarded as a by-product of the lemon-growing industry. It is only in recent years that any attempt has been made to recover these by-products in the United States. Although there is a large American lemon-growing industry, the cultural methods commonly practiced in the United States are so far superior to those employed in Sicily that a much larger proportion of the American crop can be marketed as fresh fruit, and this country will therefore continue to be dependent on Sicily for a large fraction of its supply of acid. Whether it will be imported in the form of citrate of lime or of citric acid will largely be determined by the relative rates of duty on these products.

Tartaric acid, like citric acid, is made from imported raw materials, but there is no prospect of the development from domestic sources of any appreciable supply of the essential raw materials for tartaric acid. In the past the margin of duty has been so adjusted that nearly all the imports have been in the form of crude materials. The raw materials are by-products of the wine industry, and carry an ad valorem rate of duty. The products made therefrom, especially tartaric acid and cream of tartar, are dutiable at specific rates. The advance in prices which has occurred since the passage of the tariff act of 1913 has, in effect, diminished the margin of protection. Italy, which is one of the large sources of supply, has imposed a small export duty on the raw materials, but no export duty on the finished products, and this has had the effect of further decreasing the effective margin of duty in the United States.

Tannic acid, gallic acid, and pyrogallic acid are derived entirely from nutgalls which are also imported raw materials. "Tannic acid" and "extract of nutgalls" are essentially similar articles. The former is usually a somewhat purer and better grade than the latter, although there is no sharply defined difference. There is, however, a large difference in the rates of duty, tannic acid being dutiable at 5 cents per pound and extract of nutgalls at three-eighths of a cent per pound. The growth of the new American dye industry has greatly increased the demand for gallic acid.

The lactic-acid industry was first developed in the United States, but in recent years it has grown on a much greater scale in Germany than in the United States. Nearly all lactic acid produced in the United States has been of an impure grade and has been mainly used in tanning and dyeing. Within the last few years, however, a refined grade, suitable for use in foods and beverages, has been produced in this country and put on the market in considerable quantities.

Tariff information surveys of chemical industries.—Progress was made during the year in the preparation of tariff information surveys of other chemical industries in Schedule A, about 65 of which were completed. They include a great number of individual chemical commodities. Of the articles covered by the 70 paragraphs of schedule A of the act of 1913, complete information for about 75 per cent has been assembled in survey form at the present time. In addition, a number of units on chemicals which are on the free list have been finished.

Other unprinted studies of commodities embraced in schedule A relate to:

Completed.

Acetanilid.	Barytes:
Acetic anhydrid.	Manufactured.
Acetphenetidín.	Sulphate of, artificial.
Acetone.	Unmanufactured.
Acids:	Berlin blues.
Acetylsalicylic.	Blues.
Boracic or boric.	Buchu leaves.
Citric.	Calcium tartrate, crude.
Formic.	Cadmium sulphide.
Gallic.	Calomel.
Glycerophosphoric.	Camphor:
Lactic.	Crude.
Oxalic.	Refined.
Pyrogallic.	Synthetic.
Tannic.	Carbon tetrachloride.
Tartaric.	Caustic soda.
Alum:	Cellulose esters.
Cake.	Chalk:
Patent.	Billard.
Alumina:	In cubes, blocks, sticks, or disks.
Hydrate of.	French.
Manufactured, n. s. p. f.	Manufactures of, n. s. p. f.
Sulphate of.	Precipitated, for medicinal or
Aluminous cake.	toilet purposes.
Ammonia:	Red.
Carbonate of.	Tailors.
Liquid anhydrous.	Chloral hydrate.
Muriate of.	Chloroform.
Phosphate of.	Cocaine.
Ammoniacal gas liquor.	Corrosive sublimate.
Amyl:	Dextrin, from starch or flour.
Acetate.	Egonine.
Nitrite.	Ergot.
Amylic alcohol.	Ethers:
Antipyrine.	Acetic.
Argols.	Fruit, n. s. p. f.
Aspirin.	Sulphuric.
Barium:	Ethyl:
Carbonate of, precipitated.	Acetate.
Chloride of.	Chloride.
Dioxide of.	Formaldehyde solution, or formalin.

Completed—Continued.

Fusel oil.	Potassium, iodide.
Gas black.	Pyroxylin:
Glauber salts.	Compounds in blocks, etc.
Glycerin:	Solutions.
Crude.	Saleratus.
Refined.	Salol.
Glycerophosphoric acid compounds, and salts.	Saltpeter.
Guiacol carbonate.	Soda:
Gum, British.	Benzoate of.
Iodoform.	Bicarbonate of.
Lampblack.	Bichromate of.
Lead:	Borate of.
Acetate of—	Carbonate of, crystal.
Brown, gray, or yellow.	Caustic.
White.	Chlorate of.
Pigments.	Chromate of.
Licorice:	Crystals.
Extracts of.	Hydrate of, or caustic soda.
Root.	Hyposulphite of.
Lime:	Monohydrate.
Chloride of.	Nitrite of.
Citrate of.	Phosphate of.
Sulphate of, artificial.	Prussiate of, yellow.
Litharge.	Sal.
Lithopone.	Sesquicarbonate of.
Menthol.	Sulphate of, crystallized.
Mercurial preparations.	Sulphide of.
Morphia, sulphate of.	Sulphite of.
Nutgalls, extract of.	Supercarbonate of.
Opium:	Starch:
Alkaloids of.	Burnt.
Crude or manufactured.	Soluble.
Extract of, for medicinal uses.	Steatite.
Preparations of, n. s. p. f.	Talc, ground.
Salts of.	Talcum.
Tincture of.	Tannin.
Paris white.	Terpin hydrate.
Phenolphthalein.	Thymol.
Potash:	Ultramarine blue.
Bicarbonate of, refined.	Urea.
Bichromate of.	Vermilion reds.
Chromate of.	White lead.
Chlorate of.	Whiting.
Nitrate of.	Zinc:
Permanganate of.	Chloride of.
Prussiate of, red and yellow.	Oxide of.
	Sulphate of.

In progress.

Acids:	Castile soap.
Salicylic.	Chromium, colors.
Agar-agar.	Civet.
Alizarin assistant.	Coca leaves.
Amber.	Cosmetics.
Amberoid, unmanufactured.	Dyewoods, extracts of.
Anilin:	Enamel paints.
Oil.	Enamels.
Salts.	Extracts:
Artists' paints, colors, and pigments.	Chlorophyll.
Balsams:	Dyeing, n. s. p. f.
Copaiba.	Gelatin, manufactures of.
Canada.	Gentian leaves.
Peru.	Glazes.
Tolu.	Glue.

In progress—Continued.

Gum, Arabic.
 Ink.
 Ink powders.
 Isinglass.
 Logwood, extract of.
 Musk.
 Ocher and ochery earths.
 Oils:
 Cod and codliver.
 Linseed.
 Olive.
 Palm.
 Palm kernel.
 Peanut.

Oils—Continued.
 Peppermint.
 Perfumery.
 Sarsaparilla root.
 Sienna, earths.
 Soap:
 Castile.
 Medicinal.
 Powder, n. s. p. f.
 Toilet, perfumed.
 Toilet, unperfumed.
 Umber and umber earths.
 Vanilla beans.

Printed studies and reports have been issued on the following subjects:

Dyestuff Situation in the Textile Industries. ¹	The Domestic Potato-Products Industry.
Census of Dyes and Coal-Tar Chemicals, 1917. ²	Pyrites and Sulphur Industry.
Census of Dyes and Coal-Tar Chemicals, 1918.	The Potash Industry.
Dyes and Related Coal-Tar Chemicals.	The Acids of Paragraph 1 and Related Materials Provided for in the Tariff Act of 1913.

SCHEDULE B: EARTHS, EARTHENWARE, AND GLASSWARE.

At the request of the Committee on Ways and Means, the commission on June 3, 1919, made a brief report containing information concerning optical glass and chemical glassware. This report shows that the optical glass industry, which was begun in this country in an experimental way in 1912, has been so developed, through the cooperation of manufacturers, the Government, and individual scientists, as to produce many varieties of this glass in sufficient quantities to reduce the necessary imports to 50 per cent of the former annual average. This work also resulted in improved methods of manufacture, such as the continuous application of the motor-driven stirring apparatus; the "24-hour" process, which practically doubles production; and the casting of glass in plates. It is pointed out, however, that, during the war, the production of optical glass, a basic material in the manufacture of fire-control instruments, has been pushed with similar energy in England, France, and Germany. Naturally this simultaneous foreign development will affect the future position of American manufactures. Before the war, the Jena works, of Germany, backed by the advantage of 25 years of experience, had practically no competition in optical glass.

Chemical glassware is not separately provided for under the act of 1913, but is dutiable at 45 per cent ad valorem under paragraph 84, or is imported free of duty for educational institutions under paragraph 573. Prior to the war, practically all chemical glassware used in the United States was imported, but as Germany was then the chief source of supply, imports ceased in 1915. From that time on American firms devoted some attention to this branch of the in-

¹ Supply exhausted.

dustry, and, as a result recent domestic production has not only equaled the domestic demand, but, in 1918, chemical glassware valued at \$179,682 was exported. The tests made by the Bureau of Standards proved the American ware equal to all and superior to some of the previously imported ware. The American ware is, however, more costly than the foreign and, as cheap grades are satisfactory for much of the work in educational institutions, it is expected that commercial readjustments will bring renewed competition.

Besides the above-mentioned report, studies of window and plate glass have been completed, though not printed. The manufacture both of common window and plate glass is well established in the United States. The chief competition before the war was from Belgium and that country is likely to prove an important factor in future trade. Belgian glass factories were not destroyed by the German invasion, and, a few months after the signing of the armistice were again in operation. Thirteen of the most important window glass manufacturers of Belgium have formed a cooperative association to purchase materials, machinery, fuel, and other supplies. Both in Belgium and in northern France there is building activity and an immensely increased demand for glass, in part because of destruction during the war.

The renewed Belgian production will be less likely to affect the domestic market than our export trade, which has increased from a few thousand to over \$3,000,000 annually. The plate glass industry has experienced a similar acceleration of business in various foreign markets, where sales, prior to 1914, were small and irregular.

Other unprinted studies of commodities embraced in Schedule B relate to:

Completed.

Chinaware.	Common window glass.
Common yellow, brown, or gray earthenware.	Cast polished plate glass.
Rockingham earthenware.	Grindstones.
Earthenware pottery.	Lime.
	Pumice stone.

In progress.

Kaolin.	Decaners.
Mica.	Other glass containers.
Glass bottles.	

Printed reports have been issued on the following subjects:

Glass industry as affected by the war.¹ Optical glass and chemical glassware.

SCHEDULE C: METALS AND MANUFACTURES OF.

Investigations of the multitude of commodities embraced in the metal schedule have been pushed forward systematically. During the year approximately 60 tariff information catalogs have been completed. These industrial reviews have made available for the use of Congress information covering a wide diversity of raw material and manufactured products of iron, steel, and nonferrous metals. Early in the year particular consideration was given to those metal

¹ Supply exhausted.

and chemical industries that were seriously disturbed, or greatly expanded, by war conditions. The requirements of the special session of the Sixty-sixth Congress were anticipated, and tariff information was in readiness for the use of committees of Congress with respect to all commodities that were considered for emergency tariff legislation.

The commission had planned and largely completed a volume on The Mining Industries, especially war minerals, but available funds were found insufficient for printing it. The preparation of this volume is again under way. As now outlined, it will contain industrial surveys dealing with magnesite, tungsten, graphite, barytes, maganese, chromite, antimony, quicksilver, potash, and pyrites.

The general work on schedule C was well advanced when Congress began its tariff hearings and the Committee on Ways and Means printed for its immediate use, out of its own funds, separate reports of the commission on various commodities, as they came up for tariff consideration. These pamphlets consist of reports on tungsten-bearing ores, the magnesite industry, manganese ore, zinc ore, graphite, and scientific instruments.

A similar volume covering the ferro-alloys has also been planned and its publication will follow the completion of a field investigation of the ferro-alloy industries.

TUNGSTEN-BEARING ORES.

Uses.—Practically all tungsten ore now produced in the world is used in making tungsten metal or ferrotungsten. Various salts of tungsten have been employed in the dye industries, but have been almost wholly replaced by cheaper chemicals. Over 95 per cent of the tungsten production goes into the making of tungsten steel, which is in general use for high-speed cutting tools, permanent magnets, and saw blades. A small amount of very pure tungsten is consumed in making filaments for incandescent electric lights.

Domestic production.—The maximum domestic production of tungsten ore, expressed in terms of concentrates containing 60 per cent WO_3 , was 6,144 short tons in 1917. The 1916 output was 5,923 short tons. The valuations for the respective years were \$6,782,976 and \$12,072,258. The 1918 output was 5,041 short tons.

Mining methods.—Some tungsten is obtained by placer mining, especially in foreign countries. Most of the domestic production is obtained from lode deposits. In new districts the ore may often be picked up on the surface of the ground or gouged out from shallow open workings. Such cheaply obtained material is largely exhausted in the United States, and most of the domestic production now comes from underground workings. These are of two types, which may be designated narrow or wide. The narrow deposits are typified by the stringer lodes of Boulder County, Colo. The lodes of the Southwest are usually wider and can be worked on a larger scale.

Concentration.—The mechanical treatment of low-grade tungsten ore has reached its highest development in the United States. American mills are better equipped than those in foreign countries and obtain a more nearly complete extraction of values. Tungsten ore has

a strong tendency to slime. This tendency is minimized by stage reduction and improved machinery for the recovery of fine material.

Equipment.—In the early stages of production practically no equipment is required, as the work consists largely of collecting the ore and hand sorting; but when deep mining begins, power plants, pumps, hoists, air compressors, and other machinery must be installed and considerable capital expended in development work. The treatment of a large tonnage of low-grade material requires expensive crushing and concentrating machinery.

Organization.—The tungsten industry is characterized by a large number of small independent producers, with only a few well-financed companies. A considerable number of the stronger operators have connections with manufacturers or consumers of tungsten metal and ore. The Atolia Mining Co. of California¹ is the largest producer in the United States, and its output constituted over 30 per cent of the total domestic product in 1913. Over 50 per cent of the tungsten mined in the United States is taken out by four large companies, the Atolia in California and the Primos Chemical Co., the Wolf Tongue M. & M. Co., and the Vanadium Alloy Steel Co., in Boulder County, Colo. The remainder comes from a large and constantly shifting group of small operators.

Domestic localities.—Tungsten deposits are actively exploited in the Mojave Desert and at Bishop, Calif.; in Boulder County and Silverton, Colo.; in various counties in Nevada; in Arizona; and in the Black Hills of South Dakota. Sporadic production has come from sections of the enumerated States other than those mentioned, and from Idaho, Washington, Oregon, New Mexico, Utah, Missouri, and Connecticut. In the last few years California and Colorado have contributed, in about equal proportions, approximately 90 per cent of the total output of the United States. The Atolia district in the Mojave Desert ranks first in the world in the production of scheelite.

Domestic production and consumption.—The domestic production of tungsten ore furnished less than one-third of the domestic requirements in 1918. Previous to the war about 75 per cent of the domestic supply came from American mines, but consumption has increased more rapidly than production.

The ratio of consumption to production of tungsten ore is not strictly an index of the tungsten requirements of the country. The imports and exports of tungsten powder and ferrotungsten must also be considered. In the pre-war period some tungsten was imported in the form of ferro-alloy; but since 1914 practically all the imports have been of ore. In 1917 and 1918 the United States exported large amounts of ferrotungsten and tungsten powder. The actual ratio of consumption to the production of tungsten metal has, therefore, not increased quite so rapidly as has that of the ore; nevertheless, a less proportion of the total tungsten actually used for the making of finished steel and other products (ultimate tungsten consumption) is now produced in this country than in the years preceding the war.

Domestic exports.—Very little of the United States production of tungsten ore has ever been exported. From 1910 to 1914 small amounts were shipped to Germany. In the last year or two there has

¹ Not connected with tungsten manufacturers.

been some exportation of ferrotungsten, especially to Italy, but the continuance of these exports is not dependent on domestic production of ore, as this metal could be, and probably to a large extent is, reduced from imported ore.

Foreign production.—Burma (including the Shan States) ranks first in the world in the production of tungsten ore. In 1917 it produced 21.4 per cent of the world output. The United States ranked second and produced 17.1 per cent of the total for that year. Bolivia was third, with an output equivalent to 15.8 per cent. In 1917, 41.8 per cent of the world supply was drawn from Asia, 22.2 per cent from South America, 18.4 per cent from North America, 11.3 per cent from Europe, and 6.3 per cent from Australia and New Zealand. Africa produced only a negligible amount. These figures indicate, as experience has shown, that tungsten is widely distributed over the earth's crust.

Foreign industry.—Most of the Asiatic supply comes from surface deposits. Broadly speaking, especially in Burma and contiguous territory, the cream of this easily gathered material has been skimmed, as evidenced by increased costs, in spite of cheap labor. The only exceptions are certain sections of China and Korea. The Bolivian production comes chiefly from deep mines where the ore is found associated with tin.

In general, costs of foreign production—even including freight to the United States—are reported lower than costs of production in the United States. This is due not only to cheaper labor but also to the fact that a larger proportion of foreign ore comes from near the surface.

Imports.—Before the war from 20 to 40 per cent of the United States supply of tungsten ore was imported; since 1914 imports increased from 40 per cent in 1915 to 70 per cent in 1918. In general, the foreign ore is not so free from objectionable impurities as is the American product. It, therefore, sells at a discount from American quotations. Some imported ore, however, compares favorably in regard to purity with the domestic. As a rule, it has a higher tungsten content, frequently running up to 65 or 70 per cent. Ore containing as little as 50 per cent WO_3 is imported, but the average grade of imported ore is in the neighborhood of 60 per cent.

Germany was the trading center of the tungsten industry before the war and most of the pre-war imports of the United States were shipped from that country. Only a fraction of these imports originated in Germany. The remainder were handled through German brokerage firms. When Germany was cut off from world commerce, imports came direct from the countries of origin, especially from South America and Asia. Another feature of the shortening of the routing of imports was the practical cessation of the importation of tungsten metal and ferrotungsten. The tungsten supply of the United States is now derived almost exclusively from ore, whereas German-made ferro-alloy formerly represented an important fraction of the imported supply.

There are no tungsten reduction plants on the Pacific slope, so the ultimate destination of ore is the Atlantic seaboard. Because of the transfer of sources of supply from Europe to South America and Asia, an increasing amount of material has arrived at Pacific ports. The transcontinental freight (\$42.50 a ton in 1918) to the Eastern

States is not a very large item as compared to the cost of so expensive a commodity (valued at \$1,000 to \$1,500 a ton), and is partially offset by nearness of centers of consumption of the ferro-alloy.

Revenue.—The maximum revenue collected in the form of duties on tungsten ores was less than \$39,000. This was in 1913¹ under a tariff of 10 per cent ad valorem. Since tungsten ore has been imported free of duty during the war period, the imports have furnished no revenue, although their value in 1917¹ was nearly thirteen times as great as in 1913.¹

Prices.—The price history of tungsten has been characterized by extreme fluctuations. There was a general advance in price, from about \$2 a unit in 1900 to a little more than \$7 a unit in 1914. In the winter of 1915-16 there was a "boom" in tungsten. In a period of about six months the price soared to over \$90 a unit. Then followed, within less than three months, a spectacular fall to \$25, and later, \$18. After September, 1916, the price remained between \$18 and \$26, averaging about \$22 a unit, until its drop to \$7 or \$8 in 1919.

Tariff aspects.—Tungsten production in the United States has suffered a relapse from the greatly expanded output of the war period. The cheap, easily mined resources of this material are practically exhausted, and a continuation of production depends upon the development of underground operations which require considerable investments of capital. While it has not yet been fully demonstrated that the domestic deposits can long continue a large production, available data indicate they can furnish for some time a substantial amount. The demand for tungsten is not limited to military uses. The war merely emphasized the necessity for tungsten steel tools as factors in industrial efficiency. Only very serious and general business depression would cause a substantial slackening in the consumption of tungsten.

Investments of capital necessary to equip and develop tungsten mines in the United States are hindered by doubt as to whether the present, or in fact any, stabilized price will be maintained. There are producers in the United States who can market tungsten at \$12 or less a unit, but an important part of the present production comes from mines where such low costs are impossible because of the erratic character or low grade of deposits. At the tungsten conferences held by this commission in Denver and San Francisco in June, 1918, the most important feature of the entire situation was stated by all producers to be the necessity of a stable price high enough to meet the costs of operating mines of the less favored group.

THE MAGNESITE INDUSTRY.

Magnesite is a natural carbonate of magnesium, harder and heavier than limestone, which it most nearly resembles. Two markedly different natural varieties, crystalline and massive, are distinguished. The only important crystalline deposits are found in Austria-Hungary (Styria), Quebec, and Washington. Massive magnesite is widely distributed.

¹ Fiscal years.

Uses.—Magnesite, when calcined, forms a highly refractory material which has no thoroughly satisfactory substitute in the open-hearth process for making steel. About 82 per cent of the domestic consumption is used in refractories, 15 per cent in the plastic trade, and the remainder is required in minor uses in chemical industries and medicines.

Production.—The United States is the largest consumer of magnesite in the world. Its consumption in 1913 was 50 per cent of the total output of the world. Before the war fully 90 per cent of the domestic supply was imported. Austria-Hungary furnished the bulk of the material required by the steel industry from deposits controlled by American capital, while Grecian deposits supplied most of the requirements for other purposes. The only domestic production was in California, where it was consumed locally.

With the outbreak of the war supplies from Austria were at once cut off, and, after 1916, those from Greece were greatly curtailed. At the same time the domestic requirements increased greatly. In 1917 the domestic consumption was over 355,000 tons, valued at more than \$3,700,000. Nearly 90 per cent of the supply was of domestic origin. A great new industry was developed in Washington, while the existing industry in California was greatly expanded. Similarly fostered by the restriction of ocean shipment, a magnesite industry sprang up in Quebec and, in spite of the inferior quality of the product, was a strong competitor of the western magnesite because of its relative cheapness at the eastern steel furnaces.

The chief handicap of the domestic magnesite producer is the long railroad haul from the mines to eastern markets, where it is chiefly consumed. Domestic reserves are ample, especially in Washington, where more than 7,000,000 short tons are indicated or in sight. They are being actively worked by two or three strong companies and several small operators.

The American magnesite is purer than the Austrian material, which, by virtue of its content of a small amount of iron in just the proper amount, is better suited by nature for use in the steel industry. However, the early difficulties encountered in the use of domestic material have been quite satisfactorily overcome. The lack of the desired amount of iron in Washington magnesite is met by adding iron synthetically.

With the return of normal shipping conditions, the American magnesite industry faces the prospect of a serious relapse—almost to the prewar level. Recently developed deposits in Venezuela may be expected to furnish some material to the eastern markets in competition with that from Greece and Canada, but Austrian magnesite will dominate the market, if delivered at anything like prewar prices, which were as low at the Atlantic seaboard, practically the point of consumption, as quotations of the domestic product on the Pacific coast. Under such conditions, the domestic output would be restricted to the markets west of the Mississippi, where the consumption is comparatively small. The precise location of the dividing line is dependent upon the balance between ocean freight from foreign countries and domestic rail tariffs from the Pacific coast. On account of the concentration of the steel industry in Pennsylvania, Illinois, and neighboring localities, the advantage lies with the foreign producer.

MANGANESE ORE.

Manganese ore is the raw material for ferromanganese or spiegel-eisen, products essential to the manufacture of steel. Minor amounts of the ore are required by chemicals and other industries, but 96 per cent of the consumption is for making steel.

Prior to the European war the United States produced less than 1 per cent of its manganese requirements. The remainder was imported mainly from India, Russia, and Brazil in the form of ore and from Great Britain in the form of ferromanganese. Under war conditions India and Russia were practically eliminated as sources of supply. The productive capacity of the world's major deposits is so much greater than the total demand for ore for steel making that if any single source is eliminated temporarily, the demand can be fully met by the remaining sources with but little extra effort. Domestic production of high-grade (i. e., 35 per cent or more manganese) ore, used largely for making ferromanganese, increased from 4,048 tons in 1913 to about 305,869 tons in 1918. Production of low-grade (less than 35 per cent manganese) ore, used partly for making spiegel and partly smelted direct in iron furnaces, increased from 59,403 tons in 1913 to 1,170,382 tons in 1918. The number of mines increased from 75 in 1917 to 325 in 1918. The Cuban industry was promoted by American interests and the entire production sent to the United States. The quantity imported from Cuba shows annual increases from 550 tons in the fiscal year, 1915, to 67,780 tons in 1918, an amount equal to one-twelfth of our total imports.

The industry was also considerably expanded in Brazil and in Cuba. The large supplies from these nearer countries together with the increased domestic output proved greater than even the enormously expanded needs of this country. The United States became independent of British ferromanganese and of Indian and Russian ore.

Manganese mining on a large scale in the United States is, however, an artificial industry. Under normal trade conditions, with a free movement of ore from foreign countries, the United States will contribute only a very limited output. Domestic resources have been carefully estimated and found to be insufficient to supply domestic requirements for more than a few years. The cost of mining is relatively high, but that is not the only determining factor. The domestic ore is relatively low grade, obtainable only in small lots¹ and variable in character. Any large dependence on domestic supplies involves the rapid depletion of our limited reserves, and a loss in efficiency due to the use of lower-grade material by consumers, aside from the increased cost of domestic ore as compared with the cheaper and more desirable foreign product. Foreign resources are practically inexhaustible and are high grade. They are easily accessible and must eventually furnish the American supply, regardless of any temporary expedients that may lead to the continuance of domestic mining.

¹ Outside of the Butte, Montana, field. There is a possibility that our domestic resources are greatly in excess of heretofore indicated reserves; producers in the Butte district state that several million tons of high-grade ore are available in this section alone. Although great bodies of manganese ore are known to be in place in the Butte silver-zinc mines, no authenticated estimates of tonnage are available.

During the war period a number of mines were opened and equipped to provide manganese for the war uses. When the armistice was signed many of these properties had failed to return the invested capital.

On the ground that the investments had been undertaken for patriotic reasons, compensation was asked from the Government. Such compensation is under consideration, the manganese industry being one of the four in which such financial losses are being investigated and liquidated by the Secretary of the Interior under the powers of the War Minerals Relief act of March 2, 1919.

ZINC ORE.

Effects of the war.—The European war profoundly disturbed the zinc industry of the world. The effect was most marked in the United States, which for many years prior to 1914 had been a negligible factor in the international trade in ore and metal. The domestic industry was maintained behind a tariff-wall and neither imports nor exports were important. A few thousand tons of high grade material from New Jersey constituted the only ore regularly exported. It was used in Europe for making zinc oxide. Some ore was imported, especially from Mexico, but the quantity was small, compared with the domestic output. The metal situation was similar.

These conditions were changed by the war. Germany and Belgium, which had hitherto supplied international trade, were eliminated as sources of supply. The Allied governments required enormous amounts of zinc and brass for the manufacture of munitions. These factors resulted in a remarkable expansion of the American industry. The output of domestic zinc mines in 1916 and 1917 was nearly double the prewar rate. A number of new reduction works were built in the United States and these treated, in addition to domestic ore, some of the Australian concentrates which had formerly been smelted in Europe; also considerable ore from Mexico, Canada, and South America. Some of this foreign ore was imported for domestic consumption, but the greater part was smelted in bond. A large fraction of the zinc, recovered from the imported ore upon which duty had been paid, was reexported with benefit of drawback.

Late in 1917 the foreign demand slackened. The price of zinc receded to levels that made unprofitable the operation of many reduction works and mines whose costs had increased greatly under war conditions. Many smelteries were forced to close and a collapse in the ore market followed. Stocks of metal and ore accumulated as never before in the history of the industry. A great many properties maintained production in 1918 but few of them are believed to have returned any profit in the face of high costs and low prices for the product. Some of the best and richest properties have shut down, while certain weaker concerns are still trying to keep going. Competition from foreign ore is not the only important factor, although, of course, the imports, large as compared with pre-war receipts, have somewhat aggravated the situation. The chief trouble was expansion of production under war pressure followed by stagnation of the domestic and foreign consuming markets.

Since the signing of the armistice zinc has been exported in larger quantities than before the war, but domestic consumption is at a low

ebb. Mines, mills, and reduction works all over the country are idle or being operated at much reduced capacity. Imports from all countries, except Mexico and Canada, have practically ceased, and the quantity imported is not large compared to that imported during the war, though it is much greater than that previously imported.

Supplies.—Zinc is found in nature as a sulphide, and in various oxidized ores. Practically, the essential differences between the two occurrences are: (1) The former must be roasted before it can be smelted, but (2) it usually contains a much higher percentage of zinc. Zinc minerals are widely distributed over the world and are frequently associated with ores of other metals, notably lead. Until quite recently zinc was always considered an undesirable constituent of such ores, but improved methods of ore treatment now permit the commercial separation of the zinc, and the zinc contents of complex ores have become an important factor in the zinc resources of this and other countries.

Uses.—The essential uses of zinc are: In brass (an indispensable material in modern industry); in galvanizing; as structural sheet; and in the desilverization of lead bullion. The consumption is greatest in galvanizing. A wide list of miscellaneous uses for zinc includes the chemical, rubber, paint, electrical, and metal industries, and medicine.

The chief use of zinc ores is, of course, for the manufacture of spelter, but an increasingly large amount is used in the United States for the direct manufacture of zinc oxide and other pigments and zinc dust. Blende is an important source of sulphuric acid, a large tonnage of which is recovered as a by-product in the making of spelter.

The United States is the country of largest production of zinc ore in the world, furnishing, in 1913, some 35 per cent of the world supply. One-seventh of the total output of the world was derived from one district—the Joplin-Miami or “Komspelter” region—situated in and about the southwestern corner of Missouri. Next to the United States, Germany, in 1913, was the country of next highest production; its output amounted to one-fourth of the world’s total. Australia furnished 15 per cent, and the remainder came from a score of countries, no one of which furnished any considerable fraction of the total supply.

Since the location of zinc reduction works is determined by availability of fuel and labor, rather than by proximity to ore deposits, zinc ore and concentrates are important factors in foreign trade and are transported long distances. The ore from North American mines must be largely transported by rail, whereas the ores of other countries are transported to smelting works by water. Australian concentrates are normally transported to European works for treatment. These concentrates, formerly controlled by German metal syndicates, are now under contract to the British Government.

The zinc supplies of the future may be expected to come from the above-named countries in somewhat the same proportions. Burma, however, is becoming of great importance, and Siberia is capable of large ore production, although the latter country is handicapped by political disturbances and its distance from large consuming centers. The position of Germany is much altered by the inclusion of the Silesian deposits and reduction works within the borders of the new State of Poland. Poland now also has mines and smelters formerly

in Russian territory. Only about one-third of the prewar output of Germany came from Rheinland and Westphalia, which are the only zinc-producing regions left in Germany, according to the boundaries defined by the first draft of the peace treaty. Increased supplies of ore are to be expected from Canada, Mexico, Chile, Peru, and Bolivia.

From the American viewpoint Mexico is the most important of these future producers, as most of the Mexican output in the past has been smelted in the United States. When Mexican mines can again be worked with safety Mexico will be the logical market for the product.

Tariff features.—Prior to 1905 foreign competition was of no consequence in the zinc-ore market. Insignificant quantities of ore had been imported at various times. But in 1905 and after, until all zinc ores were made dutiable under the act of 1909, considerable quantities were imported from Mexico and Canada, some with, some without, payment of duty. After the duty of 1 cent per pound was placed on the zinc contents of ore containing 25 per cent or more of zinc, the imports fell off to a very small amount. This duty was reduced to 10 per cent ad valorem or an equivalent of from 0.2 to 0.4 cent per pound in the act of 1913.

At the time of the tariff change in 1913 mining was at a low ebb in Mexico, and because of political conditions imports of zinc ore actually decreased. When these are adjusted active competition may be expected from the large, cheaply mined deposits in that country. Zinc ore may be imported from Canada and South American countries, but the important factor is the Mexican situation, as under normal conditions Mexican mines can furnish large quantities of zinc ore to American smelters at much lower costs than those at which some American mines can operate.

GRAPHITE.

In the graphite industry interest centers in the material capable of being made into crucibles—the crystalline variety of the mineral. Its most important use is in the manufacture of crucibles for the melting of steel, brass, and other metals and alloys, and it thus became a mineral of vital importance during the war.

In addition to use in crucibles, it has a wide variety of industrial applications, for which a lower grade—the amorphous variety—is adapted. An artificial graphite, made in the electric furnace, is suitable for many of the minor uses. The crystalline graphite for the American crucible trade has in the past been almost entirely imported, coming from Ceylon, the world's main source of supply prior to the heavy demands of the war period. Recently Madagascar graphite has been replacing Ceylon material in the European markets, and American crucible makers have had considerable success, both in mixing up to 40 per cent of the domestic flake with Ceylon material and in utilizing 100 per cent Alabama flakes.

Although the domestic graphite industry experienced a great stimulation during the curtailment of imports from overseas in 1917-18, the United States is not yet independent in the matter of crucible graphite, 15,000 tons of which are required per year. We produce from deposits in Montana, Alabama, Pennsylvania, New York, Alaska, and Texas some 3,500 tons of flake (or crystalline) annually, of a grade

inferior to Ceylon but similar to Madagascar flake. There are large undeveloped reserves of flake graphite in the United States carrying 5 per cent of the mineral. The Ceylon and Madagascar deposits contain 50 per cent or more. The flake graphite supply in normal times may come from Madagascar, but we can be fairly independent in case of necessity through the stimulation of graphite mining in this country.

Low-grade amorphous graphite is abundant in the United States. An excellent grade of amorphous material is available from Mexican deposits owned by a United States graphite company. Extensive domestic development of amorphous mineral has never been profitable on account of this cheap Mexican material.

Artificial graphite and graphitized carbon manufactures are competitive to some extent, with natural grades. The American product is manufactured chiefly by the International Acheson Graphite Co., which utilizes electric power generated at Niagara Falls. The output has increased greatly in recent years and now forms an important element in the country's graphite supply. Although not yet an accredited substitute for flake graphite in the making of crucibles, it is not improbable that present efforts to develop an artificial crucible grade will finally evolve a satisfactory product. It is already finding an expanding use in lubricants, paints, foundry facings, boiler-scale preventives, and battery fillers, and the manufacture of graphitized carbon electrodes at Niagara Falls is increasing with the expansion of the electric steel industry.

The growth of the graphite industry in this country has been greatest in Alabama, which State produced 59 per cent of the quantity and 66 per cent of the value of the total domestic output in 1917. The production doubled in 1916, and there was a further increase of 50 per cent in 1917. Notwithstanding shipping difficulties, imports also increased. About one-ninth of the American consumption in 1916 was of domestic origin. In 1917 the proportion had increased to about one-seventh, and in 1918 to about one-third. Since the signing of the armistice something of a collapse in domestic production of crystalline graphite has occurred.

The total requirements of the country for 1919 have been estimated at not over 30,000 tons, of which 50 per cent will be crystalline and 50 per cent amorphous. Of the crystalline, only about 15 per cent is expected from domestic deposits; of the amorphous, about 45 per cent. With the rumor of prospective tariff legislation and the resumption of more normal shipping conditions, the pressure of foreign material has increased. Consumers are accumulating imported stocks and domestic producers are being correspondingly restricted.

SCIENTIFIC INSTRUMENTS.

The commission, in its report on scientific instruments, gives a detailed list of the different kinds of such instruments in use in the United States. A table summarizes the development of the industry from the outbreak of the European war to the present time. The instruments are alphabetically arranged, and are classified as follows: First, those almost wholly of foreign make prior to the war; second, those almost wholly of domestic make prior to the war; and, third, those both of foreign and domestic make prior to the

war. Accompanying the different articles enumerated are comments of manufacturers and of the United States Bureau of Standards. These notations set forth prior conditions and show the relative production of certain scientific instruments in this country and abroad. In some cases comparisons of the respective qualities of the foreign and domestic articles specified are included. The report shows that during the European war not only were many articles formerly exclusively of foreign manufacture for the first time produced in this country, but that in instances a sufficient quantity to satisfy the present domestic consumption is being manufactured in this country. It also supports the conclusion that, in some instances of recent manufacture, articles possessing qualities superior to those of corresponding foreign goods are already being produced in the United States.

The commission, on the other hand, directs attention to the widely different characters of the many articles which are embraced under the term "scientific instruments," and suggests that general statements as to competitive conditions in so varied an industry are likely to be misleading. The opinion is expressed that American manufacturers possess an advantage in producing scientific instruments wherever it is found possible to engage in large-scale production, as is the case where the instruments have extensive industrial uses. By way of illustration, it is pointed out that large quantity production has been achieved in ammeters, voltmeters, pressure gauges, and, to some extent, thermometers, and weights and balances. European manufacturers of scientific instruments are said to have certain advantages in the manufacture of instruments where small orders are given or great attention to detail is demanded, as, for example, in some cases of instruments requiring unusually high precision and skilled handwork. The reputation of special European instruments of this sort is occasionally based on technical ability, and is often attributed to skill gained by workers through successive generations of familiarity with the production of the articles.

The commission suggests that, in tariff making, any specification of all scientific instruments in one group, with a single rate of duty applying to all articles in the group, should be avoided, because of the extremely varied nature of such instruments and the failure of any general grouping to take account of the widely divergent competitive conditions affecting individual instruments and classes of instruments. It is indicated that such an omission to discriminate between instruments in the case of certain special instruments not manufactured now nor likely to be manufactured in this country will result in a tax on consumers without stimulation of domestic production.

Special consideration is given the comments of manufacturers, the Bureau of Standards, and universities on competitive conditions, changes due to the war, tariff considerations, and the desirability of continuing present duty-free importations in the interest of universities and other public institutions, and for scientific purposes.

The compilation of data is somewhat general and is merely preliminary; and a more extended study, dealing with the extremely diverse separate instruments, or at least with well-defined classes of similarly placed instruments, will be necessary before it will be

possible to submit for tariff purposes any finally determinative information covering the entire field.

Other unprinted studies of commodities embraced in Schedule C relate to:

Completed.

Aluminum:	Iron or steel—Continued.
Alloys.	Girders.
Bars.	Joists.
In leaf.	Manicure knives.
Manufactures of, n. s. p. f.	Nail rods.
Plates	Penknives.
Rods.	Pocket knives.
Scrap.	Pruning knives.
Sheets.	Railway tires.
Strips.	Railway wheels.
Utensils.	Razors.
Antimonial lead.	Rivet rods.
Antimony regulus or metal.	Roller bearings.
Barium.	Scissors.
Base bullion.	Screw rods, wire.
Blooms and slabs, steel.	Shears.
Calamine.	Side arms.
Calcium.	Structural.
Columns and posts, iron or steel.	Sword blades.
Crucible, steel.	Swords.
Dials, watch and other instruments, enameled.	Taggers' tin.
Dross lead.	Terne plates.
Ferrochrome or ferrochromium.	Tin plate, coated with metal.
Ferromolybdenum.	Tires, locomotive.
Ferrophosphorus.	Wire rods, cold-rolled, etc.
Ferrosilicon.	Wire rods, n. s. p. f.
Ferrotitanium.	Wire, round.
Ferrotungsten.	Knife handles.
Ferrovandium.	Knives:
Forks or steels.	Artists'.
Gas mantles.	Bench.
Gas mantle scrap.	Bread.
Ingots:	Budding.
Nickel.	Butchers'.
Steel, cogged, rolled, hammered, etc.	Butter.
Steel, rolled, hammered, etc.	Carpenters'.
Iron or steel:	Carving.
Angles.	Cheese.
Antifriction balls.	Clasp.
Axle bars.	Cooks'.
Axle blanks.	Curriers'.
Axles, etc., n. s. p. f.	Drawing.
Axles, forgings for.	Farriers'.
Axles or parts thereof.	Fleshing.
Ball bearings.	Fruit.
Beams,	Hay.
Blades, knife, etc.	Hunting.
Budding knives.	Kitchen.
Building forms.	Manicure.
Bulb beans.	Painters'.
Car-truck channels.	Palette.
Channels.	Plumbers'.
Clasp knives.	Pruning.
Columns and posts.	Shoe.
Deck beams.	Table.
Frames.	Tanners'.
	Vegetable.

Completed—Continued.

Lead :	Scrap :
Bullion.	Aluminum.
Dross.	Lead.
Pigs or bars.	Sewing machine needles.
Scrap.	Shavings, steel.
Lead-bearing ores.	Shears.
Locomotive tires, iron or steel.	Sheets :
Magnesium.	Aluminum.
Metal :	Iron or steel, coated with tin, etc.
Chromium.	Nickel.
Type.	Shotguns :
Wolfram.	Breech-loading.
Molybdenum	Combination.
Monazite sand.	Muzzle-loading.
Needles :	Side arms.
Crochet.	Steel :
Knitting.	Alloys.
Latch.	Billets and bars.
Sewing-machine.	Blooms and slabs.
Tape.	Castings, sheets, and plates, Besse-
Nickel :	mer, etc., process.
Alloy.	Crucible, electric, etc., processes.
Bars.	Ingots—
In pigs, etc.	Cogged.
Oxide.	Crucible, etc.
Ores :	Shavings.
Lead-bearing.	Wool.
Zinc-bearing.	Steel-tired wheels, railway.
Oxide :	Strips :
Nickel.	Aluminum.
Pigs :	Nickel.
Lead.	Structural iron or steel.
Nickel.	Sword blades.
Zinc.	Tees, iron or steel.
Plates :	Thorite.
Aluminum.	Thorium, oxide of, and salts of.
Iron or steel, coated with tin, etc.	Tin :
Nickel.	Plates, coated with metal.
Terne.	Taggers.
Tin.	Tires :
Quicksilver.	Car, iron or steel.
Railway :	Iron or steel, locomotive.
Tires, iron or steel.	Titanium.
Wheels.	Tools, machine.
Razor blades.	Tungsten.
Razors.	Wheels :
Rods :	Railway.
Aluminum.	Steel-tired, railway.
Nickel.	Zinc :
Rivet, screw, fence, etc.	Dust.
Steel, rolled wire.	In blocks, pigs, or sheets.
Roller bearings, iron or steel.	

In progress.

Clock jewels :	Copper—Continued.
movements, lever.	Plates.
movements, marking of.	Rods.
Clocks, and parts thereof, n. s. p. f.	Sheathing.
Copper :	Sheets.
Bottoms.	Strips.
Braziers.	Glaziers' lead.
Pipes.	Hooks and eyes, metallic.

In progress—Continued.

Iron chains.	Railway :
Iron or steel :	Fishplates, iron or steel.
Air rifles.	Revolving pistols.
Anvils.	Rifles :
Automobiles and parts thereof.	Breech-loading.
Bicycles and parts thereof.	Combination.
Boiler.	Muzzle-loading.
Bolts.	Rods :
Card clothing.	Copper.
Chain or chains.	Saws :
Corset clasps.	Back.
Corset steels.	Circular.
Dress steels.	Crosscut.
Fasteners, snap.	Drag.
Machine chains.	Hand.
Motor cycles and parts thereof.	Mill.
Muskets.	Pit.
Pistols.	Steel band.
Railway fishplates.	All other, n. s. p. f.
Rifles.	Sheets :
Saws.	Copper, rolled plates.
Shotguns.	Lead.
Wire, coated, etc.	Zinc.
Wire, covered with cotton, silk, etc.	Shot :
Wire, flat.	Lead.
Jewels, clock, watch, or meter.	Steel :
Lead :	Band saws.
Glaziers'.	Chains.
Lever clock movements.	Strips :
Machine chains.	Copper.
Magazine pistons.	Telegraph wire.
Mill saws.	Telephone wire.
Movements, watch.	Textile machinery.
Nippers and pliers.	Types.
Pistols :	Watch cases.
Automatic.	Watch dials, enameled.
Magazine.	Jewels.
Revolving.	Movements.
Pit saws.	Movements, marking of.
Plates :	Watches, parts of.
Copper.	Zinc :
Pliers.	Manufacturers of, n. s. p. f.
	Old and worn out.

Printed studies and reports have been issued on the following subjects:

Surgical Instrument Industry in the United States.	Tungsten-Bearing Ores.
Manganese Ore.	Zinc Ore.
The Magnesite Industry.	Graphite.
	Scientific Instruments.

SCHEDULE D: WOOD AND MANUFACTURES OF.

The several paragraphs in Schedule D have been covered in the "Summary of tariff information, 1910," described on page 18, and a preliminary survey of the lumber situation as a whole has been prepared.

THE LUMBER INDUSTRY.

The studies made of the lumber industry show that the only country subjecting American producers to serious competition is Canada. Nevertheless the United States is exporting lumber as well as im-

porting lumber from Canada, and both the United States and Canada export lumber of the same general character to all important markets throughout the world. These facts appear to indicate that costs of production can not be markedly different in the two countries, and that, taken as a whole, producers in the United States are in a position to compete with those of Canada. However, the Canadian frontier is long and in some regions competition is severe.

The studies bring out, furthermore, that before the war the lumber industry was in a somewhat demoralized condition, due not so much to foreign competition as to factors within the industry itself. Among these factors were speculative holdings of immense areas of timberlands, increasing and accumulating carrying charges, pressure to realize on investments, sawmills with capacity greatly in excess of demand, intense domestic competition, both local and regional, and competition, remarkable for its extent and severity, with substitutes for lumber. It is proposed during the coming year to make a field investigation of the industry, as preparation for a more detailed scrutiny of costs and prices.

Finally, the need of Government intervention of some sort to conserve the waning timber supply stands out as extremely important. This is a policy the urgency of which the lumber interests themselves are beginning openly to acknowledge. They appreciate the necessity for conservation, not only in the interest of consumers, agriculture, inland navigation, and water power, but also because the problem is one with which private enterprise is powerless to deal without governmental intervention or cooperation.

A general survey of the lumber industry has been completed but not printed.

SCHEDULE E: SUGAR, MOLASSES, AND MANUFACTURES OF.

COSTS OF PRODUCTION IN THE SUGAR INDUSTRY.

The report on costs of production in the sugar industry, referred to in the commission's second annual report, was published early in the year and attracted wide attention.

General surveys of the sugar and glucose industries have been prepared. It is brought out by the report on sugar costs, and by these surveys, that sugar is produced at strikingly varying costs, and that a considerable proportion of the domestic commodity in every region where it is produced, except Louisiana and Texas, is independent of the tariff, and would continue to be produced if tariff protection were removed. With an increase in the rates of duty a larger proportion of the total domestic consumption could and probably would be domestically produced, and a smaller proportion would probably be imported. At the present rate of duty approximately one-half of the domestic consumption is imported—almost exclusively from Cuba. As the chief factor in the cost of producing sugar is agricultural, material increases of the domestic product depend largely upon the amount of available land adapted to the cultivation of cane or beets. A higher rate of duty would, therefore, have the following effects: It would enable less effective or higher cost producers to engage in the industry; their product would increase the proportion of domestic output in the total consumption;

the cost to the least effective or marginal producer would determine the price of all sugars to consumers; and all producers who can now compete would have their profits increased by the added duty. A higher rate of duty would increase or decrease the Federal revenues according to the degree to which the resulting increase in price per pound of sugar would be or fail to be offset by decreased importation.

The cost and price studies in sugar made by the commission make it apparent that the price-fixing operations of the United States Food Administration, while allowing a generous profit to producers, resulted in a substantial saving to consumers.

GLUCOSE.

The study of the glucose industry has developed the well-known economic principle that industries subject to the law of "decreasing cost"—i. e., industries in which as the scale of production increases the cost per unit decreases—afford a tempting field for monopoly. One safeguard against extortion from such monopoly would be a duty not too high to subject the industry to active foreign competition. The insignificant importations of glucose indicate that the present rate is nearly prohibitive, while the large exports indicate that the industry is able to compete in the markets of the world.

INDUSTRIAL ALCOHOL.

The manufacture of industrial alcohol is rapidly growing in importance. A raw material for this industry is low-grade molasses, or blackstrap, imported from Cuba. The duty on molasses testing under 40° by the polariscope is ad valorem, while the duty above that test is specific. It is the custom of industrial-alcohol manufacturers to buy in advance the blackstrap output of an entire plantation. The price agreed upon may differ considerably from the price at the time of actual importation. The ad valorem duty is, therefore, a matter of some embarrassment to these manufacturers in making advance contracts, as they can not figure on their cost. Moreover, on two shipments of molasses of virtually the same commercial character, if one tests slightly above 40° and the other slightly below, the amount of duty assessed may differ greatly. It is claimed by members of the trade that 35° comes nearer the line of commercial demarcation than 40°.

CONFECTIONERY.

The study made of confectionery shows that the war has had a stimulating effect upon the export trade of that industry. Before the war Germany and Austria-Hungary absorbed a large part of the world trade in confectionery. Sixty-four per cent of the confectionery imports to the United States came from those two countries. The war cut off the trade of the Central Powers and afforded an opportunity for American manufacturers. The average annual exports, 1915-1918, were valued at \$1,800,000, as against \$1,200,000 for the preceding four-year period. It is to be noted that this increase was made in spite of the restrictions on the use of sugar placed upon manufacturers of confectionery by the United States Food Administration.

Other unprinted studies of commodities embraced in Schedule E relate to:

Completed.

Glucose.	Sugar, raw.
Saccharin.	

In progress.

Confectionery.	Molasses.
Maple:	
Sugar.	
Sirup.	

A printed report has been issued on "Costs of production in the sugar industry" (on sale by Superintendent of Documents, price 15 cents).

SCHEDULE G: AGRICULTURAL PRODUCTS.

NONCOMPETITIVE PRODUCTS.

Imports of agricultural products since the year 1914 have exceeded a billion dollars annually. At least 30 per cent of them are noncompetitive. Chief among this group, which principally embraces tropical products, are coffee, raw silk, crude cacao, tea, sisal, tropical fruits, and spices. Preliminary studies have been completed for nearly all the more important commodities in this group. These studies present certain problems incident to some measure of control of prices and of conditions of distribution—sometimes by foreign governments as in the case of coffee and cacao, sometimes by associations of foreign producers, as in the case of tea. They further bring out the desirability of revising present tariff classifications. Thus, paragraph 627 of the tariff act of October 3, 1913, has a substantially inoperative provision with regard to tea containers. Paragraph 456, "cocoa, or cacao, crude, and fiber, leaves and shells of," provides another illustration. In it leaves of the coca bush (again provided for in paragraph 39) from which cocaine is obtained, are apparently confused with leaves of the cacao tree, for which there is no commercial demand. Seemingly, the paragraph also fails to take account of the distinction between cocoa fiber, which does not figure in commerce, and the fiber derived from the rind of the cocoanut, usually termed "coir," which is again specifically provided for in paragraph 459.

COMPETITIVE PRODUCTS.

Of the competitive imports, sugars, raw wool, hides and skins, and cotton, and other vegetable fibers constitute approximately 35 per cent of agricultural imports. These products have been the subject of special investigation. The remaining agricultural products represent about 35 per cent of agricultural imports. They include a wide range of competitive products. For tariff purposes, they may be divided into a few major groups. One embraces fruits, nuts, and other horticultural products of California and the Southern States. The commission conducted in California and New York hearings with respect to a considerable number of these products; and additional information has been obtained from producers, importers, and other sources on the problems of domestic production

and the conditions of foreign competition. Partly because of climatic limitations, and partly because skill and long experience are required in such branches of agriculture, competition in these semitropical products comes chiefly from Mediterranean countries. The competition is largely between American machine culture and scientific agriculture, and the intensive agriculture of Mediterranean regions, where horticultural interests have been predominant for many generations.

A second group consists of numerous food specialties, principally of European origin. Among these are such products as macaroni and similar edible pastes, and many varieties of cheese, bakestuffs, and similar products. Some of these commodities, especially cheese and the edibles pastes, are produced in Europe as household industries, without such outlay of capital and division of labor as mark American factory production. The European products frequently command higher prices than similar commodities of domestic origin.

Another group embraces rice, peanuts, soya beans, eggs and egg products, and vegetable oils—products of temperate and subtropical climates affected by oriental competition. Within recent years such oriental competition has greatly increased. Here again the competition is between machine culture and small scale hand labor production. The American products are usually higher priced, better handled, and of superior grade. Oriental importers profit in part from the fact that Pacific Coast States and Hawaii may be reached more cheaply from Asia than from certain domestic sources of supply.

A fourth group includes such animal and vegetable products of the Northern States as are affected by Canadian competition. As part of a report on commercial relations with Canada there has been prepared an exhaustive study of the character of this competition in a number of the most important field crops of the Northern States.

POTATO FLOUR, DRIED POTATOES, POTATO STARCH, AND DEXTRIN.

In the discussion of published reports under Schedule A, reference has already been made to the commission's report on the domestic potato-products industries. It may here be added that such products afford an outlet for millions of bushels of surplus, lower grade, and cull potatoes that would otherwise be wasted. In Germany and the Netherlands these industries are strongly established and are of great dimensions. The manufacture of potato flour is new in the United States, and the production of dried or desiccated potatoes, formerly insignificant, increased notably during the war period. On the other hand, the domestic potato dextrin industry is of small proportions, and the manufacture of potato starch has been declining, both because of cheaper cornstarch and effective foreign competition.

Other unprinted studies of commodities embraced in Schedule G relate to:

Completed.

Barley. ¹	Flaxseed. ¹
Beans and lentils.	Hay.
Canned or prepared beans, peas, mushrooms, etc.	Oats. ¹
	Potato starch.

¹ Complete study of, as part of Canadian reciprocity report.

In progress.

Citrus fruits.	Fish.
Cocoa and chocolate.	Frozen eggs and egg products.
Cocoa butter and substitutes.	Olives.
Copra.	Raisins.
Dandelion root.	Rice.
Dried eggs and egg products.	

A printed report on "The domestic potato-product industries" has been issued.

SCHEDULE I: COTTON MANUFACTURES.

Under this schedule effort has been devoted to advancing to completion studies on cotton yarn and cotton cloths, especially venetians, referred to in the commission's second annual report. Statistical work has also been completed for other commodities.

COTTON YARN.

The commission's report on "Cotton yarn: Import and export trade in relation to the tariff" is in the hands of the printer. This is an intensive study of the position occupied in our domestic industry by foreign cotton yarns and is the first scientific analysis attempted of the import trade in any special branch of industry. The gist of the facts established is that imports of cotton yarns, which amount to less than one-half of 1 per cent of the domestic output, are mainly supplemental, and, as a whole, have been but little influenced by such variations in tariff rates as have been made in the past three decades.

The purpose of this report is to set forth fundamental conditions affecting the importation of cotton yarns into the United States and to bring together, in form available for ready reference, basic data needed for the consideration of the subject from a tariff standpoint. Cotton sewing thread and cottons put up for retail trade are treated only incidentally to the main subject of cotton yarn for further use in manufacture.

In the first chapter are given definitions and descriptions such as are needed for clear understanding of the text. The second chapter is devoted to the presentation and discussion of various tables that were compiled to illustrate, in concise and convenient form, the trend of the import trade in cotton yarns so far as recorded in published statistics. The United Kingdom is seen to be the one large source, and the average count imported is shown to be steadily tending upward. The third and fourth chapters embody the results of the special investigation of cross sections of the import trade in 1914 and 1918, which the commission found it necessary to undertake in order to determine with accuracy the character and uses of imported foreign yarns.

In Chapter III are given the results of the investigation of individual yarn-consuming industries, such as curtains, lace, bobbinet, voile, crêpe, towels, mixed silks, velvets, wool and mohair mixtures, hatbands, silk ribbons, typewriter ribbons, polished-yarn wares, knit gloves, hosiery, electrical-wire covering, embroidery, thread making, and harness twine. This work is unique in showing the counts and qualities of cotton yarns required by diverse branches of the textile industry and the reasons why certain counts and qualities are imported. Aside from its tariff value this information will doubtless prove of service to American spinners and will tend to stimulate

the domestic manufacture of all yarns found to be imported in sufficient bulk to warrant manufacture in this country.

Chapter IV includes the exposition and discussion of the general tables which resulted from the special investigation. The first table, showing the amounts imported, and the use of each count, emphasizes the fact that 78/2 ply is the main count imported and is used most largely by the lace-curtain industry. It discloses the main counts and plies used by each industry and brings out the changes that have occurred during the war in the quantity and character of yarns imported by different industries. This is followed by a table analyzing imports according to manufacture and color, showing that imports are mainly in the gray, and that normally over one-half was carded only, but that, in 1918, under abnormal conditions, and with a larger proportion of fine counts, about two-thirds were combed and only one-third carded. About 60 per cent of the imports are subjected to some special finish—gassing and preparing being the most important. A detailed study is made of the nature of the yarns supplied by each country, from which it is found that Germany normally leads in the supply of Turkey-red yarns (chiefly for towels) and in polished yarns, and Switzerland in embroidery yarns, but that England predominates in the supply of yarns of all other types. Manchester was found to be the main source of cotton-yarn shipments, and, in 1918, half a dozen Manchester mills supplied more than one-half of our total imports. One firm at Manchester supplied 19 per cent of our imports in 1914 and 25 per cent in 1918.

Advantage was taken of the opportunity afforded by this first complete study of our import trade to ascertain the relative importance of the main channels of trade. It was found that about three-fourths of the exports are shipped direct by the spinning mills abroad, and that nearly half of the imports are bought direct by lace-curtain mills and other ultimate consumers in this country. In 1914, 34.3 per cent and in 1918, 44.7 per cent of the total yarn trade was shipped direct, without any middlemen, from producer to consumer. The middleman, whether yarn agent, yarn merchant, or other, was found to occupy a more important position at the importing than at the exporting end.

Chapter V deals with the American export trade in cotton yarn and particularly brings out the fact that exports and imports are mutually exclusive, exports being mainly of counts under 40s and imports being mainly of the finer counts above 40s. It was found that through the war development our export trade in cotton yarn greatly exceeds our imports.

Chapter VI is devoted to a discussion of the most logical adjustment of tariff duties, based on the preceding data on cotton yarn and thread. The line of demarcation between paragraphs 250 and 251 in the tariff act of 1913 is discussed, and attention is called to the fact that this line is being steadily broken down by decisions of the courts, with the result that at least two groups of yarn for machine work are being entered under lower rates of duty than apparently were intended by Congress. Both paragraphs need rephrasing and a length delimitation should be inserted in paragraph 251, so that yarns for machine work will be excluded from the preferential treatment there accorded sewing thread and special yarns for handwork.

The system of differentials for various advancements in manufacture, such as doubling, cabling, color, finish, and the manner in which the articles are put up for sale, including combing and grouping, is treated in detail. The principle underlying any adjustment of tariff duties based on cost of production is outlined, and the varying relation between ad valorem and specific duties is clearly brought out. The chapter closes with a tabular statement showing, under each of the last five tariff acts, the average annual imports and rates of duty, specific and ad valorem, of the imports under paragraphs 250 and 251.

Part 1 of the appendix deals with international trade in cotton yarn and the relative importance of the United States. Among other features it discusses potential sources of competition from abroad, and the conclusion is reached that the United Kingdom will, in the future as in the past, be the only country from which substantial imports into the United States can be expected.

Part 2 compares American and foreign import duties on cotton yarn, and is suggestive with respect to the framing and phrasing of future tariff provisions. It shows the policies adopted by various countries, the relative height of different tariffs, using 78s as an illustration, and calls attention to the divergent treatment accorded fine yarns and yarns put up for retail trade.

Part 3 contains various price data. Its most striking feature is a table showing all invoice prices during 1914 and 1918 on our imports of 78s cotton yarn of various types and uses.

Part 4 consists of abstracts of leading decisions of the courts, Board of General Appraisers, and the Treasury Department relating to cotton yarn and thread.

COTTON VENETIANS.

The commission's report on "Cotton venetians: Import trade and domestic production" has been published. Venetians constitute the main item in the imports of cotton cloth into the United States, and, while venetians were formerly almost entirely imported, a domestic industry developed during the war which now supplies more than half of the increasing demand. Venetians present a typical after-the-war tariff problem, and this particular cloth should be borne in mind in the general adjustment of any future paragraph on cotton cloth. For these reasons a special study of the competition of imported and domestic venetians has been considered timely.

Cotton venetian is a close-woven, piece-dyed, mercerized sateen or twill, woven of medium to fine yarns, usually dyed black, though to a small extent also in colors, and given a characteristic finish, of which the "Marquise" is the most noted, to resemble heavy silk. On account of the close weave, smooth warp face, and fine mercerized finish venetians have been found particularly adapted to the lining of cloaks and coats, the making of bathing suits, and skirtings, and for other purposes where a solid, yet soft and lustrous, fabric is desired. Venetians have, in fact, supplanted silk satin for several purposes, being more durable and less expensive. They have also been used as a substitute for fine woolen linings.

The quality and finish of the domestic venetians have been improving for several years, and an active competitive stage has been reached in the lower grades.

Until within the last few years the foreign product could be landed in the American market for less than the American cost of production. This was attributed to the generally lower labor costs abroad, together with the greater economy secured through the skill and efficiency of the experienced British workers. With the rapid advance of the Bradford prices, however, owing largely to war-time difficulties of production and shipment, at a period of rapid expansion of the American market, domestic converters were able, during the later years of the war, to undersell the importers by several cents a yard. Detailed costs of production were secured from domestic mills and the mill prices compared with invoice prices on similar goods from Bradford. These costs and prices were secured both for 1913 and 1918, so as to show the relative changes in material, conversion costs, and selling prices before and after the war. The larger margins of profit during the latter period are very striking.

Under the present tariff act the importer has been subjected to a handicap—measured in the amount of duty and cost of landing foreign goods—which, in relation to the conversion or manufacturing costs of the domestic producer, amounted, on typical competitive goods, to about 36 per cent under normal conditions prior to the war, and to fully double that, or nearly 75 per cent, under the unusual conditions prevailing in 1918.

During the later years of the war American manufacturers of venetians were amply protected under the present tariff, and could easily undersell the imported goods. The measure of import duty necessary to maintain the domestic industry hereafter can not be accurately gauged until the normal readjustment of trade under the new levels of wages and prices is attained. The course of comparative wage advances during the war warrants the expectation that comparative costs of production in British and American cotton industries will tend to approximate each other more closely, to the advantage of the American manufacturer.

Other unprinted studies of commodities embraced in Schedule I, relate to:

Completed.

Raw cotton.	Cotton handkerchiefs.
Cotton waste.	Cotton wearing apparel, total.
Cotton yarn.	Corsets, not ornamented.
Cotton sewing thread.	Collars and cuffs.
Cotton cloth.	Clothing, ready-made, and articles, n. s. p. f.
Cotton-and-silk cloths.	Pile fabrics of cotton.
Tracing cloth.	Cotton gloves.
Filled and coated cloths.	
Waterproof cloth.	

In progress.

Cotton waste advanced in value.	Underwear and wearing apparel, n. s. p. f.
Cotton card laps, sliver, roving.	Cotton small wares.
Cotton chenille goods.	Belting for machinery.
Jacquard figured upholstery goods.	Table damask.
Jacquard figured manufactures of cotton.	Towels and bath mats.
Cotton-knit goods (general inclusive).	Blankets and quilts.
Cotton hosiery.	

A printed report on "Cotton venetians: Import trade and domestic production" has been issued.

SCHEDULE J: FLAX, HEMP, JUTE, AND MANUFACTURES OF.

Considerable information has been compiled on the various vegetable fibers, and manufactures thereof, included under this schedule and related paragraphs of Schedule N and of the free list. Work was advanced on all tariff information surveys, in order to make them available for ready reference. A few were completed.

Recently the commission gave a hearing to manufacturers of grass and fiber rugs, at which they were represented by counsel. A printed brief, which includes a petition for the revision of paragraphs 272 and 273 of the tariff act of 1913, was filed with the commission. These manufacturers contend that paragraph 272 should include only floor coverings of vegetable substances, such as straw, and that paragraph 273 should cover floor coverings of vegetable fibers (other than cotton), also, that mats and rugs, now made in Japan of straw that has been crushed only between the joints or knuckles, should be classified as being made of fiber, rather than of vegetable substances, and that higher duties should be imposed.

Other unprinted studies of commodities embraced in Schedule J relate to:

Completed.

Flax.	Flax, hemp, and ramie yarns.
Hemp.	Cables and cordage.

In progress.

Jute yarns.	Linen collars and cuffs.
Gill nettings.	Linen wearing apparel.
Straw floor mattings.	Cotton bagging (jute).
Mattings of vegetable fiber (except cotton).	Jute burlaps.
Hydraulic or flume hose.	Jute bags and sacks.
Linoleum and oilcloth.	Kapoc.

SCHEDULE K: WOOL AND MANUFACTURES OF.

Information has been collected for most of the items under this schedule, and statistical matter has been completed for all. Considerable correspondence, and some field work, were carried on in order to compile the most correct and up-to-date information.

Other unprinted studies of commodities embraced in Schedule K relate to:

Completed.

Wool waste materials and rags.	Wool blankets.
Wool yarns.	Wool flannels.

In progress.

Tops of wool.	Carpets and rugs.
Wool cloths.	

SCHEDULE L: SILKS AND SILK GOODS.

Under this schedule attention has been directed to extending the number of completed tariff information surveys and to accumulating data for the remainder. The commission's published handbook on "Silk and Manufactures of Silk"¹ was welcomed by the

¹ Supply exhausted.

silk trade and industry, and cordial cooperation has been given in more intensive inquiries.

Other unprinted studies embraced in Schedule L relate to:

Completed.

- | | |
|------------------------------|---------------------|
| Raw silk and silk waste. | Silk pile fabrics. |
| Silk partially manufactured. | Silk ribbons. |
| Spun silk or schappe. | Broad silks. |
| Thrown silk. | Silk bolting cloth. |
| Sewing silk. | Hatters' plush. |

In progress.

- | | |
|-----------------------|----------------------------------|
| Silk handkerchiefs. | Manufactures of silk n. s. p. f. |
| Silk small wares. | Artificial silk. |
| Silk wearing apparel. | |

SCHEDULE M: PAPERS AND BOOKS.

The study of Schedule M for the "summary of tariff information, 1919," has prominently developed four points: (1) the rise of prices of all kinds of paper; (2) the problem of raw materials; (3) the importance of Canada, both as a source of raw materials and as a purchaser, to the paper industry in the United States; and (4) the stimulus to exports brought about by the war.

(1) An authority in the paper trade furnished the commission a list of prices for 1914 and 1918, from which the following comparisons are taken:

Kind of paper.	Prices.	
	July, 1914.	June, 1918.
Bonds.....	\$0.05 to \$0.24	\$0.12 to \$0.36
Ledgers.....	.05 to .25	.14 to .32
Superfine writing.....	.11 to .13	.19
News, rolls.....	1.95 to 2.00	3.25 to 3.50
Book, S. & S. C.....	4.00 to 4.50	7.75 to 8.25
Coated and enamel.....	5.25 to 9.00	9.00 to 9.50
Manila, No. 1 fiber papers.....	2.65 to 3.00	6.50 to 6.75

In the main, the rise in prices of paper is doubtless only one evidence of the more general phenomenon of the rise of prices of all commodities that occurred by reason of the war. But the rise in prices of paper had been going on for a number of years preceding the war, and was partly due to causes peculiar to the industry.

(2) The principal cause peculiar to the industry is the growing difficulty of obtaining raw materials. The better grades of paper are made, in whole or in part, from rag pulp and the advent of the war threatened a veritable paper famine for these grades. Importations of rags fell from 171,131,605 pounds in 1914 to 16,879,915 pounds in 1918. The junk business is better organized in Europe than in this country and the paper industry was largely dependent upon importations of rags. To avoid closing, some of the mills resorted to a campaign of education to induce the saving of rags and waste paper in American homes. Sulphite pulp was substituted to a considerable extent for rag pulp and the falling of importations

of rags was partly made good by increased importation of rag pulp, which grew from 197,113 pounds in 1914 to 3,209,883 pounds in 1918. The most important raw material, however, is wood pulp, and the preferred wood is spruce. Of the 5,250,794 cords of pulpwood consumed in 1918, 2,870,307 were spruce—2,204,143 domestic and 666,164 imported from Canada. Other pulpwoods are hemlock, fir, poplar, and other woods. The rapid depletion of American forests is threatening the extinction of the domestic supply and making American paper manufactures more dependent upon foreign countries, especially on Canada. It is also awakening an interest in possible substitutes, such as straw and bagasse.

(3) The importation of 666,164 cords of spruce pulpwood in 1918 did not represent the extent of dependence of paper manufacturers upon foreign countries, especially Canada. In 1918, the total importations of pulpwoods of all kinds—virtually all from Canada—were 1,172,003 cords, to which must be added 504,152 tons of wood pulp of which about 88 per cent was from Canada. Other forms of paper stock of which there are large importations are grasses, fibers, waste, hemp, flax, paper shavings, clippings, old paper, rope ends, rag pulp, rags, waste bagging, and gunny cloth. If, in this connection, the interests concerned as consumers of paper be considered—newspapers, printers, publishers—the dependence upon foreign countries becomes more apparent. In 1918, 602,020 tons of printing paper were imported, of which 95 per cent was from Canada. There were also considerable importations of other kinds of paper.

(4) Although importations of paper were considerable in 1918, it is only in the case of printing paper that importations show an increase over 1914. In all other kinds there is a marked falling off. On the other hand, exports of all kinds of paper—including printing paper—showed a remarkable increase. The increase from 1914 to 1918, expressed in values, was for bags \$422,075 to \$1,106,409; for boxes and cartons \$459,459 to \$974,658; for paper board and strawboard \$663,230 (1915) to \$2,411,282; for news print \$2,177,483 to \$9,246,641; for other printing paper \$1,612,370 to \$7,695,298; and for wrapping paper \$532,657 to \$4,483,287. The foregoing figures, being of values, exaggerate the increase, as a part of the apparent increase is to be accounted for by the rise in prices. Unfortunately quantities are not ascertainable in all cases, but where they are the increase is still noteworthy. News print increased from 44,483 to 110,186 tons; other printing paper, from 14,301 to 45,036 tons; wrapping paper from 7,066 to 29,675 tons. The destinations of these exports were widely distributed and included the United Kingdom, France, British India, Cuba, South Africa, Mexico, Argentina, Oceania, Japan, and Chile. By far the most important purchaser of American paper is Canada. Of the large exports of printing paper 95 per cent was to Canada, and of wrapping paper 86 per cent.

It is apparent that the war has afforded American paper manufactures an opportunity to gain a strong foothold in the world's paper trade. The increasing exports to Canada indicate ability to compete, and American energy may be trusted to maintain and improve the position already gained, if attention be given to some

matters of fundamental importance, not the least of which is the use, under a policy of conservation, of supplies of raw material.

Other unprinted studies of commodities embraced in Schedule M relate to filter masse and printing paper.

A printed report has been issued on "Papers and books."¹

SCHEDULE N: SUNDRIES.

HIDES AND SKINS, LEATHER AND MANUFACTURED ARTICLES OF LEATHER.

These commodities are not grouped in a separate schedule of the tariff act, yet they form a class which may be conveniently treated together. They are mentioned here because the dutiable articles of the group come under Schedule N. Several of the commodities, however, are on the free list.

The preliminary studies which have been completed in this group of articles are as follows: Belting and sole leather (free list), boots and shoes (free list), leather gloves (Schedule N), and upper leather (free list). Those which have been partly completed are: Chamois skins, glove leather, piano-forte and piano-forte action leather, enameled upholstery leather, and miscellaneous leather manufactures (all of which come under Schedule N), patent and enameled leather, bookbinders' leather, carriage and auto leather, harness leather, saddlery and harness, and hides and skins, which come under the free list.

One of the most marked of the war disturbances in the hide and leather industries was the change in the sources of our imports of those articles and in the destination of our exports. The commission, therefore, has made a study of the changes in the currents of the trade of this country in hides and skins, leather and manufactured articles of leather, from 1913 to 1917.

Soon after the outbreak of the war the belligerent countries turned to the United States for soldiers' shoes, harness and saddles, and other leather articles, and for leather and tanned skins. Our exports of those products attained unprecedented totals. On the other hand, imports of leather and leather articles into this country fell off to a marked degree. The demand for hides and skins for use in making up the leather required to meet these unusual conditions had to be met, in many instances, by opening up new sources of supply.

The changes in the trade in leather and manufactured articles of leather were as striking as the changes in the hide and skin trade. For example, in 1913, France and Germany each sold about \$3,000,000 worth of leather gloves in this country. Since then France has increased her exportations of leather gloves to this country, while Germany is no longer a factor. In 1915 our exports of harness and saddles to England, France, and Russia reached a total of about \$17,000,000, breaking all records of this country; but more recently exports of this class of commodities have greatly decreased. Imports of harness leather and of belting and sole leather from Canada increased during the war, and the development of the Canadian leather industry is reported to have caused some uneasiness among competing tanners in the United States.

¹ Supply exhausted.

Upper leather is one of the most important products of the industry, and this commodity offers a distinct tariff problem. Before the war American manufacturers of upper leather met with some competition in the domestic market from French, English, and German manufacturers, particularly from the last named. This competition has been carefully investigated by the commission in a preliminary report, as yet unprinted, on that branch of the industry.

The manufacture of glove leather is one of the industries which has grown considerably because of the war. The application of the chrome process of tanning to the making of glove leather is a recent development, and this fact, together with the cessation of imports on account of the war, brought about a great increase in the amount of glove leather manufactured in this country.

Piano-forte and piano-forte action leather is one of the minor products of the industry, yet there is a separate tariff problem connected with it. This leather is oil-tanned buckskin, made principally from skins imported from Central America. It is used in the manufacture of pianos, particularly to place beneath the keys to deaden the shock. In order to produce the desired result, it must be of special thickness and pliability. The chief competition of the American manufacturers before the war was with Germany.

The American shoe manufacturers have built up a foreign trade which was considerably influenced by the war. Changes in this trade, developments in the domestic branch of the business, and the prospect of foreign competition in the American market have been considered by the commission.

Imports of all other dutiable manufactured leather articles (including bags, valises, pocketbooks, etc.) greatly decreased during the war. England retained the leadership, France was second, and Japan became a factor, whereas before the war Japan had not participated in this trade.

Other unprinted studies of commodities embraced in Schedule N relate to:

Completed.

Art, works of.	Gloves, leather.
Beads and spangles.	Matches.
Bristles.	Musical instruments.
Brooms.	Peat moss.
Brushes.	Pencils.
Buttons.	Pencil leads.
Catgut, manufactured.	Phonographs.
Cork.	Rosin, violin.
Dice, dominos, etc.	Hatters' plush.
Emery and emery wheels.	

In progress.

Chamois skins.	Hair (curled).
Enameled upholstery leather.	Haircloth.
Fans.	Human hair.
Feathers and flowers.	Leather, manufactures of.
Films.	Photographic goods.
Furs, dressed and manufactures of.	Ramie hat braids.
Fur felt hats.	Straw braids.
Glove leather.	

Printed studies or reports have been issued on the following subjects:

The button industry.¹

The brush industry.¹

THE FREE LIST.

THE WOOL-GROWING INDUSTRY.

The commission is making an extensive inquiry into conditions in the wool-growing industry at home and abroad. Wool is practically indispensable in time of war and, during the period of hostilities recently ended, the United States and foreign countries enforced many regulations of the wool trade. It has been necessary carefully to scrutinize the effects of these regulations and the other changes which the war brought about in the production and marketing of wool. Such an examination discloses some permanent and some merely transitory effects of the war upon the industry. These results, however, form only a part of the subject matter of the commission's study. Other significant changes, unrelated to the war, have been taking place in this field of industry.

In 1912 the Tariff Board made an exhaustive report on the wool industry, containing figures on the cost of production of wool; costs, however, have changed much since that time. The Tariff Commission is endeavoring to find the present relation between the cost of production at home and abroad. Several experts of the commission have been investigating conditions in the industry and costs of production both in the "range States" and in the "farm States" in this country. The inquiry has extended into practically all of the important wool-growing States. Many of the leading wool growers have been interviewed and officials of national and State wool growers' associations and agricultural experts have been consulted. Questionnaires on cost of production have been filled out by the commission's investigators in conference with growers.

Every important wool-growing section, the various kinds of business units, and the conditions of comparative success will be investigated. The resulting figures for cost of production should represent a fair average. It is particularly difficult to determine the cost of production of foreign products, and in fixing upon a figure as the "average cost" of wool there are both theoretical and practical difficulties to be met. Consular and commercial representatives of the United States and specially selected correspondents are being relied upon to secure information on foreign conditions, and the Tariff Commission will be in a position to indicate costs as accurately as possible.

It is the purpose of the commission to present a comprehensive survey of the wool-growing industry, together with the figures on the cost of production, in a handbook of tariff information. This volume will not deal with the technical questions of sheep husbandry, except as these questions have a bearing on the tariff, yet there are many facts concerning the different breeds of sheep, classification of wool, the management of flocks, and the recent history of the industry which must necessarily find a place in such a report.

There were several temporary war boards which dealt with various aspects of wool control. The Tariff Commission has been in close

¹ Supply exhausted.

touch with these, as well as with the permanent governmental bureaus which exercise supervision over and furnish advice to those engaged in sheep raising. Combining the benefits of their counsel with the results of its own research, the Tariff Commission hopes to be in a position to furnish full information to Congress on the recent developments in the industry.

Unprinted studies of commodities on the free list relate to:

Completed.

Abrasives, crude artificial, n. s. p. f.	Charcoal.
Acids:	Chromic ore.
Acetic or pyroligneous.	Chromium, hydroxide of.
Chromic.	Cinchona bark:
Fluoric.	Alkaloids of.
Hydrochloric or muriatic.	Salts of.
Hydrofluoric.	Cobalt, ore.
Nitric.	Copper:
Phosphoric.	Acetate of.
Silicic.	Subacetate of.
Sulphuric or oil of vitriol.	Sulphate of.
Alcohol:	Copperas.
Methyl or wood.	Corundum, n. s. p. f.
Ammonia:	Cream separators.
Nitrate of.	Crude cacao and cacao shells.
Perchlorate of.	Coffee.
Sulphate of.	Cryolite.
Antimony:	Cubic nitrate.
Ore.	Emery, ore, n. s. p. f.
Stibnite containing.	Ferromanganese.
Arsenic.	Flint stones, unground.
Arsenic and sulphide of arsenic or	Flint, unground.
orpiment.	Fulminates.
Band steel.	Fulminating powder.
Bars:	Gloves, of horsehide, pigskin, etc.
Platinum.	Hones.
Tin.	Hoop poles.
Bauxite or beauxite, crude.	Hoop steel.
Bell metal, broken.	Ingots:
Bells, broken.	Cogged.
Bismuth.	Platinum.
Black oxide of tin.	Steel, Bessemer, etc.
Blooms.	Iodine, crude or resublimed.
Blue vitriol.	Iridium.
Bone black.	Iron:
Borate material, crude, n. s. p. f.; of	Band.
lime, n. s. p. f.	Chromate of.
Borax, crude, n. s. p. f.	Hoop.
Bort, diamond.	In pigs.
Brimstone.	Kentledge.
Bromin.	Loops.
Burrstone.	Ore.
In blocks.	Ore, manganiferous.
Manufactured.	Railway bars.
Cadmium.	Sulphate of.
Calcium:	Sulphuret of.
Acetate.	Band, cut to lengths.
Carbide.	Band, partly manufactured.
Chloride.	Barbed wire.
Cyanamid.	Billets.
Nitrate.	Brads.
Cassiterite.	Cut nails.
Catgut, unmanufactured.	Cut spikes.
Cerite.	Hobnails.
Cerium, ore.	Hoop, cut to lengths.

*Completed—Continued.***Iron—Continued.**

Hoop, partly manufactured.
 Horseshoe nails.
 Horseshoe nail rods.
 Horseshoes.
 Ingots.
 Mule shoes.
 Ox shoes.
 Railway bars.
 Slabs.
 Spikes.
 Tacks.
 Wire nails.
 Wire staples.

Irish potatoes.**Jalap.****Kainite.****Kelp.****Kryolith.****Kyanite, or cyanite, and kainite.****Leather, n. s. p. f.****Lemon juice.****Lime:**

Borate of, n. s. p. f.

Juice.

Nitrogen.

Manganiferous ore.**Mule shoes, of iron or steel.****Needles:**

Crochet.

Shoe-machine.

Nickel:

Matte ore.

Ore.

Niter cake.**Ores:**

Antimony.

Chromic.

Cobalt.

Iron.

Iron, manganiferous.

Manganese.

Nickel.

Nickel matte.

Platinum metal.

Tin.

Tungsten-bearing.

Osmium.**Oxide of:**

Manganese.

Tin, black.

Ox shoes, of iron or steel.**Paintings, works of art, etc.****Palladium.****Philosophical apparatus:**

For educational, etc., purposes.

Pig iron.**Pigs, tin.****Platinum:**

Apparatus.

Bars.

Ingots.

In plates.

Platinum—Continued.

Manufactures of, n. s. p. f.

Metal ores.

Scrap.

Sheets.

Sponge.

Unmanufactured.

Vases, retorts, and other apparatus
for chemical uses.

Wire.

Potash:

Carbonate of.

Crude.

Cyanide of.

Hydrate of.

Muriate of.

Nitrate of, crude.

Sulphate of.

Potato flour and dried potatoes.**Potatoes:**

Desiccated.

Dried.

Pyrites, sulphur ore as.**Quinia, sulphate of.****Radioactive substitutes.****Radium:**

Salts of.

Railway:

Bars, iron.

Bars, steel or part steel.

Retorts, platinum.**Rhodium.****Rods, horseshoe nail.****Rottenstone.****Ruthenium.****Salt.****Salt cake.****Scientific utensils.****Scrap, tin:**

Platinum.

Sheets, platinum.**Shoes:**

Horse.

Mule.

Ox.

Skins of hares, rabbits, dogs, goats,
and sheep, undressed.

Slabs:

Iron.

Steel, bessemer, etc.

Soda:

Arsenate of.

Ash.

Nitrate of.

Silicate of.

Sulphate of.

Spiegeleisen.**Spikes:**

Cut, of iron or steel.

Sponge, platinum.**Sprigs.****Staples, wire.****Statuary.**

Completed—Continued.

Steel:	Tin—Continued.
Band.	Granulated.
Hoop.	In bars.
Ingots.	In blocks.
Railway bars.	In pigs.
Stibnite, containing antimony.	Ore.
Strychnia.	Oxide of, black.
Strychnine.	Scrap.
Sulphur in any form.	Tripoli.
Sulphur ore as pyrites.	Turpentine:
Sulphuret of iron.	Spirits of.
Sweet potatoes and yams.	Venice.
T rails.	Verdigris.
Tacks, cut.	Wheat.
Talcum, crude.	Whetstone.
Tar of wood.	Witherite.
Tea.	Wool of the sheep, hair of the camel
Tin:	and other like animals.
Grain.	Zaffer.

In progress.

Aconite.	Gilead, balm of.
Agricultural implements.	Glue, stock.
Amber, in chips:	Guano.
Manufactures of, n. s. p. f.	Harvesters.
Anthracite coal.	Headers.
Basic slag.	Hide rope.
Bituminous coal.	Hides of cattle, raw.
Blood, dried, n. s. p. f.	Hoofs, unmanufactured.
Bones, crude, etc.	Horns, unmanufactured. ,
Burgundy pitch.	Horserakes.
Coconuts and coconut oil.	Ichthyl oil.
Balm of Gilead.	Ipecac.
Castor or castorium.	Iron, scrap, wrought.
Cement, copper.	Iron wire fencing.
Coal:	Kauri.
Anthracite.	Lac dye, crude, seed, button, stick,
Bituminous.	and shell.
Culm.	Lactarene or casein.
Shale.	Mowers.
Slack.	Myrobolans fruit.
Cocculus indicus.	Nutgalls, for tanning.
Copper:	Nux vomica.
Clippings.	Ores, copper.
Coarse.	Palm nuts.
In plates, bars, ingots, or pigs,	Palm kernels.
n. s. p. f.	Paris green.
Old.	Phosphates, crude.
Ore.	Planters', agricultural.
Regulus of.	Soya beans.
Scale.	Salep.
Cultivators.	Santonin.
Damar.	Scrap:
Disk harrows.	Iron, wrought.
Drills, agricultural.	Steel.
Extracts:	Strontian, protoxide of.
Annatto.	Strontia.
Chestnut bark.	Mineral, carbonate of.
Furs and fur skins, undressed.	Oxide of.
Galvanized wire fencing.	Strontianite.
Gambier.	Skins of all kinds, raw.

COSTS AND PRICES.

The Tariff Commission is authorized by the act creating it to investigate "conditions, causes, and effects relating to competition of foreign industries with those of the United States, including dumping and cost of production."

The commission stated in its second annual report that because of the world-wide industrial disturbance, due to the war, the difficulties of obtaining reliable cost data, especially in foreign countries, were very great, and that any available information as to cost of production would have been of comparatively little value for tariff purposes. Although disturbances still prevail to some extent, especially in foreign countries, domestic affairs are relatively more settled. The commission believes that the time is now opportune for initiating cost investigations in certain industries which present acute tariff problems.

The first of these investigations undertaken by the commission is in the dye industry. Cost reports have been received from the principal manufacturers in this country, showing not only the cost of the important dyes, but also the cost of the fundamental coal-tar derivatives, known as intermediates. The returns from these reports are being tabulated and will form the basis of a report to Congress. It is the intention of the commission to obtain periodical reports upon these products for some time to come, in order that Congress may be accurately informed concerning the changes in cost and the progress of the industry toward stability.

The commission has also made a study of the cost of producing wool and mutton in the Mountain States, and such cost data will be incorporated as a portion of the report on the wool-growing industry of the world. The cost of producing refined sugar has also been investigated and the results of the field work are being incorporated in a report to be published by the commission.

As already stated, cost information from foreign countries is available now in only a very limited degree. As an alternative, however, comparative price studies are feasible, and the commission is now making a study of such comparisons. The purpose is to compare not only foreign and domestic prices, but also domestic costs with domestic and foreign prices. In the dye industry, for example, our domestic costs are being compared with prices in the United States and with those in various foreign countries.

As conditions become more normal, the Tariff Commission plans to extend its inquiries in the field of cost of production. The accounting staff is being enlarged to meet the requirements of new investigations, and greater emphasis will be placed in the future upon the work of international cost of comparisons. Three new investigations are in contemplation—barytes and the barium chemicals industry, the silk industry, and certain phases of the ferro-alloy industry, and, in so far as the funds of the commission warrant, these will be pressed in detail.

The Tariff Commission desires to call attention to the fact, however, that if it is the desire of Congress to have extensive cost investigations made in a large number of fields, additional appropriations will have to be made available to the commission.

INVESTIGATIONS IN FOREIGN COUNTRIES.

The law creating the Tariff Commission provides that "the commission may, by one or more of its members, or by such agents as it may designate, prosecute any inquiry necessary to its duties in any part of the United States or in any foreign country."

In all of its investigations the commission has made an effort to bring together for comparative purposes all pertinent information on wages, conditions of production, efficiency of labor, processes, supplies, and prices of raw materials, and other industrial factors in the foreign countries which compete with industries in the United States. During the war, however, it was not practicable to send investigators abroad for the purpose of studying foreign conditions. In many cases competition with American industries was virtually suspended by war demands and governmental restrictions. Following the signing of the armistice, when it would have been desirable to make some preliminary investigations in foreign countries, the curtailed appropriation of the commission made such steps impossible. It is only since the beginning of the present fiscal year that the commission has been in a position to undertake preliminary surveys abroad which will provide important data and assist in determining in what directions further investigations are desirable.

The commission has sent one of its investigators into Germany with instructions to make a general survey of industrial conditions there. Three others, who were selected because of their expert qualifications for the study of particular industries, have been sent to Great Britain. They were directed to give chief consideration to certain of the metal and textile industries, but they will also devote attention to general industrial conditions.

Two other investigators have been sent to Japan. The commission has published a comprehensive survey of Japanese trade during the war, and it plans to supplement this report with a study of the tariff system and industrial conditions of Japan. Considerable data relating to both of these subjects were gathered in this country, but it was deemed desirable to obtain at first hand additional facts that were needed to complete the work. There is much concern in the United States at the present time with regard to Japanese competition. By some it is considered of comparatively little importance; by others the most serious possible problem for many of our industries. It is necessary that the uncertainty, so far as possible, be speedily removed and the Tariff Commission, in its report based on original investigation, hopes to contribute to that end.

COMMISSION LIBRARY.

The library now consists of about 7,000 books and pamphlets, most of which formerly belonged to the Tariff Board of 1911. During the year some 2,000 unnecessary duplicates and worn-out volumes were returned to the Government Printing Office, according to regulation, and 200 new books were added. One hundred and eighty-five trade and technical periodicals and Government publications were received regularly, and the material in them was brought to the attention of interested departments. Most of the periodicals are being

clipped for use in the studies and surveys made by the commission. Because of lack of funds no binding could be done.

The Library of Congress, as well as certain departmental libraries and the Public Library of the District of Columbia were drawn upon freely for books and periodicals.

The mailing list, as well as the multigraph and mimeograph work, was handled by the library, and during the past year 46,127 Tariff Commission publications and 84,354 multigraph and mimeograph items were distributed.

The commission participated in the united war work campaign and through the library sent 105 books to soldiers' libraries.

FINANCES AND APPROPRIATION.

The appropriation for the commission for the fiscal year ended June 30, 1918, under the sundry civil appropriation act approved July 1, 1918, was \$200,000.

The expenditures of the commission July 1, 1918, to June 30, 1919, were as follows:

Salaries of commissioners	\$45,000.00
Salaries of staff	132,130.00
Rent	12,866.69
Printing and binding	8,164.04
Traveling and other field expenses	1,397.55
Office supplies, etc	643.72
Total	200,000.00

A detailed classification of the personnel of the commission as of June 30, 1919, is shown in the following statement:

Commissioners	6
Secretary	1
Clerks to commissioners	2
Special experts	26
Clerks (including stenographers and typists)	34
Messengers	2
Telephone operator	1
Skilled laborer	1
Total	73

Respectfully submitted.

THOMAS WALKER PAGE,
Acting Chairman.
DAVID J. LEWIS.
WILLIAM KENT.
W. S. CULBERTSON.
EDWARD P. COSTIGAN.

APPENDIX.

ACT CREATING THE TARIFF COMMISSION.

The act of Congress approved September 8, 1916, entitled "An act to increase the revenue, and for other purposes," contains the following provisions establishing the United States Tariff Commission:

TITLE VII.—TARIFF COMMISSION.

SEC. 700. That a commission is hereby created and established, to be known as the United States Tariff Commission (hereinafter in this title referred to as the commission), which shall be composed of six members, who shall be appointed by the President, by and with the advice and consent of the Senate, not more than three of whom shall be members of the same political party. In making said appointments members of different political parties shall alternate as nearly as may be practicable. The first members appointed shall continue in office for terms of two, four, six, eight, ten, and twelve years, respectively, from the date of the passage of this act, the term of each to be designated by the President, but their successors shall be appointed for terms of twelve years, except that any person chosen to fill a vacancy shall be appointed only for the unexpired term of the member whom he shall succeed. The President shall designate annually the chairman and vice chairman of the commission. No member shall engage actively in any other business, function, or employment. Any member may be removed by the President for inefficiency, neglect of duty, or malfeasance in office. A vacancy shall not impair the right of the remaining members to exercise all the powers of the commission, but no vacancy shall extend beyond any session of Congress.

SEC. 701. That each commissioner shall receive a salary of \$7,500 per year, payable monthly. The commission shall appoint a secretary, who shall receive a salary of \$5,000 per year, payable in like manner, and it shall have authority to employ and fix the compensations of such special experts, examiners, clerks, and other employees as the commission may from time to time find necessary for the proper performance of its duties.

With the exception of the secretary, a clerk to each commissioner, and such special experts as the commission may from time to time find necessary for the conduct of its work, all employees of the commission shall be appointed from lists of eligibles to be supplied by the Civil Service Commission and in accordance with the civil-service law.

All of the expenses of the commission, including all necessary expenses for transportation incurred by the commissioners or by their employees under their orders in making any investigation or upon official business in any other places than at their respective headquarters, shall be allowed and paid on the presentation of itemized vouchers therefor approved by the commission.

Unless otherwise provided by law, the commission may rent suitable offices for its use, and purchase such furniture, equipment, and supplies as may be necessary.

The principal office of the commission shall be in the city of Washington, but it may meet and exercise all its powers at any other place. The commission may, by one or more of its members, or by such agents as it may designate, prosecute any inquiry necessary to its duties in any part of the United States or in any foreign country.

SEC. 702. That it shall be the duty of said commission to investigate the administration and fiscal and industrial effects of the customs laws of this country now in force or which may be hereafter enacted, the relations between

the rates of duty on raw materials and finished or partly finished products, the effects of ad valorem and specific duties and of compound specific and ad valorem duties, all questions relative to the arrangement of schedules and classification of articles in the several schedules of the customs law, and, in general, to investigate the operation of customs laws, including their relation to the Federal revenues, their effect upon the industries and labor of the country, and to submit reports of its investigations as hereafter provided.

Sec. 703. That the commission shall put at the disposal of the President of the United States, the Committee on Ways and Means of the House of Representatives, and the Committee on Finance of the Senate, whenever requested, all information at its command, and shall make such investigations and reports as may be requested by the President or by either of said committees or by either branch of the Congress, and shall report to Congress on the first Monday of December of each year hereafter a statement of the methods adopted and all expenses incurred, and a summary of all reports made during the year.

Sec. 704. That the commission shall have power to investigate the tariff relations between the United States and foreign countries, commercial treaties, preferential provisions, economic alliances, the effect of export bounties and preferential transportation rates, the volume of importations compared with domestic production and consumption, and conditions, causes, and effects relating to competition of foreign industries with those of the United States, including dumping and cost of production.

Sec. 705. That upon the organization of the commission, the cost of Production Division in the Bureau of Foreign and Domestic Commerce in the Department of Commerce shall be transferred to said commission, and the clerks and employees of said division shall be transferred to and become clerks and employees of the commission, and all records, papers, and property of the said division and of the former tariff board shall be transferred to and become the records, papers, and property of the commission.

Sec. 706. That for the purposes of carrying this title into effect the commission or its duly authorized agent or agents shall have access to and the right to copy any document, paper, or record pertinent to the subject matter under investigation, in the possession of any person, firm, copartnership, corporation, or association engaged in the production, importation, or distribution of any article under investigation, and shall have power to summon witnesses, take testimony, administer oaths, and to require any person, firm, copartnership, corporation, or association to produce books or papers relating to any matter pertaining to such investigation. Any member of the commission may sign subpoenas, and members and agents of the commission, when authorized by the commission, may administer oaths and affirmations, examine witnesses, take testimony, and receive evidence.

Such attendance of witnesses and the production of such documentary evidence may be required from any place in the United States at any designated place of hearing. And in case of disobedience to a subpoena the commission may invoke the aid of any district court of the United States in requiring the attendance and testimony of witnesses and the production of documentary evidence, and such court within the jurisdiction of which such inquiry is carried on may, in case of contumacy or refusal to obey a subpoena issued to any corporation or other person, issue an order requiring such corporation or other person to appear before the commission, or to produce documentary evidence if so ordered, or to give evidence touching the matter in question; and any failure to obey such order of the court may be punished by such court as a contempt thereof.

Upon the application of the Attorney General of the United States, at the request of the commission, any such court shall have jurisdiction to issue writs of mandamus commanding compliance with the provisions of this title or any order of the commission made in pursuance thereof.

The commission may order testimony to be taken by deposition in any proceeding or investigation pending under this title at any stage of such proceeding or investigation. Such depositions may be taken before any person designated by the commission and having power to administer oaths. Such testimony shall be reduced to writing by the person taking the deposition, or under his direction, and shall then be subscribed by the deponent. Any person, firm, copartnership, corporation, or association may be compelled to appear and depose and to produce documentary evidence in the same manner as witnesses may be compelled to appear and testify and produce documentary evidence before the commission, as hereinbefore provided.

Witnesses summoned before the commission shall be paid the same fees and mileage that are paid witnesses in the courts of the United States, and witnesses whose depositions are taken and the persons taking the same, except employees of the commission, shall severally be entitled to the same fees and mileage as are paid for like services in the courts of the United States: *Provided*, That no person shall be excused, on the ground that it may tend to incriminate him or subject him to a penalty or forfeiture, from attending and testifying, or producing books, papers, documents, and other evidence, in obedience to the subpoena of the commission; but no natural person shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter, or thing as to which, in obedience to a subpoena and under oath, he may so testify or produce evidence, except that no person shall be exempt from prosecution and punishment for perjury committed in so testifying.

Sec. 707. That the said commission shall in appropriate matters act in conjunction and cooperation with the Treasury Department, the Department of Commerce, the Federal Trade Commission, or any other departments or independent establishments of the Government, and such departments and independent establishments of the Government shall cooperate fully with the commission for the purposes of aiding and assisting in its work, and, when directed by the President, shall furnish to the commission, on its request, all records, papers, and information in their possession relating to any of the subjects of investigation by said commission and shall detail, from time to time, such officials and employees to said commission as he may direct.

Sec. 708. It shall be unlawful for any member of the United States Tariff Commission, or for any employee, agent, or clerk of said commission, or any other officer or employee of the United States, to divulge, or to make known in any manner whatever not provided for by law, to any person, the trade secrets or processes of any person, firm, copartnership, corporation, or association embraced in any examination or investigation conducted by said commission, or by order of said commission, or by order of any member thereof. Any offense against the provisions of this section shall be a misdemeanor and be punished by a fine not exceeding \$1,000, or by imprisonment not exceeding one year, or both, in the discretion of the court, and such offender shall also be dismissed from office or discharged from employment. The commission shall have power to investigate the Paris Economy Pact and similar organizations and arrangements in Europe.

Sec. 709. That there is hereby appropriated, for the purpose of defraying the expense of the establishment and maintenance of the commission, including the payment of salaries herein authorized, out of any money in the Treasury of the United States not otherwise appropriated, the sum of \$300,000 for the fiscal year ending June 30, 1917, and for each fiscal year thereafter a like sum is authorized to be appropriated.

