LEAGUE OF NATIONS

REPORT

ON THE

PROBLEM OF RAW MATERIALS

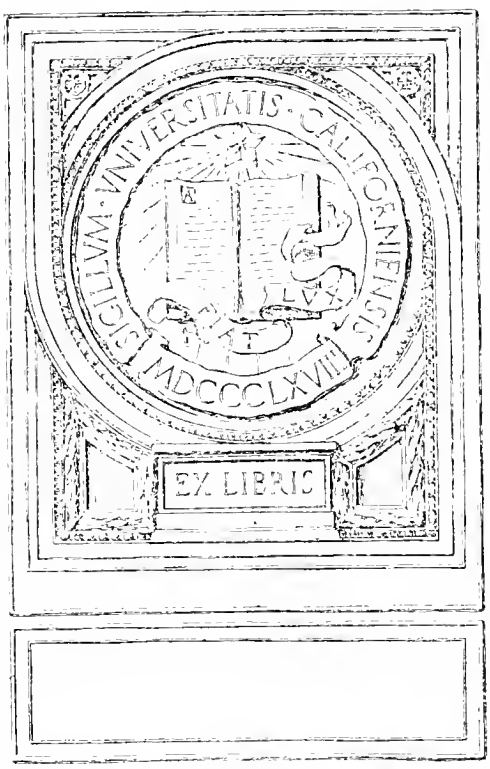
AND

FOODSTUFFS

BY

PROFESSOR GINI

WITH ANNEXES PREPARED UNDER HIS DIRECTION.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INTRODUCTORY REPORT BY PROFESSOR GINI.

EVENTS LEADING UP TO THE ENQUIRY: ORIGIN, SOURCES AND NATURE OF THE DOCUMENTS TO BE CONSIDERED.

I.

The enquiry on raw material and foodstuffs, to which this report refers, has been preceded by numerous other enquiries bearing witness to the interest which the question has for a long time aroused.

Several of these enquiries did not concern the League of Nations: *e.g.*, the motion submitted by the Italian Delegates in March 1919, at the Raw Materials Committee of the Peace Conference; the motion of a similar character, especially concerned with coal, submitted by the Italian Delegation at the 31st Meeting of the Supreme Economic Council, held in Rome, November 21st-23rd, 1919; the Agenda of the Congress of International and Neutral Co-operative Consumers (Paris, June 1919); the resolution of the second International Socialist Committee held at Geneva, 1920; the resolutions of the Economic Conference held at Paris in 1920, and of the International Chamber of Commerce adopted at its initial Congress, held in Paris, June 23rd-30th, 1920, and at its second Congress, held in London in July 1921.

Other enquiries, on the contrary, called for some action on the part of the League of Nations. It would be well to recall these enquiries as leading directly to the present enquiry.

A. — At its meeting on June 4th, 1919, the French National Federation of Consumers' Co-operative Societies, after drawing attention to the lack of agreement as to the best method of carrying out the distribution of commodities — whether by unrestricted competition or by State control — recognised the need for precise information on everything relating to prices and stocks, and laid certain proposals before the Supreme Co-operative Council, as a result of which the latter body made the following recommendations:—

(1) "That the Government should transform the department dealing with prices (Service d'Observation des Prix) into an Office of Statistics of Internal Commerce, dealing with prices, supplies and movements of different commodities; and that this Office should work in permanent contact with the Supreme Co-operative Council, which is better qualified than any other organisation to defend the consumer."

(2) "That an International Office of Trade Statistics should be established in connection with the Secretariat of the League of Nations to examine the resources and requirements of the various countries and to consider how distribution may be carried out to the greatest common advantage."

The Reports of the National Federation of Consumers' Co-operative Societies, and the recommendations made by the Supreme Co-operative Council are included in the "Etudes et Documents" published by the International Labour Office, Series B, No. 2, October 5th, 1920.

B. — A few months later, at the International Labour Conference in Washington, the Italian Workers' Delegate, M. Gino Baldesi put the following motion to the vote (the 20th Sitting, November 26th):—

"The International Labour Conference considering that the question of unemployment is strictly connected with the distribution of raw material and with the question of the cost of ocean carriage for the same, and considering that this question cannot be the subject of a study by this body itself. refers it to the League of Nations and recommends that it take it up for study and solution."

M. Baldesi followed this with a statement in which he defined his motion as follows: Whereas the inadequate supply of raw materials necessary for industry is the chief cause of unemployment in many countries, whilst in other countries which produce these raw materials unemployment is often due to over-production, it was proposed that the Conference should draw the attention of the League of Nations to the importance of an equitable distribution of raw material in preventing unemployment and to the expedieney of setting up a permanent Committee which would guarantee this equitable distribution among the various countries, according to their present and future industrial requirements. Whereas the disparity and the fluctuations in the rates for ocean carriage encourage speculation and the manipulation of prices, it was further moved that the Conference should draw the attention of the League of Nations to the proposal made by the United States Congress in Resolution 311 of September, 1914, which recommended as desirable the setting up of a permanent International Committee with advisory powers for the regulation of the rates of transport by sea.

On a roll-call vote, the Baldesi motion was rejected by 43 votes to 40.

The motion of M. Baldesi as well as his statement have been published by the International Labour Office in the pamphlet already quoted.

C. — A year later, the International Miners' Congress, which was held in Geneva between August 2nd-6th, 1920, discussed a resolution, which aimed at setting up an International Committee for the distribution of coal, and unanimously adopted the following resolution:—

"The Congress, considering the ill-distribution of fuel, ores and other materials, and the speculation and intermediate profits which are given full opportunity in this as in all other spheres;

"Considering also the misery which results from such a state of things;

"Expresses the desire that there be constituted within a brief period an international office for the distribution of fuel, ores and other raw materials indispensable for the revival of a normal economic life; and

"Requests that the International Labour Office should take into careful consideration this urgent demand, put forward by the delegates of the International Federation of Miners; and

"Entrusts to it the task of finding a remedy as early as possible, in accord with the Executive Committee of the International Federation of Miners and with the assistance of the various branches of the League of Nations."

This Resolution and the problem which it raised were the subject (as Mr. H. B. Butler informed the Secretary-General on October 22nd, 1920) of a thorough

investigation by the Governing Body of the International Labour Office which, on October 6th, adopted the following proposal:—

"It is proposed that in response to the request which has been made, the Governing Body should continue negotiations with the League of Nations on the following basis:—

"(1) The constitution of an International Office of statistics of prices and supplies (the first of which might deal with coal), attached to the Economic and Financial Section of the League of Nations.

"(2) We ask the Economic Section to constitute this Office in such a way that the International Labour Office shall be represented on it, and through the medium of its officers or members of its Governing Body follow carefully from day to day the investigations made and the result obtained, and thus respond practically to the aspirations and desires expressed in the resolution of the International Miners' Conference."

A Report of the International Miners' Congress has been published by the International Labour Office in "Etudes et Documents," Series A, No. 7, October 19th, 1920.

A Note on "The Suggested International Coal Office," with the text of Mr. Butler's letter, has been published by the International Labour Office in the *Bulletin* of November 3rd, 1920, No. 9; and the same letter also appears in the "Report of the Work of the Provisional Economic and Financial Committee," published by the League of Nations. (E.F.S. 1, G.P.V. 1.)

D. — Long discussions on the subject of raw materials and commercial restrictions took place at the International Financial Conference of Brussels (September 23rd to October 6th, 1920). The Report of the Conference states:—

"The Conference strongly endorses the declaration of the Supreme Council of March 8th last that a full and friendly co-operation should at once be re-established between the States created or enlarged as a result of the war, in order that the essential unity of European economic life may not be impaired by the erection of artificial economic barriers; each country should aim at the progressive restoration of that freedom of commerce which prevailed before the war, including the withdrawal of artificial restrictions on, and discriminations of price against, external trade."

The Conference also recommended that an international organisation should be created and placed at the disposal of States which might wish to have recourse to credits, in order to ensure payment for their essential imports.

It also recommended the Council of the League of Nations to draw the attention of the various Governments to the question of Finishing Credits, and to entrust to a Committee composed of jurists and business men the task of proposing the legislative measures necessary for the realisation of this kind of credit.

E. — Shortly afterwards, the International Congress of League of Nations Unions, meeting at Milan, October 12th-16th, 1920, adopted the two following resolutions:—

1.

"In view of the fact that the establishment of universal economic solidarity is one of the essential conditions of the new international order which the League of Nations is to establish;

"And in view of the fact that this solidarity, and with it the peace of the world, is menaced by existing protectionist tendencies, and that therefore it is of the utmost importance to do away with these tendencies, the inevitable result of which is industrial and commercial materialism:—

. . . . . .

"Adopts the following resolution:—

"That the League of Nations should sanction as soon as possible the principle of the abolition in all countries of restrictions and barriers of all nature

to commercial exchange, especially as regards essential raw materials, inasmuch as such restrictions and barriers tend to create conditions of inequality between the nations in all reforms leading to regeneration and development."

. . . . . .

2.

"The Congress expresses the opinion that any Mandatory Power is forbidden to make use of its position to secure, either for itself or for other Members of the League, special economic and commercial advantages."

II.

These events, however, did not, as a matter of fact, originate the report which I have the honour to submit to you. Its true origin is to be found in the following resolution adopted by the Council of the League of Nations, which met in Brussels on October 25th, 1920:—

"The Council has fully considered the difficulties experienced by numerous countries in assuring the import of raw materials essential to their welfare and even to their existence, and has requested the Economic Section of the Economic and Financial Committee to study:—

"(*a*) The extent and nature of their requirements;

"(*b*) The causes of these difficulties (other than those arising from lack of credit or fluctuation in the rate of exchange, which have already been considered by the Brussels Financial Conference); the effects of the existence of monopolies will be very specially considered.

"The Council invites the Committee to submit to it at the earliest possible moment a report on the results of its enquiry, a report which is indispensable for the further deliberations of the International Economic and Financial Conference."

This resolution was the result arrived at in a debate in the Council, following a report presented by M. Tittoni, the Italian Representative, on October 25th, with regard to possible action by the League with a view to securing equitable economic and financial treatment for all its Members. In this debate an important part was taken by Mr. A. J. Balfour.

M. Tittoni's statements and Mr. Balfour's remarks are included in the « Report of the work of the Provisional Economic and Financial Committee », published by the League of Nations. (E.F.S. 1, G.P.V. 1.)

The Assembly of the League of Nations, having noted the resolution taken by the Council, again discussed the question and adopted the following resolution at its Meeting on December 8th, 1920:—

"The Assembly, having noted the resolution taken by the Council at its meeting in Brussels, October 25th last, considers it indispensable that the Economic and Financial Committee should continue its work without delay in the manner indicated by the Council."

III.

The Provisional Economic and Financial Committee met in December. The Committee proceeded to give effect to the recommendations of the International Financial Conference of Brussels in respect of International Credits and of Finishing Credits. It also noted the contents of Mr. Butler's letter, dated October 28th, 1920, and was generally in agreement with the International Labour Office that steps should be taken under the supervision of the League of Nations for the systematic compilation of statistics of production, distribution and consumption of the chief commodities essential to the economic existence of the various countries. (See Report quoted, page 132.)

But, meanwhile, the Committee gave effect to the resolutions of the Council and of the Assembly of the League of Nations by preparing two questionnaires,

one dealing with import and export restrictions, with monopolies and with unfair competition (E. F. 23), and the other asking for statistical information with regard to the supplies of raw materials and foodstuffs (E.F. 24).

The questionnaires were sent in the month of January to the various Governments with the request that the latter would be good enough to return them to the Secretariat, which had been asked to examine and collate the information, by January 31st in the case of questionnaire E. F. 23, and by February 15th, 1921, in the case of questionnaire E. F. 24.

IV.

It was evidently with the object of carrying out the duty which had been entrusted to him by the Committee, and also to prepare for the Committee all the information necessary for its discussions, that the Secretary-General of the League of Nations did me the honour on February 14th, 1921, of requesting me to "devote six months to drawing up a report on the production and the distribution of raw material and foodstuffs," to be laid before the Economic Section of the Provisional Economic and Financial Committee.

The invitation was at once accepted, but, as a result of illness, it was only on March 16th that I could proceed to Geneva and commence my work.

As a result of the intimate connection between the enquiries (*a*) on raw material and foodstuffs, and (*b*) on commercial restrictions and monopolies, I was asked to consider also the part of questionnaire E. F. 23, which deals with the two latter subjects.

At the end of April, I was given the following collaborators to assist me in sending out and classifying the questionnaires and in collecting the statistical information and preparing the report:

Professor Felice Vinci, Lecturer in the Instituto Superiore di Commercio at Bari, Dr. Nokhim Sloutski, M. François Fissore, Licencié ès Sciences économiques, and Miss Hooke.

V.

The replies to the two questionnaires did not, however, arrive within the required period; and even after the date fixed they came in very slowly. Moreover, the answers to the statistical questionnaire were nearly always incomplete. In any case, even if the returns had been complete, they could not have given a true picture of the situation of the various countries as regards raw material and foodstuffs, seeing that questionnaire E. F. 24 asked for no information with respect to the period of the war, and, for the period following the war, confined itself to a request for annual returns. Hence, it was impossible to follow in sufficient detail the development of the situation after the war and to explain clearly the differences between this and the pre-war situation. It seemed, then, absolutely necessary to send out another, and more detailed, questionnaire.

The new questionnaire differed from its predecessor in asking for data for each month for the years 1919, 1920 and the first half of the year 1921, and in asking also for yearly statistics for the whole period 1910 to 1918. It was, moreover, made up of various tables, one for each commodity, each table to be forwarded by the Governments to the office best qualified to deal with it. All the lists, again, were transmitted, through the Ministry of Foreign Affairs, to the Central Office of State Statistics with the request that the latter should have them completed by the offices concerned, and, after checking the figures, send them back as soon as possible to the Secretariat. The list of articles covered by the first questionnaire was increased, in the second, from 28 to 60. This questionnaire, like its predecessor, was sent not only to the States Members of the League of Nations, but also to a few other States, which, from their importance in the question of raw material, might be in a position to give valuable information, or to which it was, for other reasons, thought advisable to apply (United States, Germany, Esthonia, Latvia, Lithuania, Hungary, Ecuador and the Hedjaz).

The new questionnaire could not be sent out until the beginning of May. Different periods were granted for the replies from the various countries. The replies had to be sent by June 15th, at latest, in the case of European countries where, by reason of the superior organisation of the statistical office and the lesser degree in which their territories had been altered by the war, there was reason to believe that the compilation of the statistics would prove an easier task. In the case of the other European countries, the return was called for by June 30th, and, lastly, in the case of States in other continents, one month after the receipt of the questionnaire.

The same information was subsequently requested from the Government of Central Lithuania (the disputed territory of Vilna), for which neither Lithuania nor Poland was in a position to furnish any data.

VI.

It was, however, to be foreseen that various causes (the attitude of certain States not belonging to the League towards that body; the excessive number and, in some cases, also the excessive complexity of the questionnaires already sent out by the Secretariat and the International Labour Office; difficulties in replying on the part of the new States created after the war; the slowness of communication with the more distant States) would have prevented the arrival of a sufficient number of replies — or, at any rate, their arrival within the time required. Moreover, the questionnaire could not have produced — even assuming the most favourable circumstances — certain information which would have thrown a flood of light on the subject under consideration, and which could only have been obtained by means of verbal conversations.

It was therefore evident, from the very beginning, that it would be impossible to rely on being able to use the data given in the replies to the questionnaire to obtain an idea of the world's production and consumption of foodstuffs and raw materials. It was essential to seek other sources of information, but these sources could not have furnished, in regard to all the products, such detailed and precise information as it had been hoped to obtain by means of the questionnaire.

It was accordingly decided to draw up statements in regard to the more important raw materials and foodstuffs, or groups of these articles, by means of information derived from all available sources and in accordance with a programme, which should be uniform in its main features but modified in respect of each product or group of products in accordance with the amount and the details of the statistical material collected.

It also appeared essential to make personal visits to the countries with regard to which little exact information was available in respect of raw materials and foodstuffs, in order to obtain replies to the questionnaires, to explain, when necessary, the manner in which these replies should be prepared, to dispel the uncertainties especially liable to occur in the new States which possessed no complete set of statistics for the pre-war period, to obtain explanations in regard to the questions to be discussed, to get a personal view of the situation, and to collect information from the best-informed and most impartial persons.

Fifteen countries were visited with this object: Spain, Portugal, France, Italy, Denmark, Norway, Sweden, Finland, Esthonia, Latvia, Lithuania, Central Lithuania (Vilna), Poland, Austria, and Czecho-Slovakia. I twice passed through Germany, going to Denmark and returning from Czecho-Slovakia. As for Switzerland, where I lived for several months, I was sufficiently familiar with conditions there. There was unfortunately no time to visit Hungary and the Balkan States, and it was therefore only possible to obtain information indirectly in regard to those States.

VII.

The result of these labours is represented by the documents which I have the honour to submit to the Committee. These consist of a General Report and seven statements dealing with wool, cotton, coal, mineral oil, iron, cereals and fertilisers.

The statements regarding cereals, cotton and wool were drawn up by Professor Vinci, those dealing with coal, petroleum, minerals and fertilisers by Dr. Sloutski, assisted by Professor Vinci, in both cases under my direction.

The following statements make no pretence to be complete monographs on the subjects with which they deal. If this had been desired, it would have been necessary to approach an expert in each subject and to allow him a considerably longer time than has been allowed to us. The statements in question are chiefly designed to place at the disposal of the Committee figures and information capable of supplementing the replies to the statistical questionnaires on foodstuffs and raw materials, and to the questionnaire on commercial restrictions and monopolies, which replies have not arrived in sufficient numbers. Naturally, the authors of the reports have also drawn from the information at their disposal the conclusions implicit in the replies.

In drawing up these documents, the answers to the two statistical questionnaires and to the questionnaire regarding commercial restrictions and monopolies were made use of as far as possible, but the greater part of the facts had to be obtained from other sources — either from official publications prepared by the different States or from memoranda or articles drawn up by statistical offices, industrial associations, or private persons.

Generally speaking, the figures are taken from official sources, while figures originating in the publications of industrial associations or of private individuals have, except in exceptional cases, not been reproduced but have served as bases for the statements contained in the text.

VIII.

The number of replies so far received to the questionnaires has, indeed, not been very large.

The questionnaire regarding commercial restrictions and monopolies has hitherto produced eleven replies, relating to Austria, Belgium, Denmark, Great Britain, Greece, Holland, Hungary, Italy, Japan, Luxemburg, and Sweden. With the exception of Belgium for the Belgian Congo, and Japan for Korea, Karofutu and Kwantung, no State has given any information in regard to its colonies. Spain, though she has not yet sent any reply in regard to her State territory, has given a few facts with regard to her colony in the Gulf of Guinea. The answers to the questionnaire regarding commercial restrictions and monopolies have been printed and submitted separately to the Committee. It would have been desirable to embody them in a statement, but the fact that many of the most important States have not replied, and that the replies of the remainder are for the most part obsolete owing to the changes which have taken place in commercial legislation, induced me to abandon this idea.

On the other hand, I hope that certain other States which I approached during my tour will send in their replies.[1]

The first statistical questionnaire produced 13 answers, from Belgium, Canada, Denmark, Spain, Finland, Greece, Hungary, Italy, Japan, Norway, Poland, Great Britain and Sweden. With the exception of Belgium for the Congo, none of these countries has given any information in regard to its colonies. Moreover, a large number of replies are far from complete; in nearly every case additional information, which had not in every case been received, had to be asked for. Seeing that the replies should have been sent off by February 15th, it must be assumed that no further replies to this questionnaire will be received, especially as the States which have not yet answered will prefer to reply to the second statistical questionnaire, which is more complete and easier to answer.[2]

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[1] Since this passage was written, replies, more or less complete, have been received from Latvia, Lithuania, France, Switzerland, South Africa, Czecho-Slovakia, India and Finland.

[2] Two replies, moreover, have since been received: Roumania and Holland.

The second statistical questionnaire has already produced 10 replies, which are certainly greatly superior in value to the replies sent into the previous questionnaire, though in many cases data are lacking in regard to recent periods, and there are other regrettable omissions. The replies hitherto received refer to Belgium, Esthonia, Portugal, Bulgaria, Finland, Greece, Norway, Roumania, South Africa and Czecho-Slovakia. It should be observed that six of these States had not replied to the first questionnaire. No doubt other replies may be expected; in fact, it may be hoped, quite a large number, judging by the fairly numerous assurances received by the statistical offices which I visited:[1] but it must not be forgotten that for several States (such as Poland, the Balkan States and the Austrian Succession States) the task of giving statistical information in regard to production, imports and exports before and during the war would involve the complete reconstruction of their statistics from data collected by different Governments and not always capable of exact comparison. Poland, however, has undertaken this task, which will no doubt prove most useful for the Government itself, but will take eight months, it is thought, to complete. Moreover, all the States outside Europe, owing to slowness of communications, have not yet been able to reply through the agency of their foreign ministers.

The Committee will decide whether it is advisable to approach the Governments (or the statistical offices themselves) whose replies are actually in arrears, but who — it must not be forgotten — have their hands full in replying to the other questionnaires of the Secretariat and the Labour Office. It is obvious that, even if the enquiry into raw materials had to be completed with the documents submitted this session, the data obtained through the second statistical questionnaire might be of real value in connection with other work of the League of Nations — *e.g.*, in studying the blockade question.

IX.

Finally, the General Report which I have the honour to submit to you is based on the seven statements, on the replies to the questionnaire regarding commercial restrictions and monopolies, and, above all, on the result of the study of the question of the supply of raw materials and foodstuffs which I had commenced on my own account before I was commissioned to do so by the Secretariat of the League of Nations, and which I have since continued more intensively. It need hardly be said that the information which I obtained personally in the different States has been of quite exceptional value to me.

In drawing up this Report, in accordance with the terms of my agreement with the Secretariat, I have no intention of substituting my own work for that of the Committee which had been instructed by the Council to submit its report and decisions to that body; my object is simply to facilitate their task. Mine is a report giving the personal opinions of an expert on the whole question of the supply of raw materials and foodstuffs, and designed to furnish the Committee with information which may be of use to it in its future labours.

It has accordingly been drawn up without any regard to political considerations and with that freedom of thought which every expert finds essential for the accomplishment of his task.

As the Secretariat did not lay down in its instructions any limits to the scope of my Report, I did not think it necessary, in drawing it up, to keep within the limits which the Council had set to the Committee's report by eliminating any investigation of the difficulties in the supply of raw materials which are due to the lack of credit or to the fluctuations of exchange — matters which had already been examined by the Financial Conference at Brussels. I considered that at the present time the Committee might find it useful to have some information even in regard to these matters.

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[1] Fourteen other replies have since arrived: from the United Kingdom, Denmark, the Serb-Croat-Slovene State, Austria, Holland, Peru, India, Latvia, Brazil, Germany, Chile, Egypt, Canada and Guatemala.

It is, in fact, evident that the relations between the problems of exchange and credit and that of raw materials have now assumed a different aspect from that which they presented in October 1920, when the question was discussed by the Council of the League of Nations.

Again, even if no decision was to be arrived at in regard to these two points, it might be interesting for the Committee to have placed before it the intimate and complex relations which connect them with the solution of difficulties in the supply of raw materials and foodstuffs.

As the Committee will see, the greater part of the difficulties in the supply of raw materials and foodstuffs in the present phase of the crisis, is, in my opinion, due, directly or indirectly, to the disequilibrium and the fluctuations of the rates of exchange. If the Committee should consider that this is the field in which the League of Nations can initiate particularly useful measures, it will perhaps be able to find in my Report arguments to support this point of view.

I am confident that my labours and those of my collaborators will be of some service to the Committee in making its decisions, and that the Committee will recognise that it would have been difficult to do more in the short space of time accorded us, and with the materials which had been placed at our disposal.

GENEVA, August 16th, 1921.

GENERAL REPORT ON THE QUESTION

BY

PROFESSOR GINI.

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GENERAL REPORT ON THE QUESTION.

I.

THE PRESENT ECONOMIC SITUATION AND THE CONTINUED IMPORTANCE WHICH ATTACHES TO AN ENQUIRY WITH REGARD TO RAW MATERIALS AND FOODSTUFFS.

The economic situation of the world, as a result of which the proposal for the enquiry with regard to raw materials and foodstuffs first arose and took shape, was in several respects quite different from, in fact the exact opposite of, the present situation.

At that time, the demand for all or almost all raw materials and foodstuffs greatly exceeded the supply, and an impression was thus left in the minds of all, that the available stocks for disposal would for a long time be insufficient to meet requirements. States which were producers of raw materials and foodstuffs, impressed by this obvious scarcity, took steps to ensure supplies for the home markets by means of prohibitions or restrictive measures, by taxes imposed on exports, or by differential prices and endeavoured also by these means to secure economic advantages from their peculiarly favourable situation. On the other hand, owing to the necessity for limiting national consumption, they were led to prohibit or to restrict immigration, while the absence of all incentive for stimulating the demand from abroad led them to limit the granting of credit to States which had need of it.

Owing to this state of affairs there was a continuous tendency to a rise in prices, which seemed unending, and the result was a temptation to possessors of goods to sell the smallest quantity possible, in the hope of obtaining greater profits, and on the other hand a disposition on the part of consumers to make purchases on a large scale and beyond their immediate requirements, in the hope of providing against purchasing conditions which might be still more burdensome.

The great anxiety caused to States which import raw material and foodstuffs may easily be understood; these States not only foresaw difficulty in securing the amount necessary for their prosperity and even their existence, but also saw the future growing ever more and more serious. In October 1920, the Report of the Financial Conference of Brussels was still speaking of the gulf which for several years would separate supply and demand. At the same time, employers and workers alike regarded with apprehension the fate of industries which were running the risk of perishing of inanition, and as the fate of whole sections of labour, who they feared might be thrown out of employment.

In the course of a few months, and before the conclusion of the enquiries which had been undertaken, the situation had completely changed. To-day, as regards all or almost all raw material and foodstuffs, the supply is far greater than the demand. Accumulated stocks are vainly waiting for orders from purchasers, whence

many people are drawing the conclusion that material resources are far superior to requirements.

Under the pressure of holders of stocks, the richer States have gradually come to abandon, or at least to limit, the policy of restrictions and of export duties, either abolishing them or suspending them or reducing their sphere of application, whilst they are endeavouring by every means in their power to secure credits, on terms which are not too risky, for poorer nations which otherwise would find difficulty in importing.

The decrease in prices is causing holders of stocks to place them upon th market at a very low price, sometimes less than cost price, for fear lest they should later be compelled to sell them at a still greater loss, whilst consumers are waiting for still more favourable purchasing conditions, and are abstaining from all expenditure that is not quite indispensable. It is now the nations which export raw material and foodstuffs that feel some anxiety, as they see production stagnating and unemployment becoming threatening.

The crisis of under-production has been rapidly replaced by a crisis of markets.

The change in the situation leads some to think that an enquiry for the purpose of studying or examining difficulties which now lie in the past is useless. But if we go to the root of the matter, we shall on the contrary find that its interest is for many reasons a permanent one.

In reality, the present economic situation represents to a great extent only the natural and inevitable consequence of the past crisis. It cannot be denied that the difficulties of technical and psychological adaptation which were experienced during the transitional period from war economy to peace economy have been overcome and that production has consequently resumed a less abnormal course and has contributed, to a certain extent, to relieve the lack of supply in relation to demand, but the decisive causes for the change in the world's situation are to be sought in other circumstances.

The desire to protect themselves against the steady rise in prices had caused consumers to provide themselves with goods to an extent beyond their immediate needs. On the other hand, the checking of the policy of inflation, which was effected in States where economic conditions were more favourable, and the stopping the supply of credit by these States to States which where more in need of imports, have cut off the financial sources which were artificially fostering the demand for goods. Such a policy has contributed towards the appreciation of the currency of the States which adopted it, but on the other hand has helped to render exchange conditions still worse in States which were, so to speak, cut off from all assistance, the disequilibrium and the fluctuations in the exchanges becoming thus more accentuated, and putting a serious check on the international exchange of goods. Again, a definite fall in prices in countries whose circulation was more stable was clearly shown, and consumers began, both in those countries and in others where a fall was considered certain, to abstain from purchasing, whilst holders of goods placed upon the market big stocks, hitherto concealed, on an unexpectedly large scale.

This inter-play of action and reaction will appear inevitable to anyone who is acquainted with economic forces. It must, however, be admitted that the reaction would have been less violent, and the present crisis less acute if, during the period which has just passed, the richer States had adopted a more unselfish policy. In the final result, their own policy has turned against their interest. It is, indeed, undoubted that the prohibitions and restrictions on trade, the export duties, the unexpected suspension of credits granted abroad, without any discrimination between credits for consumption and productive credits, the obstacles placed in the way of the flow of immigration from countries which were in more difficult circumstances, have in various ways hindered or delayed in such countries the resumption of normal economic life, have checked the development of their production, and have thus caused in them a deficiency of means of purchasing which has made it correspondingly difficult for the richer countries to dispose of their goods.

A study of the difficulties of the supply of raw materials and foodstuffs has not, however, merely the scientific interest of throwing light on a state of affairs now passed, from which the present crisis has arisen; to those who examine it closely it also presents great practical utility both for the present and for the future, for such difficulties have by no means disappeared, but have only assumed another form, and may, moreover, in a more or less distant future resume their original aspect.

We have said that the excess of supply over demand which is noticeable to-day causes many to believe that there is an excess of material resources over requirements. This impression is incorrect. Supply and output of goods on the one hand, and demand and requirements on the other, are phenomena which are clearly distinct.

Supply is not necessarily composed of the whole output of new goods, but only of that part which the producer or holder is disposed to put on sale. On the other hand, the supply may be considerably greater than the new output, whenever the holder puts on sale previously accumulated stocks. Whereas in the economic crisis which has now passed the producer or holder intended to put on sale part only of the continual output of new products, in the present crisis, for reasons we have seen, he offers not only the whole new production, but also the whole previously accumulated stock.

Inversely, requirements cannot possibly be deduced from demand, still less from consumption. Demand corresponds only to that part of requirements which the consumer thinks he has sufficient means to purchase. Consumption corresponds, in its turn, only to a part of demand, that part which has been able to be actually satisfied. If, in the present economic state of affairs, supply is greater than demand, whereas, in the past, demand was correspondingly greater than supply, this is due, partly, but only for a small part, to a diminution in requirements, due to the fact that in many countries the demands for the reconstruction and reconstitution of reserves on the part of families and commercial concerns have already been satisfied, and likewise to an increase in the output of goods, owing to the improvements in production which have taken place. But those are not the chief causes of the change in the situation. To a far greater extent the change has been brought about by a diminution in the consumer's power of purchase, owing to the checking or diminution of the policy of inflation within the country and the policy of credits for consumption granted abroad.

The present crisis is, so to speak, a twofold crisis. On the one hand, there is still a crisis of under-production, in the sense that production, being still inferior as regards almost all goods to pre-war production, remains insufficient to cover the requirements of the world, which, owing to the increased needs both of individuals and of the community, are certainly greater than the pre-war requirements. On the other hand, there is a second crisis arising from the insufficiency, in comparison with the output and offer for sale of goods, of the available means of purchase. This is the crisis which hits us hardest, and it is therefore said — and rightly so, if we confine ourselves to the superficial view — that difficulties of supply or raw materials and foodstuffs, which in the past crisis were due to scarcity of supply on the part of exporting States, depend at the present time on insufficiency of means of purchase on the part of the States which have most suffered from the war. But, if we go to the root of the matter, we shall easily see that the first crisis is the fundamental one, and that the second only leads back to it. As occurs in many diseases of the human body, so in the present economic crisis, the most obvious cause of the evil is hiding from our eyes the more vital fundamental causes. Goods are purchased by means of other goods. The means of purchase which are lacking to States which are in difficult circumstances are precisely those products which they are not yet able to produce in sufficient quantity both for their own consumption and for international exchange. The past crisis was a crisis of under-production on the part of rich States and of incapacity to meet a demand which was artificially increased in all States owing to currency inflation and credit. The present crisis is still fundamentally a crisis of under-production,

but on the part of poorer States, which, being deprived of credit from abroad and being unable to have recourse to the issue of paper money to such a liberal extent as formerly, now lack means of purchasing and are thus the cause of stagnation in the commerce of the rich States. If it be borne in mind that poor States are not generally manufacturing or industrial States, but essentially States which produce foodstuffs and sometimes raw materials, the conclusion will be reached that the present crisis is also in substance due to a deficiency of these products.

The advantage of the present situation over the past is essentially that it represents a phase of transition towards a normal situation in which supply and demand, resources and requirements, will be almost equally balanced. Now that the artificial exaggeration of purchasing power on the part of consumers, which was derived from inflation of currency and of credits for consumption, has been reduced, the purchasing power of each nation has come to depend more strictly on its power of production to which, under normal conditions, it should exactly correspond.

Apart from the general cause, consisting in the lack of purchasing power on the part of the poorer States, there is another more special cause:— the difficulty they experience in selling one of their most important products, *i.e.*, wood.

Owing to the hindrances to the construction of dwelling-houses due to the legislation regarding rents, which is universal in the European States, and to the slackness in the shipbuilding trade due to the superabundance of tonnage, the demand for imported wood has practically ceased, the local supply being generally quite sufficient for other requirements. Many poor States, while lacking the means for purchasing the goods they need, find their stocks of wood accumulating in their depots without being able to liquidate them. Obviously, this particular cause is partly dependent on the general one, since the present excess of tonnage is due to the decrease in international exchange, which itself is the consequence of the critical condition of foreign trade.

In my opinion, there is no need to take a pessimistic view of the future. The purchasing power of the poorer nations will gradually increase with the progress of their reconstruction, however slow and wearisome this may be; and this will proportionally ease the crisis in the foreign trade of the exporting States. Consequently, the excess of tonnage will be reduced and a fresh stimulus to the shipbuilding trade will be given. These circumstances, coupled with the gradual abolition of the regulations regarding rents and the rebuilding of houses in the devastated regions of France, will increase the demand for wood and will thereby improve the purchasing power of many States, which at present find it difficult to make international payments.

In rich States, on the other hand, accumulated stocks of goods are being more and more reduced because of the existing decrease in production, and, during the last few months, prices have ceased to fall so fast. This, in conjunction with the using up of stocks, will lead consumers who had put off purchasing, in the hope of more advantageous conditions, to decide to make their purchases at once.

We may therefore look forward in the near future to a gradual re-establishment of normal conditions of supply and demand, and need not fear a return to the excess of demand over supply which in recent times has caused anxiety to certain States.

If, however, this appears to be true of production regarded as a whole, it must nevertheless be admitted that, in the case of some products, the demand may, even in the near future, decidedly exceed the supply. This is what some people fear in respect of wool. In their view it is not possible that the demand for manufactured goods on the part of the countries which the war has left practically without cloth or woollen goods may increase as their economic conditions improve. The demand for raw materials on the part of factories which have suffered little from the war may thus, in course of time, increase too rapidly for the exporting countries to be able to keep pace with it in the production of raw materials. Their future producing power may be indeed seriously impaired by the present crisis, and the

system of cornering to which the export of a great part of the wool is subject at the moment may perhaps prejudice the national readjustments which the development of the situation may require. It is doubtful, on the other hand, whether existing stocks would suffice to make good the deficit between the new production and the demand during the period of adaptation.

If we look into the more distant future, we have every reason to expect, not to exclude, the possibility of economic conditions in which the general supply of raw materials will be inadequate to the demand, thus reviving the difficulties and problems which led to the enquiry on raw materials. Experience has shown, and economic theories clearly explain, that the course of economic development is subject to fluctuations through periods of irregular length, which possess, however, fairly uniform characteristics. In these periods a phase characterised by falling prices and an excess of demand over supply is invariably succeeded by a phase of rising prices in which the demand exceeds the supply. It is therefore to be expected that, after the equilibrium between supply and demand has been re-established for a short time, thus closing the phase which began some time previously, the economic recovery of the countries which are suffering at present, the final adjustment of organisation of the world economics in accordance with the new national groupings, the resumption of trade activities, and the extensive requirements for the reconstruction of Russia will bring about an economic situation in which the demand for raw materials will exceed the supply.

We must therefore conclude that an enquiry into the difficulties regarding the supply of raw materials and the means by which this may be remedied is of the greatest interest at the present moment. Moreover, the difficulties of the supply of raw materials and foodstuffs have not in fact come to an end, but have merely assumed a different aspect from that which they bore when the enquiry was decided upon. It is, moreover, not unlikely that, in the case of certain raw materials, the old difficulties may arise again in the near future; and it is more than probable that this will happen in a more general way in the more distant future.

The League of Nations should devote the most careful attention to this problem, since a great deal of interest has been aroused and, in the States concerned, great expectations have been excited regarding the results of the proposed enquiry. A thorough and conscientious investigation is all the more necessary in that the proposals put forward in the discussions which have so far taken place must be admitted to have been very inadequate, considering the magnitude of the problems raised. It is obviously not the establishment of new committees or sub-committees, to enquire into the origin and distribution of raw materials throughout the world, nor the institution of a Statistical Office to record the fluctuations of stocks and of prices, which the States concerned now expect from the League of Nations, however great the scientific interest of such institutions and their practical utility in the future might be. The League of Nations must examine the problem in a manner commensurate with the practical issues raised; it must consider and decide what measures may or should be taken in the present circumstances or in any circumstances which may arise in the future, in order to avoid or to reduce the various difficulties met with in the supply of raw materials. If no adequate measures can be taken, this must be clearly proved, and the difficulties explained. If, on the other hand, suitable measures can be applied, then the League of Nations should clearly and unequivocally indicate what steps the States Members of the League should take in order to attain their object.

II.

THE CAUSES OF THE DIFFICULTIES IN THE SUPPLY OF RAW MATERIALS AND FOODSTUFFS.

The difficulties in the supply of raw materials and foodstuffs may depend upon a number of circumstances of different kinds:

A. The scarcity of the quantities available, due either to the exhaustion of the old stocks or to their limited renewal owing to decreased production. Both the former and the latter may be the result, either of natural, or of artificial causes as, for example, in the case of a system of monopoly, when there is a deliberate attempt to raise prices by restricting production.

B. An increase of requirements. In the case of foodstuffs, this obviously consists in an increase of the requirements of the consumers. As regards raw materials, on the other hand, it would seem at first sight that the requirements mainly to be considered are the requirements of the factories which used such materials. But factories can only operate effectively in so far as markets can be found for their finished articles, so that it is the requirements determined by the consumption of these products which, in the last event, determine the greater or smaller quantity of raw materials required. An increase of manufactures in excess of the supplies of raw material available, and also of the available markets for the finished products, may cause a crisis for the manufacturers who have thus made investments which prove to be valueless, but it cannot cause a crisis in respect of the supply of raw materials, in the sense with which we are at present concerned.

C. Difficulties in distribution, which in their turn may depend upon a number of factors :

(*a*) Commercial restrictions, such as prohibitions or limitations of exports, imports or transit, Custom duties, licences.

(*b*) Difficulties in communications by land or sea.

(*c*) The increased distance between the centres of production and the countries which consume foodstuffs or the manufacturing centres where raw materials are made up.

It is easy to see that these various difficulties which impede distribution are intimately connected amongst themselves.

The increased distance between the centres of production and the centres of manufacture and consumption not only retards the arrival of raw materials, but also naturally implies greater requirements as regards means of communication, and when the centres of production and the centres of manufacture and consumption are situated in different States, between which there is not complete commercial liberty, it also leads to commercial restrictions, of greater or less importance. Commercial restrictions, moreover, of whatever nature constitute impediments to supply, not only directly, in so far as they reduce the volume of commerce and increase prices, but also indirectly, in so far as they prevent the distribution of goods from the centres of production to the centres of manufacture and consumption along the most naturally economical routes, and compel the employment of more expensive routes and the discovery of more distant markets.

D. Difficulties of a financial nature, arising from scarcity in the means of purchase, or from fluctuations in the rates of exchange, or from instability in the political situation, or in the labour market, or from commercial circumstances which make the prospect of the disposal of manufactures at a remunerative price doubtful or definitely unfavourable.

E. Speculations, sometimes illusory as, for example, when the holders of raw materials and foodstuffs are induced, during a rapid rise in prices, to refuse to sell

the whole or part of their holdings because they expect to realise higher prices later, without taking into consideration the fact that the nominally higher prices which they hope for in the future may not, in fact, be substantially more advantageous, owing to a diminution in the purchasing power of money.

All these circumstances have contributed in a greater or lesser degree to the difficulties in the supply of raw materials and foodstuffs which are the reason for this enquiry. Even at present, when in some countries several of these circumstances have ceased to be important factors in the situation, in other countries they still exist in all their gravity.

III.

CONSIDERATION OF THE POSSIBLE STEPS WHICH MIGHT BE TAKEN BY THE LEAGUE OF NATIONS.

Can the League of Nations take any steps to reduce or forestall such difficulties in the supply of raw materials and foodstuffs as may be found to exist in present circumstances, or as may recur at some future time, and if so, ought it to take such action ?

1. The Optimistic Point of View.

There are many persons, especially scientists educated in the economic and social conceptions of the last century, who are accustomed to see in every event the wise and harmonious hand of nature and who maintain that the best thing in every case is to allow nature to work without attempting to interfere with her designs. Any inequalities, they say, are natural and inevitable, and even crises are also natural and inevitable. Such inequalities are, moreover, providential in so far as they eliminate weaker economic organisations and allow only the stronger and the most fitted to new conditions to survive. Thus, in the present crisis, the sacrifice of the nations which are industrially weaker and less suited to present conditions is not only inevitable but in their view represents, at bottom, the least of possible evils. To keep alive artificially any industries which are unfitted, or relatively less fitted, to present conditions represents a destruction of wealth and energy and tends, moreover, to deprive the nations of the stimulus of progress.

Such views might indeed be tenable if the present crisis were permanent, or if a temporary deviation from normal industrial conditions were possible without causing grave difficulties in the return to normal industry. But all the evidence shows that the present crisis in the supply of raw materials is temporary, while it is clear that serious loss would ensue if there were to be any suspension of activity which would drive away skilled labour from the factories, and in many cases involve them in heavy expense before they could return to normal work. Nor can it be said, on the other hand, that the industries and States which are mainly threatened by the crisis in the supply of raw materials are technically inferior, and that to abandon them to their own resources would constitute, therefore, an advantage for the economic world. Their present inferiority can, in many cases, be attributed to fortuitous circumstances, as is seen, for example, in the situation of States which were exceptionally exposed to hostile invasion. Finally, it must be remembered that the creation of unemployment among large masses of labour, especially in economically weaker countries, is not only contrary to all feelings of humanity, but also to the dictates of political prudence.

The task of the League of Nations is indeed not to level all inequalities, but it can and should be its duty to strive as far as possible to prevent the inevitable inequalities resulting from natural factors being aggravated by artificial inequalities due to human competition, which must finally result in damage to the whole world and danger to social peace.

To promote international co-operation, to achieve international peace and security, to bring about the reign of justice — these are the principles written in the Covenant, and these are the principles which should inspire the activities of the League of Nations.

Granting, then, that the League of Nations would do well to direct its energies to the adjustment of the difficulties which certain States experience in regard to the supplies of raw materials and foodstuffs, it remains to consider in what manner the League may best set about its work.

It is, of course, useless to hope that the League of Nations can usefully take any direct steps to alter the psychology of peoples or their needs. But the remedies which the League may attempt to apply are essentially remedies relating to the production of raw materials and foodstuffs, their distribution and the elimination of financial difficulties. Above all, the League of Nations has been, and is, called upon to take action in connection with the problem of better distribution. It is characteristic of human psychology to call attention to inequalities in distribution when the quantities for division are less than the normal; this is an unfortunate characteristic, because it means that just at the moment when all energy should be concentrated for the purpose of intensifying production, it is dissipated in conflicts and disputes. Without admitting, therefore, that the path in which the League of Nations has hitherto been called upon to proceed is the path in which it may work most efficaciously, we will consider this path first of all precisely because it has already attracted considerable attention.

Various solutions for improving the distribution of raw materials and foodstuffs have been proposed, and we will consider them separately.

2. Steps to be taken in regard to the distribution of raw materials and foodstuffs.

A. The first solution may be termed the *nationalist solution*. According to this, each nation should be self-supporting, that is, it should be able to draw sufficient raw materials and foodstuffs for its own population and its own industries from within the territories which belong to it politically, or at least from the territories within which it has the right of economic exploitation.

This was the idea for which the representatives of various nations tried to secure acceptance during the Peace Conference. It is not surprising that it was only very partially accepted and was, in practice, only accepted for the benefit of the stronger nations because, if it were carried out to the full, it would necessitate an enormous wealth of raw materials and a particularly favourable geographical distribution. It would be still more difficult to carry this solution into effect at the present moment, when territorial adjustments have been almost completed. It would, in fact, be impossible to adopt this point of view at present without giving various nations economic concessions in the territories of other nations, involving a limitation of the sovereignty of such nations that would not be accepted without difficulty. Such an expedient has been accepted, as is well known, in the case of the mines of the Saar Valley, but this exceptional and temporary arrangement is only conceivable as one of the peace conditions imposed upon a conquered nation, by way of reparation.

It must also be recognised that the premises which we have recalled, and upon which the nationalist solution is based, are different from the premises which should guide the League of Nations in solving the question of raw materials.

This solution corresponds, in fact, to the interests of States in time of war, when national economic systems are more or less completely cut off from each other; but it cannot be of any real utility in time of peace, except for the purpose of securing more favourable conditions for national producers and consumers than for the producers and consumers of other countries; if this solution be accepted, the advantages of the former can only be obtained by the sacrifice of the latter. If, on the contrary, freedom of commercial organisation and of the trade in raw materials is put into

operation — a solution which meets the general need and is therefore the special concern of the League of Nations — it is almost a matter of indifference whether the sources of raw materials and foodstuffs remain politically dependent on one State rather than another. In this case the main advantage of the nationalist solution would be that a State could make use of its paper money in the territories allocated to it, and could improve its exchange when the territory in question was a creditor from the point of view of the balance of payments. These, after all, are the advantages which France draws at present from the allocation to her of the Saar mines.

It may, however, be justly observed that the advantages of the nationalist solution should be judged, not on the hypothesis of an ideal liberty in trade and concessions, but in view of the real economic policies of States, which differ in a greater or less degree from this ideal. In such conditions one must consider that it is both fairer and more advantageous for the economic welfare of the world that raw materials and foodstuffs should be divided among political territories in such a way that every State should have a share in raw materials and foodstuffs corresponding as far as possible to the national consumption — for, if this is the case, any system which entails a departure from freedom will result in the protection within the State of certain classes of citizens to the disadvantage of certain others, — than that certain States should be forced, in order to meet their needs for materials and foodstuffs, to have recourse to antagonistic States, whose economic policy may interfere with their development, or force them to obtain their needs by paying tribute.

It is for this reason that the nationalist solution — although it cannot be applied completely except for the benefit of certain nations, and cannot therefore claim to be called a solution from the international point of view — nevertheless can, and should, serve as one of the criteria for the adjudication of the zones which are still disputed between antagonistic States, above all if it is doubtful whether there would be in the future any cordial economic collaboration between these States.

B. A second solution which is worthy of most careful consideration is that which may be called the *Socialist*, or perhaps even the *State*, solution in spite of the fact that it would operate, not within any given State, but for a group of States. According to this solution, the raw materials and foodstuffs of the whole world would be acquired by a central organisation and equitably distributed by it, in the common interest, among the various States according to the requirements of each individual State.

This solution is of great importance from an historical point of view, because it has inspired, either openly or tacitly, the proposals for the settlement of the problem — proposals which have received a peculiarly wide publicity.

It is, in fact, the solution favoured by Signor Baldesi at the International Labour Conference at Washington, and, as regards coal, by the International Congress of Miners; it is also the solution towards which the French National Federation of Co-operative Consumers' Societies leant with obvious sympathy, and it would seem as if Signor Tittoni was also inclined towards it in his report. This at any rate appears to have been the interpretation given to Signor Tittoni's view by Mr. Balfour, who remarked that the Tittoni project pre-supposed a right of common ownership among the various States over the raw materials of other States. This would result, it might be held, in an intolerable limitation imposed upon the sovereignty of States. This objection would only have been valid if the control of raw materials, towards which Signor Tittoni inclined, had to be imposed by the decision of a majority, whereas it was only proposed that it should operate, in conformity with the Statutes of the League of Nations, when it had the free consent of all the States. A limitation which States voluntarily impose upon their own powers does not constitute in any way an attack upon their sovereignty, but rather a manifestation of such sovereignty, which, according to the most modern and profound thinkers, consists in nothing else but the competence of the State to limit its own powers. On this subject Signor Baldesi very rightly observed that

States had imposed restrictions of a similar nature upon themselves in regard to the organisation of labour. All social evolution, moreover, bears witness to a continuous and progressive limitation, on the part of the States, of the exercise of their powers in accordance with the requirements of closer international economic collaboration.

But it is not necessary to have recourse to these arguments in order to combat the "State" solution or to take refuge, as Mr. Balfour did, behind the by no means insuperable difficulty of defining raw materials and manufactured products. There is much more weight in the objections based on the difficulties and inconveniences which the operation of the proposal would involve, as the experience of *post bellum* economics has proved beyond all doubt. The "State" solution, in fact, would only revive, in an exaggerated form, in respect both of the markets concerned and of the number of States interested, the policy of the "Executives," which was established during the war and which continued in the period immediately following the war.

It is well known that this policy, which during the war appeared to be a necessity and was maintained, although not without difficulty, by reason of the solidarity binding the Allied nations in the common peril, was after the war seen to possess grave disadvantages when this solidarity was relaxed and, in consequence, all the notorious difficulties inherent in the working of bureaucratic organisations were accentuated. The system of "Executives" was abolished, with the pushdown of the financial solidarity between the Allied and Associated Powers but it could not long have existed, in consequence of unanimous protests from producers, merchants and consumers, and there is no reason to suppose that it could advantageously be resumed at the present moment. Further, the international bureaucratic organisations which are still at work carrying out "reparations" seem so ill adapted to the task of distribution that the amount of raw materials imported by the subjects of certain Allied States for the reparation account — availing themselves of powers entailing specially favourable conditions — is much less than the quantities imported by private enterprise.

This is not the place to discuss whether this inadequacy of the bureaucratic systems depends on the present organisation of society, or whether it is due to more profound and permanent causes inherent in human nature. But it must be admitted that, as regards the working of the system of the "Executives," such shortcomings were not due to the fact that they were only concerned with a relatively small group of mainly importing States, and hence were forced, in order to obtain raw materials, to have recourse to foreign countries, and to buy in the market at the prices demanded by the producing States. It was not high buying prices which constituted the principal objections to the system of "Executives," but the dilatory and rigid character of their method of operation and distribution, the incompetence shown on some occasions by their staffs in the execution of the duties with which they were entrusted, and the continual difficulty of establishing principles of distribution at once equitable and acceptable to all the interested parties. To these drawbacks should also be added the difficulties of fixing prices for purchase and sale when the distributing organisation concentrated the whole, or nearly the whole, of the production, and there was, therefore, no market in which a ruling economic price existed. Further, in present conditions, it would not be possible to hope for a general application of the system through the intermediary of the League of Nations, in view of the fact that those States which do not belong to the League would necessarily be excluded.

Even the warmest supporters of the proposal do not seek to conceal the practical difficulties in the way of its operation — whatever may be the causes to which they attribute these difficulties. They now restrict themselves to demanding a statistical organisation which should follow closely and record accurately the rise and fall in stocks and prices, the trade in foodstuffs, the resources and needs of the different countries. Without compromising the future, this proposal could certainly be supported and accepted. Even if, indeed, from a practical point of view, such an organisation might not prove of any great assistance in the solution

of the problem of the supplies of raw materials, it could in no way have a harmful effect, and from the scientific point of view it would lead to studies of undeniable interest. We may, however, be allowed to express the opinion that the proposal would not have any ulterior influence on the control of the distribution of raw materials. We already have a precedent in the foundation of the International Institute of Agriculture which, created for the purpose of regulating the cereal market, is no more than an organ of information regarding the state of harvests, stocks and prices of agricultural products, economic institutions and diseases which concern agriculture.

However, I do not consider that this is the last word to be said on the proposal for a solution based on a system of State control. The system of the "Executives" has shown itself ill-adapted for a period of peace, but it represents the solution which necessity forced the States to adopt during the war. It seemed the only means by which it was possible to control exports to neutral and enemy States, and thus to render effective the blockade of the latter. Now the blockade is the principal, if not the only, economic weapon at the disposal of the League of Nations against States which may become its enemies. The League may therefore consider whether, in order to make this weapon effective, it may not become necessary to have recourse to the control of raw materials and foodstuffs by means of "Executives," as was done by the Allied States during the war.

The question therefore arises whether it would not be desirable for this purpose to examine at once whether, in case of need, an organisation to control and distribute raw materials and foodstuffs could be established and how it could carry out this work.

C. We shall be working in a more practical field in considering a third solution advocated by many in order to remedy the difficulties in the supply of raw materials and foodstuffs. This is the solution based on the removal of all restrictions — the *free trade* solution. This solution would consist in establishing — if need be gradually — complete freedom in international trade and in economic relations within individual States. It is clear, and indeed is generally admitted, that everything which impedes the freedom of production and exchange results immediately or in the near future in a diminution of the general wealth. There is no need to lay stress here on the impediments to the supply of raw materials and foodstuffs which result from export restrictions, from the subjection of exports to special duties and State licences, either in the country of origin or in the country of destination, and from the existence of monopolies which restrict output for the purpose of raising prices.

Compared with the *State* solution, examined above, the *free trade* solution would have this advantage — that it would not imply a right of common ownership by all the nations of the world's raw materials and foodstuffs, but, in accordance with a principle frequently applied in many ways in public and private law, would tend merely to prevent the States in whose territory these materials are produced from abusing their power to the detriment of others. From this point of view, therefore, the *free trade* solution might encounter minor difficulties. It certainly cannot be denied that any limitation placed upon a State in respect of the choice of its economic policy would constitute, at bottom, a restriction on the exercise of its sovereignty. But, as has already been pointed out, economic evolution is tending towards a growing limitation in the exercise of State sovereignty, a limitation voluntarily assumed by the States themselves, precisely by virtue of their sovereign powers, in order to render possible, to their mutual advantage, a closer economic collaboration between the States.

It was the acknowledged utility of the principle of exchange between various political entities which originally brought about the recognition of the right of foreigners to protection, and which, in course of time, led to the framing, elaboration and establishment of a whole series of international conventions concerning property, exchange and transport, and which in recent years has consecrated the principle of the open door. The principle of the "liberal" system of no restrictions would, in fact, do no more than really open the frontiers which, though accessible in the

material sense, are virtually closed when obstructed by Customs barriers. The increasing economic interdependence between States was made clear by the ordeal of the war and the difficulties of the post-war period, and might well justify an eventual regulation of the exercise of sovereignty by States.

The limitation of the exercise of sovereignty would be minimised, and would be more readily acceptable, if no endeavour were made to impose on the States the full programme of unrestricted trade, and it were merely attempted to prevent them from imposing prohibitions and duties on exports and establishing or encouraging monopolies, as it is these measures which appear to offer the most serious impediments to the distribution of raw materials and foodstuffs.

This is the course which the Provisional Economic and Financial Committee apparently intends to pursue, as appears from the fact that the first of the questionnaires which it has sent out is concerned with the collection of information regarding the extent and forms of restrictions on imports and exports, and the extent and forms of monopolies — for the purpose, presumably, of placing limits upon them.

Yet, when the problem is examined as a practical issue, it soon becomes clear that an opinion on these measures cannot be given without a general examination of the commercial policy which any given State pursues or with which it is confronted, and the reactions on its commerce of the internal policy of other States. To take an actual example: if a nation finds unexpectedly that, as a result of prohibitions or restrictions, however legitimate, on the consumption of alcohol in other States, certain foreign markets are closed to the produce of its vineyards, and that almost the whole of its agricultural economic system, painfully built up by centuries of labour, is jeopardised, how can such a nation be denied the right of compensating itself in some way for the enormous losses thus sustained by means of export duties on the raw materials which the other States require ? What has been said regarding the effects produced by the prohibition of alcohol applies equally to cases where high import duties have been introduced which cause similar obstructions to the flow of exports from exporting countries, which have organised their economic system for the purposes of this trade. These observations show the uselessness of expecting to solve the problem of commercial restrictions and monopolies if these are considered as isolated factors; and they show that a solution must be sought in a broader consideration of the whole economic policy of the States, both in regard to their internal regime and to international relationships.

It will easily be understood that it is impossible to find a complete solution of the problem as, under present conditions, there is no ground for hoping that States will consent to base their own legislation in matters of internal policy on the interests not of their own subjects, but of foreigners, even if such a course appeared advantageous from the point of view of world economy. Moreover, in many cases, as in the case mentioned above of the prohibition or restriction of alcohol, a policy may be designed, not to protect the material interests of the citizens, but to safeguard their health and public morals, and it may be injurious not only to foreign but also to home industries. It may also be observed that to admit that interests, which have once been established, become acquired rights precluding any change in the existing situation, would bar the way to all progress. All this may be true, but it does not alter the fact that such measures, even though inspired by the best intentions, may inflict damage upon the economic system of foreign States, and naturally drive the latter into adopting counter-measures of defence and retaliation.

We therefore come to the conclusion that the existence of independent States which are, however, economically interdependent leads to certain conflicts of interests which it is at times beyond human wisdom to avoid. But this is no reason why investigation should not be made to ascertain whether other conflicts are avoidable, even if only a partial solution of the problem is thereby attained.

It is, at any rate, certain that States are much more inclined to submit their own economic policy in regard to international trade than they are to submit their own internal policy to a general adjustment of international commerce on the lines of free trade, either because in the former field the interests of foreigners are more

direct and obvious, or because reprisals on the part of foreign States appear in this field more justifiable, or because precedents — even if only imperfect ones — for such adjustments have been established in commercial treaties already existing between various States, or, finally, because States are prepared for the policy of freedom in international trade by the doctrines of a whole scientific school of thought, which has at times, over long periods, provided the guiding principle in the Customs legislation of whole nations. The fact that measures of defence or retaliation may become inevitable, in cases of the character referred to above, does not exclude the possibility of a solution on general lines.

We are thus led back to the *free trade* solution in its full significance, and it must be examined in relation to the sentiments and tendencies of the nations at the present time.

Before the war the free trade theory was, except in England, almost exclusively confined to students; since the war it has attracted wide adherence, after discovery of the dangers inherent in an exaggerated State control, and it is now regarded with favour among business men, producers and statesmen. In the new States especially, where the Customs system is not bound by traditional elements or influenced by bitternesses arising from fiscal struggles, even the most influential statesmen now express themselves in favour of the adoption of free trade, at least between the States of Europe, for the purpose of resisting American competition.

This is because the ordeals of the war and the post-war period, as has already been pointed out, have clearly shown how close is the economic interdependence between the various States. On a larger scale, this war has had, from this point of view, a similar effect to that produced, according to certain authorities, on England by the Napoleonic wars, during which, for the first time, adequate account was taken of the economic interdependence which binds together the various classes of society. At that time, as now, it was only the weight of facts which brought home the change in the situation. Indeed, since 1870, the date of the last great European war, until to-day, the economic bonds between the various States have become closed and stronger in a thousand different ways. At that time international economic relations were by no means non-existent, or negligible, but they had not attained such importance as to deprive individual States of the position of independent economic entities. But at the present time States, at any rate as constituted in Europe, are no longer self-supporting economic entities; and thence arises the prevailing tendency to form larger economic units. This is not a new tendency. It is nothing but the latest manifestation of a tendency which has existed during the whole period of the economic evolution of society, and which has caused the political unit to change from the family to the tribe, and thence successively to the city, the principality and finally to the State in its present form. As is always the case, the organisation constituting a political entity at any given moment forms an obstacle in the transition to the next and vaster organisation, inasmuch as the ideals which crystallised efforts for the achievement of the first stage are opposed to the ideals which herald the second. Thus to-day, language, which has been the most potent instrument in the attainment of "State unity," constitutes a powerful obstacle in the transition from this to "super-State unity." The tendency towards a wider political organisation of the present European States certainly dominated, more or less consciously, the entire policy of the pre-war period. The war itself, it may be said, was a vain attempt by the Central Empires to put this tendency into practice and to pass from the State organisation to a vaster organisation by means of an imperialist policy. In the League of Nations we are witnessing an attempt in another direction to solve the same problem with, we trust, greater chances of success.

Nevertheless, although these tendencies assert themselves widely and authoritatively, the impartial observer is disconcerted when he observes that the commercial policy of States does not in point of fact correspond to these tendencies, but seems even to be advancing in a contrary direction. Indeed, a distinctly protectionist tendency prevails, in almost all States since the war. Very few, if any of the States, have completely refrained in the post-war period from prohibitions of imports and exports, on a vast scale, or the subjection of articles of various kinds to special

licences, which if it does not prevent trade in these articles at any rate greatly hampers it, or the reservation of certain quantities for home consumption, differential prices, the general increase of all import duties, the abandonment of the most-favoured nation clause, and the introduction of export duties.

It must be realised that the causes of these measures are largely temporary. They are the result primarily of unavoidable financial necessities. Changes in incomes and fortunes which have taken place during and after the war, the fluctuations in the level of prices, and, in many newly-constituted countries, the deficiencies of the administrative machinery, have made it impossible for the financial administrations to adapt the bases of taxation to changed resources. To make good the growing deficit in the budget, the Exchequer had to draw upon the available, rather than the expedient sources; and Customs revenues which are easy to collect and a sure source of revenue constituted an obvious channel of supply. Certainly, no one would be prepared to blame Poland if, in her present financial straits, she maintains an *ad valorem* export duty of 10 % on petroleum. On the other hand, Customs barriers constitute a weapon of war; they are put up in anticipation of negotiations for new commercial treaties in order to obtain better conditions from foreign countries; and the States would certainly be prepared to lower these barriers on reciprocal terms secured by new agreements. Sometimes, as we have already pointed out, export duties and increased import duties form an excusable means of retaliation on the part of States which find that a vital blow has been struck at their national economy by the internal measures of other States, such as the prohibition of alcohol, which was inspired by the increased care for public health developed during the war. Reasons of health are responsible for prohibitions of imports from States where infectious diseases of animals are raging. A whole series of prohibitions on the importation of articles of luxury have resulted, as is well known, from efforts to improve the exchange in States where it was particularly unfavourable. But, on the other hand, it is perfectly natural that States which have specialised in the production of articles of luxury should, in their turn, endeavour with greater or less success to compensate themselves by means of Customs reprisals for the loss suffered by their national economy as a result of such prohibitions. Prohibition of the export of foodstuffs — at any rate as long as provision for the home market is not assured — which is a measure generally adopted by States whose exchange is unfavourable, is justified by the fear that the exports may reach such proportions as to cause a shortage for the home population. Such a policy cannot be explained solely by the tendency to favour the working classes, which dominates the political parties who have established themselves in power in the post-war period, but it has also its root in the disequilibrium of the rates of exchange which, as I shall shortly explain, causes a difference in the cost of living amongst the various States and, at least for the time being, makes profitable the exports of foodstuffs and other indigenous merchandise from the countries with a lower rate of exchange to those with a relatively better exchange. Moreover, countries with a high rate of exchange, whose home trade is menaced by an influx of goods from countries with an unfavourable rate of exchange, which are offered for sale at low prices as compared with the cost of home production, have recourse to the protection afforded by increased import duties. Sometimes, as has been the case in Czecho-Slovakia, a rapid improvement of the exchange makes it advisable and indeed almost imperative to prohibit the importation of certain goods in order to allow the liquidation, without undue loss, of the stocks which have been acquired under a State guarantee, at a time when the exchange was more unfavourable and the price in the national currency was therefore much higher. In other cases, a scarcity in a neighbouring State makes it advisable to erect an export barrier for foodstuffs by means of zones in which unrestricted trade is excluded, as has been done by Lithuania on the borders of Russia. To these causes must also be added ignorance of economic machinery on the part of many of the politicians who have been brought into power, without sufficient training, by the creation of new States and the predominance of less education political parties.

But all these conditions are gradually improving, and such improvement would give rise to the hope that the ideal of unrestricted trade, which is desired by such

a large part of the educated classes, will be attained in the near future, if a more general and far-reaching difficulty did not place obstacles in the way of its realisation.

This difficulty arises from the fact that the war and the post-war period have not merely proved the existence of an economic interdependence between the States, the bearing of which was not formerly realised to its full extent, but have also shown the danger and harmfulness of such a state of affairs, so long as the present political organisation endures.

Indeed, economic interdependence presupposes and accentuates a certain professional specialization by means of which the best-endowed nations devote themselves to the activities which are most remunerative, and which, as a rule, are also the most important from a social point of view, while the less profitable activities are relegated to the other nations, which are already poorer, and tend to become more so, as compared with the first. It is certain that from this differentiation both derive, as a rule, an advantage so long as the economic connections are neither broken nor weakened. But when they do break or weaken it is the poorer nations which suffer most. This economic interdependence practically resolves itself into a dependence of the poorer nations on the richer ones. In case of war or of an economic crisis, therefore, the prosperity and indeed the very existence of the poorer nations may be imperilled. This is the basis of the nationalist policy which, by means of a relative economic isolation, prefers to assure to the nation, even at a certain sacrifice of its prosperity, a lesser economic dependence and a smaller risk in case of a war or a crisis. The war through which we have just passed and the post-war crisis have thrown these difficulties of economic interdependence into relief, particularly as regards the economically weaker nations, and the general return to a protectionist policy is thus explained. Thus launched on a commercial policy whose course was dictated exclusively by their own interests, the States attempted to exploit the advantages of their situation in every possible manner even by action obviously harmful to the economic welfare of other States; hence the differential prices for coal exported from England, and the export duties on grain and wool from the Argentine, which elicited protests, in the name of the equitable treatment of commerce promised in the Covenant of the League of Nations, from the States whose interests were thereby damaged.

The careful observer will, however, realise that the above-mentioned difficulties are caused by the economic interdependence of the nations only in so far as such interdependence is not accompanied by a political interdependence voluntarily assumed and recognised. The close economic interdependence which exists between the different regions of one State does not give rise to any of these difficulties, if these regions willingly accept union in the common State; it is only when the various regions are united by force — as was the case in the former Austro-Hungarian Empire, or when between the interdependent economic units there is no permanent bond of union, as was the case before the war between the States of Europe — that economic interdependence may give rise to the perils indicated above.

Hence, we come to the conclusion that the application of the "free trade" policy which is theoretically desired by so many people would be practically advisable only if a super-State organisation could guarantee the continuity of this policy even through a period of economic crisis, and if it could also exclude the possibility of wars which would bring it necessarily to an end.

Even the most optimistic recognise, I think, that such a task would be beyond the present strength of the League of Nations. But without claiming to carry into effect the whole of such a programme, could not the League of Nations take some steps in this direction ? In my view, the answer should be in the affirmative.

(*a*) The first step in my view should be in the direction of encouraging, supporting or upholding the formation of *Customs Unions*, on a more or less important scale, *among groups of States*. It is true, generally speaking, that we cannot exclude the possibility of wars and fiscal conflicts, but it is also undeniable that there are States whose economic interests are not antagonistic but rather complementary, and whose political interests are in agreement so that the possibility of war between them can be reasonably excluded.

The conclusion of a Customs Union between such States appears to be quite natural; such a union would reinforce by co-operation the economic strength of each nation, would reciprocally make good their deficiencies, and would contribute to the diminution of the difficulty which some of them experience in securing supplies of raw materials and foodstuffs.

The proposal presents the minimum of difficulty in the case of new States which are not hampered by fiscal traditions. As regards the Baltic States, I submitted it first to the Latvian Minister in Rome and then to other political personages in these countries, and it was received with great enthusiasm. It was found, moreover, to correspond so closely to the needs of the moment, that, on the very day of my arrival at Riga, a meeting of the competent ministers of Esthonia, Latvia and Lithuania arrived at agreements for a Customs Union and for conventions on transit and fiscal regulations. This meeting, which was held in the first half of July, was followed by a second meeting at Reval towards the end of July at which Esthonia and Latvia agreed to abolish their Customs frontier. Lithuania made, for the time being, certain reserves. A Transit Convention between the States came provisionally into force.

A third meeting is being held at Riga at the time of writing (September 20th). Its agenda includes the unification of Customs tariffs, of laws on taxation and on monopolies, as well as an agreement for the development of the trade in timber and flax. Finland is a sympathetic onlooker at this conference, without, however, binding herself for the time being. Many people favour the idea of extending such a union to the bordering States of Finland and Poland.

A similar idea could certainly be considered by other groups of States. Influential people in Portugal speak very favourably of an Iberian or Italo-Iberian Customs Union. Similar unions would be more difficult to establish between the Balkan States or between the Austrian Succession States where serious political rancour still exists.

There are undeniable difficulties in the case of older States where industry and agriculture are already adapted to Customs regulations which would have to be thoroughly modified. In such cases, the Customs Union could only be arrived at by gradual stages, either by establishing now a future programme of the changes to be made and reduction of duties involved, or by resting content for the present with commercial treaties of a closer and more liberal character. We cannot, however, disguise the fact that, in order to relieve the present crisis and other crises which may occur in the future, some sacrifices must be made by the nations which have difficulty in obtaining raw materials and foodstuffs or, alternatively, in finding markets for them. But those who are unwilling to make concessions to international solidarity must be ready for a bitter struggle; if they adopt this attitude, they must be prepared to submit to the consequences without complaint.

It may be objected that the constitution of these partial Customs Unions, which will probably be followed by closer political unions, appears contrary to the ideal of the League of Nations, which aims at uniting all the States on the same footing in one large family of nations. But it is questionable whether this ideal is not still too ambitious in present political conditions, and whether it is not this excessive ambition which is the cause of certain difficulties which have been encountered by the League of Nations. Undoubtedly, the difficulty which the League experiences in uniting a number of States with divergent tendencies and interests in a common point of view would be diminished if these States could join together in various groups, among which it would obviously be easier to establish an agreement. In the same way, in parliamentary procedure progress is made when the political representatives are grouped in clearly defined parties. We must not forget the old proverb, *natura non facit saltus*, and we must consider whether the transition from the pre-war social organisation, with completely independent States, to a world organisation, of which the League of Nations represents the first attempt, would not be facilitated by intermediate organisations composed of groups of States which would form links between the one type of organisation and the other. There is no obstacle in the text of the Covenant. On the contrary, Article 21 shows that

such a form of transition is entirely in the spirit of the Covenant. The Article states that international agreements, such as arbitration treaties, and regional agreements, such as the Monroe Doctrine, which ensure the maintenance of peace, are not considered as incompatible with any of the conditions of the Covenant.

A difficulty which is not the less serious for not being readily apparent results from the disequilibrium of the exchange. At the present moment, in fact, when the foreign values of the currencies of the neighbouring States, such as Spain and Portugal, are very unequal, there is — as noted above — a strong tendency, on account of the difference in prices, for the supplies of foodstuffs and other goods to flow from the country with the depreciated exchange into the country where the exchange is better. This tendency is often so strong that even high Customs barriers instituted to check it prove insufficient for the purpose and the goods are smuggled across the frontier. An instance of this is the smuggling of live-stock from Portugal to Spain, along a frontier which, crossing a plain, can only be supervised with great difficulty. It will readily be understood that a Customs Union, unless accompanied by a money convention, would greatly increase this difficulty. This, in my opinion, is the very danger which mainly threatens the Customs Unions in the Baltic States. The Baltic States have quite understood the necessity for going as far as a Customs Union, and conventions on transit, monopolies, and duties, but, though they have discussed the question, it seems that they have not yet agreed on the necessity of going so far as a monetary union. Even before the union has been put in practice the Lithuanian industrials already complain, within my personal knowledge, of the competition with which they are threatened in their own country from the imports from Latvia, where money is much more depreciated and where, in consequence, the level of real prices and the real cost of labour are lower. This would seem to be the origin of the reservations made by Lithuania on the subject of the abolition of the Customs frontiers.

(*b*) One of the consequences of the economic interdependence among States which has become more and more extensive is that commercial treaties and conventions concluded between two States now concern not only the economic organisations of the contracting States, but also, and often to a vital degree, the economic systems of other States. Hence the idea that in the negotiations for commercial treaties between two States it might be possible to achieve in some way the representation of the interests of third parties. The League of Nations would be obviously the best qualified organisation for such representation, and there should be no difficulty in securing acceptance for this principle if the States were convinced of the perfect impartiality of the League of Nations, a proof of which the League is now called upon to provide in regard to the question of raw materials which we are now considering.

(*c*) Action tending in a general way to prohibit export duties or other fiscal measures which have particularly prejudicial effects on other States, cannot, in my opinion, be advocated for the reasons explained above. As already stated, there are circumstances in which such duties may be justified by measures of internal policy of other States which are outside the control of the State in question. In other cases, export duties are not only justified but rendered necessary by disparity in the exchanges. Distinctions must here be clearly drawn between different cases. There are cases where it may appear that the export duties or differential prices are not essential to the State which applies them but are only a means of more lucrative exploitation of a privileged situation. It is on that account that the differential prices maintained by England in the case of coal and the export duties imposed by the Argentine on grain and wool had been criticised. In such circumstances, there would be a good case for intervention by the League of Nations on the demand of the States which are hit by such measures. Such intervention might well prove of real service either by conducing to the suppression of the duties, if their harmful character be proved, or at any rate by eliciting exhaustive explanation from the States which would be placed, as it were, at the bar.

It has also been observed and, in my view, with justice, that there are two different classes of raw material which must be differently considered. Raw

materials of the first class, such as wool and cotton, are continually being renewed, with the assistance of man; the other class of raw materials, however, such as coal, iron, and petroleum, constitute reserves supplied by nature without effort on the part of the nation which possesses them and cannot be reproduced. It is above all in respect of this second class of raw materials that there may exist a demand that the interests of other nations and of posterity should be taken into consideration and that international regulations for their development should be established.

It may be that intervention might also be opportune with regard to the special duties on imports from countries with depreciated exchange which, in various forms, have been approved or proposed in Canada, Spain, United States and England. These special duties are designed to relieve the marketing crisis from which such States are suffering and — unless they infringe upon special conventions — they may be justified as a means of defence to which nations resort only too naturally, even though they redound inevitably to the prejudice of other nations. But it is nevertheless questionable whether in the final event such duties will result in any real profit to the States with high exchange which intend to impose them, and whether they would not rather prove damaging to themselves. For, in practice, they delay the re-establishment of a normal level of exchange in the countries with depreciated currency, and actually accentuate such depreciation, or at least retard recovery; in this way, they tend to aggravate and prolong the disequilibrium of the exchange and the difficulty experienced by the poorer States in securing supplies, phenomena which constitute, as explained above, the causes of the marketing risis in the richer States.

The same comment may be made on the subject of export duties, particularly when they are imposed by wealthy States on products imported by poor States. The duties, which will raise the price of these products, will have the inevitable effect of reducing the quantity exported. It is true that the products in question are often food-stuffs or raw materials which are indispensable for the existence of the population or the industry of the importing States, and these will make every effort not to reduce consumption to any appreciable extent. It is upon that very point that the exporting States count ! But in any case, as a result of the heavier expenses incurred for the importation of these products, the consuming States will be obliged to reduce their imports of other products derived either from those States which imposed the duties, or from other States. In the second case these latter States will be obliged, on account of the tendency to establish a balance between imports and exports, to reduce their imports from the States which have imposed the duties. The latter, in any case, will not be able to escape from the harmful consequence of their own action. If the export duties are very high, however, if their application is unduly prolonged, or if economic conditions in the importing States are precarious, another harmful consequence will arise — a much more serious consequence. The production of the importing States will be diminished; their purchasing power will continually decrease, and they will be obliged to reduce their imports more and more. They will, in addition, be obliged to have recourse to the issue of paper money on a large scale, and will thus disturb the international exchanges, and bring about, or at least hasten and aggravate, crises in the markets. This is indeed what has recently happened. As we pointed out at the very beginning of this report, the present crisis would have been much less acute if, during the economic period in question, the richer States had followed a less egoistic economic policy. (See page 18.)

(*d*) The question of monopolies is of special interest to the present inquiry in view of its origin and the particular attention which has been paid to it by the resolution of the Council of the League of Nations. The replies to the questionnaire sent out on this subject, supplemented by information derived from other sources, prove that there are States where no legislative provisions exist for control in this field. In Germany, in particular, not only are monopolies not prohibited, but the validity of engagements entered into with a view to the establishment of monopoly is legally recognised. There are, however, other States which, particularly during

the war, have taken legislative steps with a view to preventing the artificial increase in prices, and the cornering of stocks; and there are also some States which have really attempted to prevent the constitution of monopolies.

The measures taken during the war might certainly be applied to checking or restraining the constitution of monopolies, but those measures were designed rather to prevent the cornering to which the continued increase in prices gave rise and the excessive divergence between the buying and selling prices of middlemen — to whom the public mainly attributed the blame for the increased cost of commodities — rather than to prevent monopolies, in the sense of the producers' unions sufficiently powerful to secure the control of production and of prices. The conditions of the market during the war were such that the producers had no interest in voluntarily limiting production, because they could all rely upon exceptional profits owing to the ever-increasing prices. Production was, naturally, so inferior to the demand that all the producers were already enjoying the advantages assured them by monopolies without the necessity of artificially restricting the quantities placed on the market.

In Europe, moreover, before the war, even where legislation against monopolies existed, it was not enforced except in Austria, where certain attempts were made in this direction.

But the situation is quite different in the United States of America, where measures against monopolies figured in the original constitutions. The great majority of the individual States, as well as the federal Government, have successively passed a series of laws with a view to limiting, preventing or dissolving monopolistic combinations, and the struggle against trusts has been for many years an invariable plank in the platforms of all political parties at elections.

But, in spite of energetic legislation and the support of public opinion, it can certainly not be said that monopolies have disappeared or have become weakened. The United States of America still remains the classic country of pools, trusts and similar combinations. The application of the laws, it seems, has forced the combines to assume new forms, but it has not destroyed them. It is obvious, indeed, that it is a matter of extreme difficulty to enforce separate action upon producers who have agreed to work together for a common control of the production and the sale of commodities. For this reason, many students have been led to the conclusion — and, in my view, the right conclusion — that monopolistic combinations represent a result of the natural evolution of industrial concentration which cannot be stopped by the State but can only be controlled and directed with a view to restricting their harmful effects.

It has often been suggested to this intent that the details of the management of monopolistic combinations should be published; but it is obvious that such a measure does not in itself constitute any control, but is merely a condition for rendering control effective.

In order to decide how control should be exercised, it is before all necessary to be quite clear as to what harmful effects are attributable to monopolies; these arise from the fact that groups of producers and sellers generally tend to restrict production or at least to impede the market in order to realise higher prices and consequently greater profits.

A means of combating this result, in the case of combines already established, would be to prevent them from restricting production. But it will be recognised that there is a difficulty in principle in determining the amount of production which a combine ought to achieve.

Another method, employed during the war and in the post-war period, with a view to preventing or combating excessive profits, was the control of prices; but this has been proved, at least in the conditions of the post-war period, to involve disadvantages which largely counterbalance any beneficial results that may be expected.

A way of preventing the excessive advantages which syndicates derive from the excess profits of monopoly would be to force them to establish an evaluation of their capital holdings and to confiscate entirely or in part such profits

as may be considered, in relation to the capital, to exceed a normal rate of interest. But it is quite clear that such evaluation is very difficult and, on the other hand, that the syndicates can easily increase artificially the evaluation of their holdings and in this way evade the intentions of the law.

It should also be possible to consider a scheme for compulsory participation by the State in the share capital and in the management of syndicates so that the State would thus acquire a means of supervising their activities. But anyone with experience in practical affairs will realise that a loose supervision would not achieve its result and a too close supervision would merely impede the development of economic life with harmful effects, which would probably outweigh the advantages which it is desired to achieve.

An effective measure would be to prevent individuals or groups from possessing more than a certain percentage of the shares of any company, but this measure, apart from difficulties of control, implies the registration of all shares in the names of their holders.

In America, the Courts dissolve combines which are proved to be exercising harmful effects on the national economy and impose fines upon them; the combines reconstitute themselves, however, in new forms. The action of the Courts has certainly had the effect of weakening the predatory system of trade warfare of the big trusts, but it must be admitted that it has not achieved results proportionate to the efforts made.

There seems little reason to expect that any action on the part of the League of Nations designed to prevent the constitution and operation of producing and distributing combines will meet with any greater success than that achieved by the individual Governments.

In point of fact, however, it is not against the existence of such syndicates that certain nations are protesting: on the one hand, their existence would seem to be inevitable; on the other hand, their control is a domestic problem for each State. The protests arise rather against the national character which certain combinations dealing with raw materials of international interest tend to assume, not, as is often alleged (and in some cases with undoubted justice), as a result of the natural pressure of competition, but by means of privileges which the States reserve for their own nationals and sometimes for citizens of friendly nations, when indeed it is not the State itself which exercises the monopoly.

Such a situation offers a double disadvantage, in that, on the one hand, the exclusive concessions for the operation of certain industries — in accordance with principles which are not dictated by economic considerations — tend to diminish the yield of these industries, and, on the other hand, the concentration in the hands of a few nations, usually the most wealthy nations, of the advantages of monopolies, increases still further the disequilibrium, which is already too marked, between the economic prosperity of the various States. It is this disequilibrium which constitutes, as shown above, the fundamental cause of the present crisis; and it is for this reason that protests have been raised against the British Government's control of wool and the Anglo-French agreements regarding oil concessions.

It should certainly be possible to overcome these difficulties. It might, for example, be agreed, in practice, to establish the principle that sales of commodities and concessions for industrial enterprises should go — on a strictly commercial basis — to the highest bidder, independently of his nationality; and again, when such enterprises are constituted into joint stock companies, special provisions might be made in regard to subscriptions to the capital and the sale of the shares, with a view to preventing the representatives of any single nation acquiring a monopoly. The methods of applying these principles should, of course, be the object of profound study by experts.

In this sense, action by the League of Nations would undoubtedly be in harmony with the general feeling of justice, as well as of the special aims and duties of the League. Such action might have the beneficial result of dispelling doubt and suspicion, even if, while succeeding in its aim of re-establishing the equal rights of all

nations in the exploitation of new concessions, it failed to free certain industries from the control exercised by the most economically powerful States. The prospecting, extraction and transport of oil, for example, involve very considerable risks and very special technical installations. This means that enormous capital is required which only particularly rich nations can furnish. But it is just and opportune that these nations should not, in addition to these natural and inevitable advantages, enjoy the added advantage of special favour from the Governments.

3. Possible action in respect of emigration.

Closely connected with the question of the restrictions imposed on trade in raw materials and foodstuffs is the question of the restrictions imposed on immigration.

All wars cause modifications in the territorial distribution of wealth, which are generally far greater than the modifications which result from the same causes in the distribution of the population. The population of the belligerent countries, as compared with that of neutral countries, suffers as a result of the mortality among the soldiers, the increased mortality among the civilian population and the reduction of the birth-rate; but the wealth of the belligerent countries as a rule, and in particular the wealth of the defeated countries, suffers a yet more marked diminution; hence the phenomenon, visible after every war, of an unusual stream of immigration from the belligerent countries to neutral countries,which is encouraged by a number of circumstances of a psychological and social character, which tend to weaken the bonds uniting the populations, of the countries which have just emerged from war, to their native lands. If, among the belligerents, there are any which entered the war at a later stage, or which, by reason of their economic constitution, have far great powers of resistance, or which, owing to other favourable circumstances, have suffered less or profited more from the war, they are in the same position, as far as emigration in the post-war period is concerned, as neutral countries. What occurs, in fact, is a natural and healthy process of readjustment by means of emigration, there being a tendency to leave impoverished countries for countries which have become enriched during the war, or which are at any rate less impoverished. At present, the changes in the distribution of wealth, as a result of the last war, have assumed, as is well known, an enormous importance. But the process of readjustment, which would naturally have followed, has been impeded by the prohibitionist policy adopted in regard to immigration by certain neutral States, and by some of the belligerents, who emerged from the war with greater economic prosperity. Undoubtedly, such impediments to natural readjustment have prevented, and still prevent, the world's return to normal economic conditions, no less than many other provisions against which much greater conplaints are raised by the nations who suffer prejudice. Action on the part of the League of Nations in this field would only be too well justified; its practical result would naturally depend upon the attitude towards the League of Nations adopted by those States which, from the point of view of immigration, are of the greatest importance.

4. Special position of mandated territories with regard to freedom of commerce.

Some of the forms of action outlined above for securing freedom of trade and emigration may meet with objection on the ground that they might, in a greater or less degree, infringe upon the sovereign rights of States. As we have already pointed out, this objection cannot be justified, as the measures proposed would have to be accepted by the States themselves, precisely by virtue of their sovereign powers. It is important, moreover, to remember that this objection could not arise in regard to the mandated territories. The absolute equality of the various States Members of the League of Nations in exchange and commercial relations is guaranteed by special provisions in the Covenant; and the League of Nations has only to carry them out.

Article 22 of the Covenant distinguishes three categories of Mandates. These are as follows:

(*a*) Countries formerly belonging to the Turkish Empire,
(*b*) Certain countries of Central Africa,
(*c*) Certain territories of South-West Africa and the South Pacific Islands.

As regards the second class of Mandates, Article 22 states explicitly that the Mandatory "must be responsible for the administration of the territory under conditions which will guarantee freedom of conscience or religion, subject only to the maintenance of public order and morals, the prohibition of abuses such as the slave trade, the arms traffic and the liquor traffic, and the prevention of the establishment of fortifications or military and naval bases and of military training of the natives for other than police purposes and the defence of territory, *and will also secure equal opportunities for the trade and commerce of other Members of the League.*"

It must not be assumed from this explicit declaration that, as regards the other types of Mandate, the Mandatories are exempt from such conditions because no specific declaration has been made concerning these Mandates. In point of fact, the whole of Article 22 is governed by the preamble, which states that "the well-being and development of such peoples form a sacred trust of civilisation and that securities for the performance of this trust should be embodied in this Covenant." It would, indeed, be falling short of this solemn undertaking if we permitted the Mandatory to exploit for his own advantage the natural resources of the countries entrusted to his care by precluding them from the beneficent and stimulating influence of free trade. The words quoted above specify the obligations of the Mandatory in the case of "B" Mandates, but do not imply any contrast with the obligations of the Mandatory with regard to the other categories of Mandates.

It is true that, as regards the last category of Mandates, attempts have been made to draw different conclusions from the text of Article 22, which says that the territories "can be best administered under the laws of the Mandatory as integral portions of its territory." But the Article continues with the words: "subject to the safeguards above mentioned in the interests of the indigenous population." This clearly refers to the guarantees enumerated for "B" Mandates which are quoted above, and there can be no doubt, in my view, that the clause relating to equality of exchange and commerce is intended to protect also — not exclusively — the interests of the indigenous population.

If this clause were suppressed, would not the whole substance of "C" Mandates be destroyed — everything which gives them a juridical value of their own? I venture to draw the Committee's attention to this clause, because it has a decisive influence on the conditions governing "C" Mandates, which are connected with our present enquiry; and as the Economic Committee is clearly the most qualified body to decide if the regime of equality in exchange and commerce is beneficial to the population to which it is applied, it seems to me that it would be very desirable to obtain their opinion on this point.

In view of this Article, it seems unnecessary to have recourse to other arguments based on the Articles of the Treaty of Versailles dealing with the German colonies. But as reference has been made to them in the Italian press, I think it may be advantageous to consider these Articles also.

With reference to the German colonies, Article 121 of the Treaty of Versailles lays down that "the provisions of Sections I and IV of Part X (Economic Clauses) of the present Treaty shall apply in the case of these territories whatever be the form of Government adopted for them." Sections I and IV of Part X of the Treaty contain provisions concerning Germany's obligations to her territories, obligations imposed upon Germany in the interests of the Allied and Associated States; and the most plausible interpretation, we are told, of Article 121 is that it was designed in the interests of the Allied and Associated States to extend these same obligations to the Mandatories administering the former German colonies.

In Section I of Article 265 we read:

"Germany further undertakes that, in the matter of the regime applicable on importation, no discrimination against the commerce of any of the Allied and Associated States as compared with any other of the said States or any other foreign country shall be made, even by indirect means, such as customs regulations or procedure, methods of verification or analysis, conditions of payment of duties, tariff classification or interpretation or the operation of monopolies."

According to this interpretation, in the German colonies and, therefore, in the territories placed under "C" Mandates which form a part of them, the Allied and Associated Powers should enjoy the most complete equality in trade and industrial concessions, not only on the basis of Article 22 of the Covenant, but also in accordance with the Treaty of Versailles.

There is still less doubt in regard to "A" Mandates.

There is nothing in the terms of Article 22 which could offer a pretext for a limitation of the obligations of the Mandatory imposed by the preamble quoted above, and consequently of the equality between the various States in regard to commercial relations in these regions. It should be noted in this connection that the three categories of Mandates, "A," "B" and "C," constitute a progressive scale, in which, passing from the first to the last, ever-increasing powers are given to the Mandatory. If, therefore, in category "B" the Mandatory is explicitly bound to guarantee to the other States Members of the League equal opportunities for their exchange and commerce, the Mandatory with an "A" Mandate is even less able to reserve any privileges for himself in this respect. This principle has been recognised in the Mandate schemes of the "A" type drawn up by France and England, and published by the press. Direct action, however, on the part of the League of Nations would certainly be desirable in order to make certain that the stipulations regarding commercial equality should not remain purely platonic declarations. The discussions to which the present regime of oil concessions in Mesopotamia have given rise are too well known for such questions to be ignored.

5. Possible action in respect of transport.

Measures relating to transport are connected, on the one hand, with the problem of the distribution of raw materials and foodstuffs, since the inadequacy of the former may become a danger to the latter, and they are connected on the other hand, with the problem of production, since the reconstruction of some regions, and the increasing value of others, may be dependent on the development of an adequate system of communications.

There is no reason to complain of lack of maritime transport. There is indeed, at the present moment, a crisis due to its superabundance which may be attributed, at least in part, to the crisis in foreign markets and the consequent diminution in trade.

But there is, on the other hand, a serious deficiency in land transport. A crisis of this kind occurs indeed after every war, as, in every war, means of transport either deteriorate or are destroyed. The inhabitants of Western Europe — where there is practically no such crisis — perhaps scarcely realise the intensity of this crisis in the Eastern States (the Baltic States, Hungary and, above all, the Balkan States and Russia).

In these countries, the distribution of raw materials and foodstuffs, and also general reconstruction, are hampered chiefly by the disorganised state of the transport system. And since, as we have seen, the present crisis in foreign trade is largely due to the lack of production in these States, this crisis may be said to be partly the result of a transport crisis. Even Russia at the present time, according to information obtained in Poland, would be in a position to contribute to international trade to a considerable extent, in spite of her notorious state of disorganisation, if she had means of transport at her disposal. Indeed, a brisk trade is being

carried on even now on the frontier between Poland and the Ukraine, the peasants bringing grain, which is produced in abundance in that part of the country, and receiving in exchange principally petroleum and clothing.

The transport crisis is due to two very different circumstances.

It is due principally to the scarcity and bad condition of rolling-stock, particularly in Roumania, but also to a very considerable extent in the other Balkan States, and in certain of the Succession States of Austria. The scarcity is intensified by the unsatisfactory distribution of the rolling-stock itself; locomotives being greatly in excess of wagons in one State, while in another the former are scarce as compared with the latter. This condition is accentuated in some States — particularly in Roumania — by the lack of workshops, which are inadequate to carry out the necessary repairs to deteriorated railway material. Moreover, a large proportion of the tank-wagons required for the transport of petroleum from Galicia are in the other Succession States, which cannot make use of them.

The second cause of the crisis is the lack of international co-operation, and this in its turn is due to various circumstances.

Some of these are presumably of a temporary nature, as for instance the disputes regarding Upper Silesia and Vilna, which are holding up traffic between Poland and Germany and between Poland and Lithuania, as also the delay in arriving at an agreement concerning the distribution of rolling-stock belonging to the former Austro-Hungarian Empire.

In consequence of this state of affairs, one State will not risk allowing individual wagons, coaches and locomotives to enter another State, as it fears — and not groundlessly — that the latter will keep them till the settlement takes place. The Austrian Succession States are expecting that the Conference of Porto Rosa will provide a settlement of this vital question. In the meantime, the agreements already concluded by various States, such as Czecho-Slovakia, with the neighbouring States cannot, for the most part, be carried out. The conditions in which Russia is placed have had almost similar consequences. The Polish Government, which desires to stimulate trade with Russia and Roumania, thinks it necessary to send whole trains with Polish crews, as it considers that by this means the trains will certainly be brought back safely.

Apart from the temporary causes to which the crisis is due, there remains one of a more general nature to account for the disorganisation which extends over the whole of Europe; this is due to the lack of international agreements and organisations allowing the rolling-stock of one country to cross — in safety, and without formalities — the frontiers of other countries, thus effecting great gains both in speed and economy Before the war, international railway traffic was greatly facilitated by the Berne Convention, but there also existed an international association, with its headquarters in Germany, the usefulness of which was indisputable. Various circumstances appear to have hampered and to be still hampering, the resumption of co-operation of this kind — the lack of mutual confidence between the States which have just emerged from the war, and — according to one view — the opposing interests of national railway organisations which had been formed and developed during and after the war, and, finally, the fluctuations in the rate of exchange which complicates estimates and renders uncertain the extent of the financial burden which would be incurred by those who avail themselves of foreign rolling-stock.

In this field, it would be desirable if the League of Nations could with success take steps either to demand strict observance of the Treaty of Versailles by States which, in virtue of that Treaty, are bound to grant free transit to foreign goods, or above all to revive the organisations for the international use of rolling-stock, which were put an end to during the war.

The question of transport is not confined to Europe alone, but applies also to certain extra-European territories which, being particularly favoured by natural conditions, might contribute largely to the production of cereals and other foodstuffs and raw materials, if this produce could be transported by rail to the nearest ports. Such, for instance, is the position in Angola, the plateau of which, as we are

assured by Portuguese authorities, offers exceptionally favourable conditions for the cultivation of cereals. But it is doubtful whether, in this matter, the League of Nations could usefully take any action other than to call the attention of capitalists to the opportunities offered by enterprises of this kind.

6. Possible action in respect of the length of the working day.

Besides the reorganisation of transport, there are other steps which the League of Nations might take, with a view to helping to revive production — steps referring principally to labour legislation and credit.

Labour legislation is, as we know, the duty of the International Labour Office, which, on the initiative of the employers, has already instituted a far-reaching enquiry into the problems of production. The results, which will shortly be published, will undoubtedly arouse great interest. I do not know the precise nature of the relations which exist between the Provisional Economic and Financial Committee and the International Labour Office, and whether — owing to the division of duties between the two bodies — the Committee can avoid any discussion of a problem which is connected with the crisis in raw materials and foodstuffs. In any case, as an expert, I have not felt justified in avoiding this question.

Before the war, the length of the working day was fundamentally different in the Northern and the Southern countries. This was probably not entirely accidental, but rather the result of a natural adaptation to climatic conditions. We all know, indeed, from experience that, in a cold climate, intensive work may be done with more ease and pleasure, while in a warmer climate work is necessarily slower, so that in order to achieve a given result, it is preferable to take a longer time and to work with less intensity, rather than to take shorter time and work with a more concentrated effort. Physiological research on the subject of food and the output of the human machine, which during the war saw so great a development, gives a scientific explanation of this experience; the explanation is that the food which is best adapted to the living organism in northern countries is also more conducive to intensive work by this organism, while in warmer climates the diet that is more suited to good health is different and is less adapted to strenuous labour.

The reason that the adoption of the 8-hour working day is advocated, and that it finds such wide acceptance, is the desire to standardise the conditions of labour of the working classes, and to make them conform to the conditions which have proved to be most suitable for the countries of the north. It is in those countries that the researches have been carried out — for the most part favourable to a short working day — regarding the variations in output as compared with the length of the working hours. And the fact that the workers' organisations are more powerful in the North explains why the movement in this direction was first seen in these countries. But this by no means signifies that what has proved useful rather than harmful in these countries would be so equally in Southern countries; and this apart from any differences in the technical organisation of the industries, which, too, may be factors of importance. Indeed, the general impression gained from the results which I noted and of the information collected in the various States is that the adoption of the 8-hour working day had not greatly affected production in the Northern countries of Europe, but that, on the other hand, it was attended by considerable loss in the Southern countries (the Iberian, Italian and Balkan Peninsulas). It may be noted that, with the exception of Spain, these countries are among those whose economic conditions have been most adversely affected by the war. By thus decreasing the production of the economically weaker countries, and therefore also their purchasing power, the adoption of the 8-hour working day has certainly contributed, if the above impression is well founded, to the present crisis in the markets.

At the present moment, the question is not of practical importance, since, as a result of the crisis itself, the 8-hour day represents a limit which is attained in one or two States and only in very few industries. But the question will again become of practical interest when production is revived.

With this in view, it would be desirable that the enquiries into the influence of the various lengths of the working day should be resumed on a larger scale, and should be extended to the Southern countries; it should be carried out with all the care enjoined by science, and the various industries, mode of remuneration, the ages of the workers, seasons, and States, the different degrees of technical organisation and the various climates should be taken into consideration, and the conclusions should be based only on the most carefully weighed facts. Even if it were not possible, for political reasons, to apply the scientific results of such investigations, it would in any case be interesting to know what sacrifices have been imposed upon the economic systems of the different States by a standardisation of the working day. The Committee will be in a position to decide whether there is any need to institute an enquiry into this subject, or whether a statement of its desires should be submitted to the International Labour Office.

7. Possible action in respect of international credits.

It is treading on somewhat delicate ground to enter upon a discussion regarding the connection between the problem of the supply of raw materials and food and the question of international credits, since the latter has for some time past been under the consideration of a special Committee. This problem is, however, of such vital importance to the subject-matter of this report, and the information collected in the various States is, if I am not mistaken, of such interest, as to call for a discussion, however summary, of this question.

In this connection a distinction must be drawn between credits intended for the purchase of raw materials and those granted for the purchase of foodstuffs. The former, as a rule, foster production which will yield quick returns, while the latter are intended for feeding the population and, from the economic point of view, only show their utility at a more remote date. From this point of view credits for purchasing foodstuffs may be viewed in the same light as credits granted for clothing the population, for the renewal of railway material, agricultural machinery, or for the exploitation of water power.

With regard to credits for raw materials, a further distinction must be drawn between those intended for the industries which work for export and those which are designed to support the industries which work for home consumption.

Industries of the first category find no difficulty whatever in obtaining credit when they have orders for finished articles, and this holds good particularly in the case of countries whose exchange is depreciated. The unfavourable exchange which enormously increases the cost of raw materials in the interior of the country is in fact neutralised by the high prices obtained in the currency of the country by the sale abroad of finished products. The low cost of living and consequently of labour (low, that is, when reckoned in a sound currency), which goes hand in hand with the depreciation of money, obviously constitutes an advantage, since it lowers the cost of production reckoned in foreign currency. Even in Austria, the country to which the attention of the League of Nations has chiefly been directed for the organisation of international credits, the industries which work for the foreign market — and these by all accounts form the greatest part — find no difficulty in obtaining the necessary credit for the working of their business when they have secured a market for their products.

The conditions are very different where the industries working for home markets are concerned. In their case the difficulty in obtaining credit arises from the fact that, in the countries whose currency is depreciated, they work under unfavourable conditions on account of the low level of the prices as expressed in the terms of a sound currency. Where the cost of the raw material, compared with that of the finished article, is small, as in the case, for instance, of fertilisers as compared with agricultural produce, this fact cannot constitute a serious disadvantage, but where, on the other hand, a great part of the cost of the finished product is represented by the cost of the raw material, an industry may find it

very difficult to make a profit, since prices in the home market do not rise in proportion as the exchange falls, and as, in consequence, the price of raw materials rises. In Poland, for instance, as soon as the war was over, foreign capital began to enter the country, either in the form of loans or of investments, but, with the gradual fall of the exchange, the revenue from such investments decreased proportionately, and the return for these loans does not appear to be any safer. In Poland today only the important firms of unquestioned economic soundness can, at the present moment, obtain credit from abroad for the industries supplying the home market.

Industrial combines obviously find it easier to obtain credit than private industries, inasmuch as the former give sounder guarantees of solvency; but such industrial combines are less difficult to establish in small States than in large ones, either because an agreement is more easily reached between a small number of firms, or because in small States there are generally no great industries which need to have recourse to such measures; moreover, on account of competition, they are reluctant to link their fate with that of smaller industries which find it more difficult to pay their way. Thus it was possible to establish and to ensure the success of such combines in the Vilna territory, while it was not possible to do so in Poland.

In order to safeguard the creditor, a scheme was evolved, commonly called the finishing-credits scheme, under which the raw material purchased continues to serve as a guarantee for the creditor throughout the various transformations which it undergoes, while the price realised by the sale is employed in the first place to reimburse the creditor. The carrying out of this scheme does, however, present certain difficulties from the legal point of view, since it appears to be incompatible with the law in force in many States, and even more so from the practical point of view, since it involves the supervision of the debtor and the identification of the product. These difficulties are increased when various materials supplied by several creditors are required for any given product. Austria has issued a special decree in order to render possible the carrying out of this scheme, but, when there are a number of creditors, the guarantees which the decree offers are not considered adequate. It has, however, once or twice been applied in the past in respect of several deliveries of wool, cotton, leather and copper. The finished products were partly re-exported in payment of the loans; the rest were sold in the home market When the products can be re-exported, the difficulties involved in superintending the creditors and identifying the products are obviously lessened. This applies, however, only to products for which there is a demand in the foreign market. But, as we have already said, it is not the industries which are able to export that find it difficult to obtain credit, but those which work for the home market.

In order to offer securities for the desired credit the producers might also mortgage their property, either directly to the persons or public institutions supplying them with the necessary funds, or to the State or other bodies, who, in return, furnish them with bonds. These bonds, guaranteed by the Government itself, are negotiable in the foreign market; they are then offered by the debtors to the creditors as a security for the credit granted. Such a guarantee by the Government is obviously not unfair, since the difficulties of obtaining supplies for these industries are due principally to the low rate of exchange, and this, in turn, is due to the over-issue of money, for which the Government is responsible. From the practical point of view, however, there is no doubt that this is bound to affect unfavourably the financial position of the Government — already precarious — since the Government thus assumes the financial responsibility for the operation of the industries which work at great risk, if not at an actual loss. It is true that the Government may — at least in theory — recover any loan out of the mortgaged property of private persons when these do not pay their creditors, but the possibility of putting such a provision into practice obviously depends on the extent of the confiscations which would have to be made. Thus it may be said that such securities have a practical value only if the number of creditors is limited and the risk involved in the loans not excessive.

Foreign creditors, for their part, will certainly be able to retain sufficient safeguards if the State allocates a certain portion the of its revenues for guarantee of the bonds issued or guaranteed. These, however, will have a definite value for foreigners only if they consist of commodities or enterprises producing commodities which are in demand abroad, such as coal, petrol, or mineral ore. In cases, as most frequently happens, where the State domain does not contain such resources, and where the State must offer its own revenue instead, as guarantee for the bonds, we are faced with the difficulty of the depreciation of currency, which, if progressive, causes the value of such revenue to be a matter of uncertainty to foreigners. In order to overcome this difficulty, the rates of exchange would have to be stabilised; but if this is possible the necessity for all such guarantees would gradually disappear. In these circumstances, indeed, the level of prices in the home markets after some time, account being taken of the rates of exchange, would nearly equal the level of prices abroad, and the fundamental difficulty in the supply of credits for industries serving the home markets would tend to decrease.

The fact is that all the expedients already indicated, and others which may be suggested, for the purpose of providing credits for the industries which serve the home markets in states with depreciated currency, still leave unsolved the primary and fundamental difficulty that the working of these industries in such States, when they need to import raw materials from States with a high exchange up to a considerable proportion of the value of the goods to be manufactured from such raw materials, is carried on with risks, if not actually at a loss. Such difficulties of a general character may be increased, moreover, in certain States by reason of labour legislation, as for instance in Austria, where employers, according to my information, even though they may be working at a loss, are not free to close down the works.

Naturally, although in States with a depreciated currency the operation of industries serving the home markets, and obliged to have recourse to large importations of raw materials, is in general hazardous, and more or less completely unremunerative, there are nevertheless a great number of cases, closely connected with a variety of circumstances and contingent upon local and personal factors, which entitle certain industries to secure credits, and to afford in return a guarantee of reasonable profits, while other industries are of such a nature that credits must in prudence be refused to them. It is therefore necessary to differentiate credits on the basis of personal knowledge of the claimant, and this is therefore a reason for leaving the granting of credits for raw materials to private initiative, rather than to State or inter-State organisations, which display, more or less, the notorious disadvantages attached to bureaucratic methods.

Different again are the conditions as regards the granting of credits for food supplies, or for the services or enterprises from which capital can only become profitable after a considerable length of time, and which are of public interest. Naturally in such cases the request for credits should come from the State, and should be guaranteed by it out of public revenue. Here it must be repeated that the operation presents no difficulty when the Government can offer as guarantee resources which are of international value (for example foreign stocks for which there is a market), or goods with an assured market abroad (raw materials, for example, which are in general demand), or the industries which produce them. Difficulty arises when the State has at its disposal only such raw materials as are not in demand abroad, as is at present the case in regard to timber, or resources the value of which rises and falls abroad with the exchange rates. Foreign capitalists in such cases are naturally indisposed to grant credits unless they can form an exact idea of the value of the resources offered to them as guarantee. It can therefore be understood that they make the stabilisation of the exchange rates the condition of the granting of credits.

In the Baltic countries and Poland several plans have been put forward and partially carried out for supplying these countries with the raw materials necessary. The essential characteristics of such plans are worth description.

In Latvia, Mr. Kalning, the Minister of Finance, with a view to obtaining the fertilisers of which the country stands in such great need, has made the following

proposal to certain Dutch capitalists: The Agricultural Co-operative Societies would obtain the fertilisers in question, 10 % of the price of which would be paid immediately by the Co-operative Societies themselves, and 10 % of which would be paid by the Latvian Government. For the remaining 80 %, the debt would be guaranteed by the Latvian State and the solvency of the latter would, in its turn, be guaranteed by the Netherlands Government. The Latvian State would require an undertaking from the Co-operative Societies that they would not re-sell at lower than cost price, the fertilisers that had been obtained, and that the proceeds of the sales, when realised, should be lodged in banks to be named by the Government, and should serve as security for the credits that the latter might have advanced to the Co-operative Societies themselves. At the time of my visit to Latvia the negotiations were well advanced, and the only important point — a fundamental one, I think — in respect of which an agreement had not yet been arrived at was that of the time-limit of the credits, which the Dutch capitalists wished to reduce to three months, but which Mr. Kallin requested should be extended to a year and a half, so that, with the coming harvest, the sum to be repaid could be easily raised. For this scheme to be carried through it is, of course, a necessary condition that the agricultural workers should, almost without exception, be organised in co-operative societies.

The organisation of the producers in syndicates is, moreover, the essential condition of another scheme which has been introduced into Central Lithuania (Vilna) by Count Wieloglowski, Director of the Department of Commerce, Industry and Reconstruction of that territory. He has been able to organise in syndicates the homogeneous industries of the region, and, on behalf of the syndicates, he was able to obtain the requisite credits — guaranteed by the Government — for the importation from abroad of the necessary raw materials.

In Poland, as I said above, the formation of such syndicates with the same objects presented, however, serious difficulties, and would indeed appear to be impossible, inasmuch as the great industrial firms, which are really powerful concerns, are able to obtain the credits they require without having recourse to these methods, and are little inclined to join with the smaller undertakings, which they regard as competitors.

Another scheme was, however, put into practice in Poland and was there considered — in my view rightly — as a preferable alternative to the Ter Meulen scheme, of which Shall speak later and which the Poles refused to apply. By offering as a security their industrial property valued in gold, on a conservative basis, the members of the Association of Polish Manufacturers are able to obtain from a bank, set up by them, bonds, also valued in gold, for an amount not exceeding half the value placed on the property. Such bonds are guaranteed by the Government, and are, I am assured, accepted without hesitation by foreign merchants, thus enabling the manufacturers to secure credits abroad. The Government guarantee would naturally lose in value if it were extended to other and larger categories of persons, and would correspondingly reduce the confidence in the bonds issued. Hence it is not considered possible for similar guarantees to be offered to traders and agriculturists.

The Ter Meulen scheme is so well known that I need not explain it here, even in its broadest outlines. The basis of the scheme is, if I am not mistaken, the idea that the citizens of a State in need of, and deserving, foreign credit are to obtain the confidence of their Government and of an appropriate International Commission, set up under the auspices of the League of Nations more easily than that of foreign capitalists. Hence, instead of going directly to foreign capitalists to obtain credit, offering their own property as security, they obtain the credit from the foreign capitalists in question, offering their property as a guarantee to their own Government, and obtaining, from the Commission referred to, bonds bearing a lien on certain revenues of the Government, and which they offer to the foreign capitalists as a security for the credit obtained. These securities will be administered either by the Government or by the International Commission as may be decided, on the proposal of this Commission, by the Council of the League of Nations. In the

first case, however, the Commission will be able, if it so desires, and will be obliged if it is of opinion that the State is not fulfilling its duties — to require that the Government should hand over the administration of the securities.

The scheme presupposes therefore:

(*a*) That the Government, which demands the guarantees from private persons, or the Commission of Control, which issues the bonds to them, has a better knowledge of the economic position and of the productive capacity of the natives of the country who are in need of credit than foreign creditors can have. The strength or weakness of this supposition depends on the composition and working of this Commission and of the Government department concerned. It would depend also on the size of the State and the consequent possibility of members of the Government department concerned having a personal knowledge of possible debtors. Certainly a private institution composed of the debtors themselves, similar to that contemplated by the Polish scheme, is in a better position to know the needs and the solvency of the debtors, and, above all, to judge whether credits are profitably employed, than a Government organisation or a national or international commission. From this point of view, it seems to me that the Polish scheme possesses advantages over the Ter Meulen scheme.

(*b*) That private persons will be ready to offer their property to the Government as a security. The possibility that the Government requesting the security may utilise the knowledge obtained from the declaration for purposes of taxation may be a reason for hesitation on the part of those of its own subjects who desire credits. This reluctance will vary according to the burdensomeness of the taxes and the exactitude of the assessments. It will be very difficult indeed to persuade taxpayers to declare that the value of their property is greater than its assessment for purposes of taxation. If the fiscal assessments, however, are up to date, this difficulty will not be a serious matter, but if they are in arrears — as is usually the case in countries with a depreciated currency — subjects of that country will be able to obtain credit only for a sum much below that for which their property would actually furnish security. In any case, it is certain that private persons would much more willingly give their property as security to credit institutions, rather than to the State, and this is a second advantage possessed by the Polish over the Ter Meulen scheme.

It might be said that the Government can confine itself to asking for a banker's guarantee, without itself exacting security on the possessions of the debtor. But the question may be asked in return whether, with a guarantee from a respectable bank, a private individual could not obtain credits abroad directly, without having to go through the bureaucratic formalities necessary to obtain Ter Meulen bonds. The only advantage of the Ter Meulen system would seem to be in a case when the foreign market was, because of some unfounded suspicion, more unwilling than the State to accept the bank guarantees of a particular country.

This is certainly a possibility, though it cannot be denied that, in general, business men have a much sounder knowledge than Governments possess of which banks deserve and which do not deserve to be trusted.

(*c*) That foreign creditors will be satisfied with the Government guarantee for the bonds issued and the interest on them, will, as has already been stated, probably happen only if the Government offers as this guarantee property having an international value or revenue with a clearly determined value for foreign creditors. This last condition presupposes the stabilisation of the currency. Certainly, in order to obtain this, the State could take certain measures required by the creditors, but it is one thing to take measures of this kind, and another to achieve the stabilisation of the currency. As regards the general mortgage which, it has been suggested, the Government should put upon the whole of the real property of the nation as security for credits, it is difficult to see any economic significance in such a proposal. A mortgage is of value only in so far as the property mortgaged can be sold in the case of the insolvency of the debtor, and it is inconceivable that the whole of the existing real property in a country could be sold if the Government became bankrupt.

(*d*) That the State agrees to entrust the administration of part of its domain or its revenue to an international Commission, or at least submits to the possibility of being called upon to do so by such a Commission. It is clear that this condition might offend national susceptibilities. It would mean indeed that the State would place its financial administration under the control of the League of Nations.

The attempt to apply the Ter Meulen scheme to Austria has clearly demonstrated the difficulties involved.

Austria, it is true, owns vast forests, but wood is not, at the present time, a commodity for which there is a steady demand in the foreign market. With the continued depreciation of the currency, the value of revenue from customs, monopolies and taxes is dwindling to vanishing point. The Committee which is entrusted with the task of carrying out the financial reconstruction of Austria has, therefore, very wisely asked the Government to take financial measures in order to put the Budget upon a sound footing, and thus to stabilise the exchange. The Government has promised to do so and is probably carrying out its promise, but — as the Austrians remark with some truth — it is one thing to take measures and another to achieve the stabilisation of the exchange.

The manufacturers who work for the foreign markets, however, do not need to have recourse to the Ter Meulen bonds, since they find no difficulty in obtaining credit in the open market. Those who work for the home market, on the other hand, will hesitate to avail themselves of these bonds in view of the disadvantage of having to expose their commercial activities to Government interference, and, moreover, they would find difficulty in obtaining these bonds if the Commission which is entrusted with their issue and the Government authority whose duty it is to demand the securities should proceed in cautious and exacting manner. Unless, however, such caution is exercised, the Exchequer will, in addition to all the other burdens, incur losses arising from unremunerative industries.

The Government itself might certainly have recourse to the Ter Meulen scheme, with advantage, for supplying the population with clothing, or foodstuffs, or for restoring the railways or for the exploitation of sources of energy, the financial needs of which cannot be supplied out of private capital, since the advantages can only be reaped after a long period of time.

This was obviously not the principal object of the scheme, which was intended, above all, to furnish credits for private industries, especially exporting industries, with the revenues of the State offered as security. On the other hand, if these are considered acceptable, the State may easily obtain the credit direct, without having recourse to any complicated systems of bonds.

As a matter of fact, the Committee charged with the task of the financial reconstruction of Austria, recognising that a foreign loan for Austria is an indispensable preliminary measure for the reconstruction proposed, has suggested that such loan should be floated without waiting for the application of the Ter Meulen scheme, the State assigning certain securities as guarantee.

It is my impression that the unsatisfactory results of the Ter Meulen scheme were clearly foreseen by the experts in Vienna. That the Austrians wish the scheme to be applied is, in my opinion, chiefly due to the hope that it will prove a means of suspending or possibly postponing indefinitely their obligations in respect of reparation.

Apart from that, the Austrians have no great inclination for the scheme, which many of them regard as a device by which the States suffering most from the lack of markets hope to sell their goods.

In my opinion, all this does not, however, mean that the attempt to apply the Ter Meulen scheme or the plan of financial reconstruction which has been substituted for it to Austria has not proved — and does not still prove — extremely useful as a stimulus to the financial reconstruction of a nation which does not derive sufficient inspiration from its somewhat undeveloped sentiments of patriotism.

It is, however, just this lack of patriotism on the part of the Austrians (a defect which many impartial Austrians acknowledge, and one only too easily explained

by their political vicissitudes) which is responsible for the fact that no objection has been raised to the adoption of the scheme, and that there has been no manifest reluctance to hand over even the administration of the country to an international Commission.

It is not every State which is so situated. There have been other instances certainly, in recent times, of States allowing foreign Commissions to administer their revenues. We may mention Turkey and China. What has been said about the patriotism of the Austrians may, however, very likely also apply to those countries. It is, however, doubtful whether any other European people would submit to such interference, whatever might be the difficulties of their financial situation. I am not prepared to discuss whether they are right or wrong, but national sentiment is a fact which must at all events be taken into account.

Another plan for facilitating exports, not only of raw material, but also of other goods produced in the United Kingdom, has recently been the subject of two laws passed by the British Parliament, June and July 1921.

A Government department (the Export Credits Department) guarantees up to a sum total of £26,000,000 the bills drawn against the despatch of goods from the United Kingdom to certain countries, in a proportion which is established by the Department itself, but which can in no case exceed 85 % of the total value of the bill. A security, accepted by the Department, may be deposited by the importer, but in all cases, whether or not he gives security, he must furnish the guarantee of a bank of his own country which is considered by the Department to be of sufficient standing. If the importer does not pay the whole of his debt, and if the security is not sufficient to cover the deficit, a part of the loss (ordinarily half, but in certain cases even greater) is borne by the Department: the balance must be repaid to the Department by the exporter. The object of the scheme is to facilitate exports from the United Kingdom to Finland, Latvia, Lithuania, Esthonia, Poland, Czecho-Slovakia, Serb-Croat-Slovene State, Armenia, Bulgaria, Austria, Hungary and to the various parts of the British Empire, including Protectorates and Mandatory territories, except India, Ceylon and the British possessions in the Far East.

The possibility of putting the scheme into execution clearly depends on the readiness with which the banker's guarantees of the importing countries are accepted by the Department. It would appear that there is no very great readiness in this connection. The attempts on the part of Latvia, Lithuania and Poland to profit by the scheme have so far, according to my information, come to nothing, since the Department has not considered that the banks which were ready to give guarantees were of sufficiently good standing. In some cases the Department would appear to have asked for a guarantee not of a single bank but of two banks.

It should also be observed that, if the importer can obtain the guarantee of a bank whose standing is recognised abroad, he would also be able to obtain credit anywhere, without having recourse to the British Government. Consequently, importing countries, and even exporters themselves, have no very great confidence in the possibility of profiting by the scheme, although the Department does not pursue a more liberal policy. We hear from the newspapers that, faced with the economic crisis caused by unemployment, the British Government is actually considering a modification of the existing system of credits, in order to encourage export.[1] The existing difficulties, however, do not spring from the letter of the law, but from the rigid interpretation given to it by the Government Department. It would not be surprising if these difficulties were to continue in the future.

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[1] In his speech of October 19th in the House of Commons, which I have just read while correcting the proofs, Mr. Lloyd George defines more clearly the proposed modifications: a guarantee on the part of the State to the extent of 100 %, with a claim on the exporter for 57 ½ %; the establishment by a committee of experts of a maximum credit for each exporter, within the limits of which he may rely on the State guarantee, without requiring to obtain the consent of the office for each transaction; an extension of the list of countries to which imports are consigned; a prolongation of the period of the credit, which might last 5 or even 6 years.

The lack of elasticity in Government departments, even the best, in comparison with private enterprise, is well known, and the problem of credit is one of those where elasticity is the most necessary.

Latvia has far more confidence in a Credits Convention which has just been introduced into the draft Treaty of Commerce with Germany which is now being concluded. The maximum credit involved is 500 million German marks, and the object of the Convention is to supply Latvia with raw material and machinery of German origin, necessary for the reconstruction of the country and for its economic development.

With this end in view, one or more industrial organisations will have to be set up in Germany under the direction of the Government of the Reich. These organisations will guarantee to importers regular deliveries on the part of German sellers.

Latvian importers (individual, State or Communes) will, after receiving this guarantee, be able to make individual contracts with German sellers. Contracts will then be submitted to the Latvian Government, which, if it judges the contract to be expedient and in harmony with the objects for which the Credits Convention was established, will guarantee that part of the payment which is not immediately effected.

The Latvian Government and the German organisation will appreciate freely on the merits of each case whether their guarantee should or should not be granted. The maximum time-limit for payments guaranteed by the Latvian State varies according to the goods involved and in certain cases may be as long as 10 years; the rate of interest must not exceed by more than 1 % the discount rate of the Deutschebank (Banque Allemande).

The same observations may be made in respect of this scheme as were made above (paragraphs *a* and *b*) in respect of the Ter Meulen scheme, but it should be observed that, in the case of Latvia, there are several circumstances which render the difficulties in question much less important. Above all, Latvia is a little country, where it is easy for Government circles to obtain a personal knowledge of importers. Moreover, Latvia is a new country, where Government circles consist, not of bureaucrats who have led an exclusively administrative life, but of persons who, until quite recently, were, most of them, concerned in the economic life of the country. This condition of the country is naturally not without its difficulties; but, from the point of view which we are considering, it has the advantage of allowing the Government to obtain knowledge of economic conditions and of the personal qualities of importers. It should also be observed that the import requirements of Latvia arise from the facts that the factories have been cleared by the Russians, and that the countryside has suffered considerably from the invasions. The chief imports required are mechanical tools, agricultural machines and fertilisers. Once such goods are imported, all the other factors of production are to be found in plenty (good and cheap labour, factory buildings intact, fertile land). In most cases, therefore, it would be easy to count with certainty on a profitable use of the credits.

One advantage of the Latvian-German draft Convention, in comparison with the Ter Meulen scheme, lies in the fact that the State is not bound by any clause which limits its powers of disposing of its revenues, thus antagonising national sentiment. Care has even been taken to balance the obligation of the State to guarantee the debts due to exporters by the obligation laid upon the German organisations to guarantee the regularity of their deliveries. This obligation has not only a practical but also a moral value, inasmuch as the two contracting parties are placed upon the same footing. Certainly it cannot be denied that in this scheme, as in that which has been put into execution in Poland, the guarantees for creditors are less substantial than those provided for in the Ter Meulen scheme, but it is well known that credits on a large scale are fostered not so much by material guarantees as by individual confidence in the debtors and the guarantors.

The impoverished States of Europe might perhaps hope for more considerable credits from America. The Federal Government of the United States has endeavoured to facilitate export from America by means of the Edge Law, but although

this law has been in force since December 1919, its results are not yet appreciable. The Edge Law authorises the establishment of banking institutions of two classes, both classes destined solely to finance foreign trade. The first class of bank employs the usual banking trade method of accepting the exporters' bills, with this advantage, however, that the acceptance may be for as long a period as 12 months. The other class is empowered to give credit to foreign importers for a considerably longer period, taking, as guarantee for the credit, securities deposited with them, and, on the strength of these securities, issuing bonds for the sum total of the value of the securities. In reality, it is the purchasers of the bonds who, in this manner, through the medium of the bank, give long-term credits to foreign importers. Two banks of the first class have been founded; and a third, much larger, of the second class, is projected.

The system seems good. Above all, banks of the second class could be of real use in allowing small savings to take a share in long-term loans. But the fault of the system lies in the slowness of its application. It should also be observed that the establishment of the last bank, which should be much the most considerable in size, has encountered in practice many difficulties, in which it has appeared that the American people evince no very great sympathy for the granting of credits abroad. This is a difficulty which, obviously, no law can remedy.

These and other considerations I have mentioned will, I think, serve to show that there cannot be an international credits scheme for the supply of raw materials applicable to all countries indiscriminately. Each country has its own requirements, governed by its needs, its technical and social organisation, its psychology, the standard of its industries, its markets, its size, and many other considerations. The organisation of international credits must, in order to succeed, take all these into account.

8. Possible action in respect of exchange.

We have seen that the disequilibrium of the exchanges forms a grave obstacle, both to the maintenance of freedom of trade and to the granting of international credits. The difficulties in organising transport from one country to another are also increased by the instability of currency values. The importance of the award of certain territories, according to the nationalist programme, is further variously estimated according to its effects upon the exchange. This serves to show how vital is the effect of exchange questions on the problem of the supply of raw material and foodstuffs. We shall see from the following observations that this question is in reality the key to the whole situation.

The difficulties brought about by the present condition of the exchange market in connection with the supply of raw materials and foodstuffs may be divided into three classes, according as they result from fluctuations of the exchange which are of brief duration and more or less periodical; or from persistent variations in one or the other direction of the quotations of certain currencies; or, finally, from what we call the disequilibrium of the exchanges.

Fluctuations in the exchange occurred also before the war and are, to a certain extent, inevitable. But when currency based on the gold standard was replaced by a non-convertible paper currency, these fluctuations increased in intensity and duration in proportion to the reduction in the scope and speed of the mechanism of compensation. There also exists an impression, probably well founded, that fluctuations of a currency are more marked in proportion as its exchange rate is unfavourable.

Such fluctuations are due to variations in supply and demand, to speculation and to the effect of political events, which give rise in foreign countries to impressions which are not justified — and are therefore transitory — of distrust or trust in the political stability and therefore in the financial solvency of the State. All these causes have not merely a transitory effect, but also tend to set in motion compensatory forces. The effects of speculation and the possibility of panic caused

by political events have, it is evident, a greater chance of exercising influence in proportion as the exchange is unfavourable; this may account for the fact that such fluctuations are, according to current opinion, the stronger in proportion as the currency is depreciated.

In this respect it may be noted that the effects of speculation are fundamentally different when the exchanges show only periodical fluctuations, for example, as a result of seasonal changes in international commerce, without being subject to systematical variations in a determined direction, and when fluctuations in no determined direction or systematic variations in a given direction are added to periodical undulations. In the former case, speculators may safely make a corner in foreign bills of exchange, whenever the latter are at a low rate of exchange, with a view to re-selling them when there is a greater demand for them, and in this way they help to stabilise the exchange; before the war this was done with success in Brazil, and probably in other States also. In the second case, on the other hand, the effects of speculation may be of various kinds. For example, by making a corner in foreign bills of exchange when the latter are at a high rate, in the hope of a further rise, speculators may contribute for the moment to drive the exchange down; but this fall may later give way to a rise, when, the rate having reached a level which is considered sufficiently remunerative, the bills of exchange are resold; in this case, in addition to systematic variations, speculation would have the effect of adding a fluctuating movement to the systematic variations of the exchange in a given direction.

Steps which are taken to control exchanges — as was done extensively by European States during the war and after the war — are introduced with a view to checking such fluctuations. Such measures eventually succeed in limiting speculation, but, on the other hand, they involve well-known inconveniences, which are, according to the popular impression, greater, at least in time of peace, than the inconveniences which they succeed in removing. It is for this reason that such a control has already been abandoned by many States; other States also are thinking of abandoning such measures.

The persistent variations in the rate of exchange, in one definite direction, may depend on modifications which become more marked throughout a long period of time — in the confidence which the foreign market has in the particular State, or in the demand made by such market for the currency of that State, or in the supply of such currency on the foreign market, or, finally, from the variations in the purchasing power of the currency in the home market, as compared with the purchasing power which foreign currencies have in their respective national markets.

Serious inconveniences arise from such a state of affairs when a considerable period of time elapses between the ordering of goods and the payment for such goods; and the inconvenience is naturally greater in proportion as the period is long and the variation considerable. An element of uncertainty thus arises, which hinders and renders hazardous exchanges, transports, or contracts for labour and, by reason of the conflicts which it causes between Capital and Labour, thus not infrequently creates social unrest.

Many remedies have been suggested and tried. The most radical is that which was practised during the war, and during the period immediately following, by the Allied and Associated Powers; this consists in fixing definite relations between the valuta of the different countries, for the purpose of mutual exchanges, which are maintained artificially fixed by Government loans.

A Government would borrow foreign currency and sell it at the established rate of exchange to those of its nationals who were to make imports, or it would use it for buying back national securities or currency, of which there was an excess on the foreign markets on account of the deficit in the balance of the payments of its nationals, so as to restore the exchange to the level previously fixed. By one method or by the other, the State none the less increased its debts abroad by the amount corresponding to the deficit in the balance of the payments of its nationals. This was a first disadvantage, but another supervened when, as actually happened, the

relation between the currencies of the two countries was more favourable to the more depreciated currency than should have been the case, in view of the level of prices in the two countries. In practice this method favoured the importers of the countries the currency of which was most depreciated and thereby laid the cost on the State, that is to say, on the community.

These disadvantages were not very important during the war, since the deficit in the balance of payment of private persons was not great, on account of the restrictions imposed by circumstances or by the State itself on their imports, but it would have acquired an extraordinary importance after the war, when the importation by private persons vastly exceeded their exports. When the war came to an end the stability and level of the exchanges lost the political importance ascribed to them, in order to keep up the *moral* of the population. There were good reasons, therefore, for abandoning this method at the beginning of the year 1919, and there should be no question of introducing it again.

Another expedient consists in regulating the currency circulation, which would be increased or diminished according as the exchange grew more or less favourable. Such a procedure presupposes that the State is in a position to restrict the circulation at will, a course which is impracticable in present circumstances for almost all States.

We shall have occasion to touch on other proposals, such as the introduction of an international gold currency and the devaluation of money.

The aim of all these measures is to stabilise the rate of exchange; others are designed simply to enable business to be carried on in spite of the instability of the exchanges by the employment of commercial methods which evade, or at least obviate or limit, the risk of instability.

A method which is attempted for effecting exchanges between States whose respective currencies vary too greatly or are very unstable is that of barter, produce being directly exchanged for produce. The disadvantages of such a system of exchange, as compared with an exchange of currency, are too obvious to need pointing out. The fact that such expedients are resorted to only serves to show how great the inconveniences of variations in the exchange level may often be — so great as to surpass the inconveniences of the barter system.

A practical proposal which has been made in Italy, and which was, if I am not mistaken, brought forward at the recent Conference of the International Chamber of Commerce, is that exporting States should establish depots in importing States, whereby purchasers may be able to obtain delivery of goods and pay for them within a very short time of giving the order. The inconveniences caused by the fluctuations in exchange, although they would not completely disappear, would thus be considerably reduced. Such a procedure would be a great advantage for the importers, but is not in itself favourable to exporters. The latter would be obliged to accumulate large stocks of goods far from the place of production, bearing at their own risk the cost of transport, and placing themselves in an unfavourable position in regard to selling transactions. For it is evident that it would be very difficult for exporters to secure a profit if they brought back to their own country the goods which had thus been accumulated; they might therefore find themselves obliged to sell them at unremunerative prices. In the present circumstances, however, in which exporters find markets difficult to obtain and are therefore even prepared to accept conditions which are unfavourable, the proposal appears to be of a practical nature. It would naturally be difficult to carry into effect in States in which political conditions appear particularly unstable — which are those whose exchange rate is the most unfavourable — for exporters would lack security for the goods accumulated in such States. But importations into such States might be made easier by the accumulation of stocks in neighbouring countries.

Plans have recently been considered, in connection with export credits, for insurance against risks arising out of exchange variations. Such insurance could easily have been effected under pre-war conditions, when the exchanges showed

only irregular fluctuations about a fixed point, but it is difficult to see on what an insurance company could base its estimates at the present time, when the exchange of many countries varies systematically with an intensity determined in large measure by the financial and general policy of the Governments.

The greatest difficulty, however, which is experienced by importing States in obtaining raw material and foodstuffs is that which arises from the unfavourable exchange rate. In Poland, Austria, Portugal, in the Baltic States, it is this circumstance above all which is held to be the cause of the difficulties in obtaining raw materials or foodstuffs; in fact, owing to the unfavourable exchange, such goods are now said to cost fabulous sums. In reality, what is important is not the high exchange in itself, but the fact that the relation between the valuta of the two countries does not correspond to the relation between the level of prices in the two countries. If such a correspondence existed and if the exchange rate corresponded to what may be called the parity of purchasing powers, no difficulty could arise for international exchanges. In reality, however, such a correspondence never exists at the present time in countries with depreciated currency; it is just this lack of any such correspondence to which I refer when I speak of "disequilibrium of exchanges."

If we consider the statistics with regard to price levels in the home markets and with regard to exchange rates, we shall see that, as soon as the practice of fixing the exchanges in the Allied and Associated countries was abandoned, a tendency arose for the quotations of valutas which were depreciated to remain below the level of purchasing powers — that is to say that, expressed in a given currency, prices are lower in countries whose currency is the more depreciated. The visits which I have recently paid to seventeen countries of Europe, differing greatly in currency conditions, have convinced me of the correctness of this generalisation, to which there are only a few exceptions. Between Sweden or Switzerland on the one hand, and Poland on the other, which, as regards European countries, stand at the extremes, there is a difference in the cost of living of at least three to one, and prices gradually rise as one passes from Poland to Austria, Latvia, Esthonia, Portugal, Czecho-Slovakia, Italy, France, the United Kingdom, Switzerland.

This may give rise to the impression that, in this field of inquiry, the facts do not correspond to the theories of economists, who state that the relation between the valutas of two States necessarily varies in accordance with the purchasing power which these valutas possess in the respective national markets. The fact is that such a statement is definitely dependent upon the hypothesis that there exists complete freedom of trade between the two States, while in fact this hypothesis is never a reality. But in my opinion commercial restrictions are not alone sufficient to explain the discrepancy between the facts and the theories. Various other circumstances, which I shall now explain, assist in producing this result.

There are, in the first place, certain circumstances which cause the relations between the values attributed to the two valutas in the home market to differ from the relations between the values which are attributed to them in the foreign market.

(*a*) Some of these circumstances have only a transitory effect, such as the greater economic sensitiveness of the valutas in the foreign market as compared with the home market.

The sudden fall in the exchange, unaccompanied by a corresponding rise in prices at home, is sometimes explained by the fact that the consequences of political or economic events, or of future financial measures, are foreseen and discounted abroad. For example, at the news of a military defeat or of political crises, or of a serious struggle between Capital and Labour, the foreign holders of valutas of the vanquished or disturbed country foresee that the affected country will have to import to a greater degree and will export to a lesser degree, a state of affairs which will result in a relative excess of its valutas abroad; foreseeing this, they therefore lower the rate of exchange on this country or, learning that the Government has decided to issue fresh paper money, they know that such a measure will result in a rise in prices in the home market; or, more generally, foresee that the general policy

of the Government will be deleterious to the economic conditions of the country or may result in a war, and they therefore operate in such a way as to cause the value of the currency to fall as a precautionary measure. All this is true, but it must be remembered that the same provisions and the same calculations may be also made by the citizens of the State, who should raise the prices in the home markets in the same proportion. If they do not do so, or do not do so in the same degree, or only do so later, the reason will be found in the fact that those who manipulate exchanges are in general better acquainted with economic causes and results, and pay more attention to the circumstances which may bring them about, than average citizens.

The difference in economic sensitiveness does not, in fact, appear as between foreigners and nationals but between speculators (both foreign and national) in exchanges and the average citizens.

This circumstance can, however, only furnish the explanation of a transitory instability of the exchanges, since the provisions made will either be shown to be mistaken and, after a certain time, the value placed upon the valuta will rise; or they are shown to be well founded and the value which is placed upon the valuta in the home market then conforms to the quoted value of the valuta in the foreign market. But we shall nevertheless have occasion to observe certain factors which delay adjustment in the last-named case (*cf.* pp. 58-60). There is, moreover, the possibility that a new unfavourable incident or a new pessimistic forecast may produce a subsequent depreciation of the exchange before the adjustment is completed.

It is hardly necessary to add that this explains, not only the sudden fall of exchanges, independently of the level of prices, after unfavourable events, but also their improvement after favourable events.

(*b*) Other circumstances have a more or less lasting effect, such as the continuous lack of confidence abroad as compared with at home, in the political stability, and therefore in the solvency, of the countries whose currency is depreciated. Such a state of circumstances is quasi-normal and is to be explained either by a lack of information abroad upon the national resources or by the patriotism which tends to blind nationals to the true state of affairs. The effect of the first of these conditions may be greatly increased by propaganda carried out by agents of enemy States.

(*c*) The same effect may result from the circumstance that certain series of notes which cannot easily be recognised, or their value determined with certainty, are current only in the interior of the country. This creates suspicion in the foreign exchange offices, which are unwilling to accept currency of that country in the fear that they will find themselves in possession of series of notes which can only be exchanged with difficulty abroad.

This assertion is made by the Viennese exchangers with regard to certain issues of Polish notes — for example, Issue N° III of the white series of 1,000-mark notes, and this makes it difficult in Vienna to exchange any Polish 1,000-mark notes. As a result of investigations it appears that this assertion is not borne out by the facts, in the sense that all Polish notes are legal tender both in Poland and abroad. But it is, however, easy to understand how this belief originated. A considerable number of forged 1,000-mark notes, white series, has been printed abroad. As these notes are, so it would appear, cleverly counterfeited, the issues to which these forged notes belong are naturally refused by foreign money-changers; practically, therefore, they have no circulation abroad. On account of the very limited exports of Poland as compared with her imports, it is easy to understand, again, why these forged notes have not penetrated into the country in any appreciable quantity. The corresponding series are, consequently, always accepted in Poland.

(*d*) These facts bring into relief another circumstance, which may indeed contribute powerfully to bring down the exchange of a country, viz., the printing abroad on a large scale by private persons, or even by another State, of notes of a State which are easy to imitate. That is perhaps one of the causes of the fall of the Polish mark. In the areas bordering on Russia I have also heard the suspicion voiced

on several sides that the Soviet Government has counterfeited the notes of several States and employed them to make payments abroad. It is of course impossible to determine the accuracy of such a suspicion.

These circumstances (*a*), (*b*), (*c*) and (*d*) naturally affect the exchange between two valutas, but only in so far as they are unilateral, that is to say, harmful only to the currency of one country or more harmful to that of one than to that of the other. If, on the contrary, they are present to an equal degree in both countries, their effects are naturally neutralised.

It is, however, easy to understand that the lack of confidence would have a deleterious effect, particularly on that valuta which is the more depreciated.

(*e*) These observations lead us to the consideration of another circumstance which may contribute to the disequilibrium of the exchange — the different use which can be made of the currency by foreigners and by nationals.

Whilst all goods may be purchased with the national currency in the home market, foreigners not residing in the country cannot make use of this currency to purchase many perishable classes of goods, and are, moreover, in a less favourable position than the nationals for acquiring, with this currency, other property, real estate, for example, which they must administer from a distance, or personal estate upon which they have to pay duties, either in the country of origin, or at their own frontier, in addition, always, to the expenses of transport. It would, however, be a mistake to regard such circumstances, as they are regarded by several authors, as a reason for the depreciation of the exchange as compared with the relations between the level of prices, since that reason affects all the valutas, and its effect upon the exchange is therefore cancelled. Such a circumstance becomes of importance only when the field of utilisation of the valuta of a country is restricted in regard to foreigners to a greater extent than in the case of other valuta, by reason of the difficulties placed in the way of investments of foreign capital, or by reason of prohibitions or restrictions or difficulties or special transport expenses or taxes placed by the country upon its exports, or by reason of import duties placed by other countries upon these exports. Countries with a depreciated currency tend in general to oppose the purchase of landed property by foreigners; they often prohibit or restrict the export, above all, of foodstuffs, and they raise the duties on the exportation of various merchandise, whilst countries in which the currency is sound often place special customs barriers on the imports from countries with a depreciated currency.

Among these measures it is possible to distinguish between those which result in the restriction of the field of utilisation of the currency by foreigners, as is the case with prohibitions of or restrictions upon exportation and investment, and those which result in the raising of cost prices for foreigners, as, for example, special taxes on purchases made by foreigners in the country, or export duties or additional tax imposed by other countries on imports. Both types of measure tend to increase the disequilibrium of the exchange.

(*f*) Here we must take into consideration a factor to which the public and certain authors tend to attribute much importance in the determination of the disequilibrium of exchanges: that is, controlled prices. The existence of controlled prices, it is observed, causes the maintenance of the prices of certain products at a lower level than would be the case if trade were unrestricted. On the other hand, the products in question are products which feed the home market. We have here, therefore, a factor which renders the prices on the home market lower than the prices on the foreign markets.

In analysing this observation, we must distinguish between the question of the influence of controlled prices on the general level of prices, and the question of their influence on the disequilibrium of exchanges.

With regard to the first question, it is commonly observed that, if the control succeeds in keeping down the price of certain goods, it tends, on the other hand, to accentuate the rise in price of other goods for which the demand becomes increased by reason of the greater purchasing power which has accrued to the consumers.

But we must consider whether this increase does or does not neutralise the lowering effect of the control. Here it is well to recall the equation known as the equation of exchanges, which exists between the general level of prices, the total amount of money, the velocity of circulation of money and the volume of transactions. According to this equation, the general level of prices, measured by the weighted average of all the prices of all the transactions into which money enters, must correspond exactly at any given moment to the total of money (and its substitutes) in circulation multiplied by the velocity of circulation and divided by the volume of transactions into which money (and its substitutes) enters.

Before it could be admitted, therefore, that controlled prices have an influence on the general level of prices, it would be necessary to demonstrate that they cause an increase in the volume of transactions or a permanent decrease in the velocity of circulation of money (or its substitutes), and for my part I cannot imagine how this could possibly happen, at least if the quantity of goods freely exchanged continues to be relatively large, in comparison to those of which the price is controlled. We must therefore conclude that the lowering of the prices of certain goods effected by controlled prices is neutralised by the rise in price of other goods which are exchanged, if these continue to be relatively large in quantity, without altering systematically the general level of prices.

What has been said with regard to controlled prices may also be said in regard to other circumstances, such as the permanence of certain contracts, which are also represented as curbs upon the rise in prices. As for the restrictions on home or international trade, they clearly cause direct or indirect diminution of the volume of transactions into which money enters, and they must consequently have the effect of increasing and not diminishing the general level of prices.

Must we then conclude that controlled prices or analogous measures have no effect on the disequilibrium of exchanges ? This conclusion would not, in my view, be correct. We must admit that when we speak of "parity of purchasing powers" as a condition of the equilibrium of exchanges, we are using an expression which is rather vague. What purchasing power do we actually mean ? Is the equation of the exchanges therefore dependent upon the "general relative purchasing power"— that is, upon the inverse index of the weighted averages of all the prices of all the transactions into which money enters ? This is the general interpretation which is given to this expression, but if the question be carefully analysed it will be seen that in truth the factor of importance in the determination of the rates of exchange between two currencies is the factor of the purchasing powers of the said currencies in respect only of such goods and services as are taken into account in the balance of international payments. It follows that if the control of prices or any other measure adopted by a country has the effect of lowering the prices, particularly of goods absorbed in the home market, and of raising, as a reaction, the price of exported products, they will tend to determine a disequilibrium of exchanges—that is to say, a rate of exchange which departs from the relation between the general price-levels on the home markets. But here also we must not restrict ourselves to considering the question from the point of view of one country only. Controlled prices can only have an effect on the exchange rates between the money of two countries if they have more influence on prices in one country than in the other. If they have more influence in the country where the currency is more depreciated, it may be admitted that they contribute to determining in that country a general level of prices which is relatively lower than that which might be expected from the rate of exchange.

It should be noted that in practice it is not possible to measure the general level of prices by the weighted averages of all the prices of all transactions. Often the average of the cost of living is substituted. The two indices may be quite different. If the cost of living be taken as a measurement, the controlled commodities make themselves felt with much greater weight, particularly when it is a question of the cost of living for labouring families. If the rate of exchange is compared with the relation between the cost of living in two countries, the disequilibrium of the exchange may then be exaggerated by reason precisely of the more marked influence of the controlled prices in the country with depreciated exchange; but this is only an

illusion resulting from the inaccurate method adopted for the measurement of the general level of prices.

(*g*) The relation between the utilities attributed to two currencies depends clearly also on the relation between the supply and demand for each. On the national market there is rarely a disequilibrium between the demand and supply of currency, and when this disequilibrium occurs it is generally rapidly adjusted, but this is not so in the case of foreign markets.

It should be noted that among the circumstances which we have examined in the preceding pages there are some, such as a lack of confidence abroad in the stability and solvency of a State and the presence in foreign countries of notes which there is reason to mistrust, which only play an important part in explaining the disequilibrium of exchanges when there is a superabundance of the national currency abroad. If, on the other hand, the national currency is scarcely sufficient to pay debts due, foreigners use it for this purpose without paying any particular attention to the political and financial conditions of the country, and it is not probable that any appreciable quantity of the country's money actually remains abroad. In such cases the excess of the supply of the national valuta above the demand represents a concurrent factor of the disequilibrium; but it may also have an independent influence, as we shall have cause to observe.

The factors influencing supply and demand of a valuta, already complicated in normal times, have become still more complicated in the exceptional period following the war. In determining the mass of imports and exports, importance attaches to-day not only to the quantity of foreign goods which the country desires to purchase in foreign markets, and the quantities of goods available at home and demanded from abroad, but also to the regime of commercial restrictions which may definitely favour imports as compared with exports, or *vice versa*. Generally speaking, the countries in which the currency is depreciated place a bar upon certain imports, particularly those of luxuries, but the effect of such measures may be considered as a rule to be more than counterbalanced by the effect of the prohibitions on the export of other goods, notably of foodstuffs, thus tending to prejudice the relation between supply and demand of the national currency in the foreign market. The payment at home of revenues in foreign currency acquired outside the territory of the country and belonging to nationals or corporations of the State or to the State itself, and, *vice versa*, the payment abroad of incomes in national currency acquired in national territory and belonging to foreign individuals or corporations or to other States, is influenced by the fiscal system, and since this has, or may seem to have, a tendency to become more burdensome in countries where the currency is depreciated, it constitutes another circumstance which tends to have a deleterious effect abroad upon the relation between the supply and demand of the most depreciated valuta. At the present time, in fact, the appreciated valutas may assume a special importance independently of their power to procure foreign goods, in so far as they are applicable to the payment of indemnities to the enemy, or represent continuously a safe investment as compared with the national currency, whose actual value decreases with the fall of the exchange (in countries such as Austria, which have little faith in their future, there is consequently a great demand for them), or, as representing a safe investment abroad which, while paying interest, is protected from predatory taxation (this is the case when national capital is exported from the countries where there are grounds to fear a capital levy or other severe fiscal measures, and is converted into foreign currency; the amount realised is then deposited in foreign banks or used for investments abroad). And it must be realised that countries with the most depreciated currency are precisely those which make a greater demand on more stable currency for this purpose. Various circumstances, therefore, tend to make the relation between supply and demand on the foreign market react unfavourably on the most depreciated currency.

It must certainly not be forgotten that other circumstances can tend to an opposite effect — for instance, if foreign capital were to seek investments in securities

or in other national property, or should tend to accumulate national currency for speculative purposes, or, finally, should favour the opening of credit to private individuals or to national corporations or to the State. Now, it may be that the foreign market, having confidence in the improvement of the currency or the securities of a nation, or in its economic development, may adopt such an attitude, but it is clear that this state of affairs can only arise in exceptional circumstances — above all, at a time when the exchange of the country has been depreciating for some considerable period. Indeed, the greater and more prolonged the depreciation in the exchange the more difficult it is to count upon a rise in the near future, and the more speculation is discouraged. For a long time purchasers were found for Austrian crowns, but now no one wants them; and the situation in regard to the German mark is the same. Moreover, the more a currency is depreciated the more drastic must be the financial measures which — as it is reasonable to anticipate — are required to adjust the budget, and the smaller the encouragement to foreigners to invest. Some other circumstances, finally, such as the influx of foreigners in countries where the currency is depreciated, and where the cost of living is low, have certainly the effect of diminishing the excess of supply of national currency on the foreign market. But this is usually of secondary importance.

Normally, therefore, it is to be expected that the relation between supply and demand on the foreign market will react unfavourably on depreciated currency — above all, if the depreciation continues, thus tending to strengthen the disequilibrium in the exchange.

I have not yet referred to the disturbances which occasionally occur in the exchange market by reason of the sudden offer of a great quantity of the country's currency, either as a result of a shaking of confidence in the future of a currency (or, more generally, in the future of the country itself) and of the panic which then occurs among foreigners who have accumulated the said currency, or as a result of an operation which aims for political purposes at provoking artificially such disturbances and such panic in order to discredit the country itself. Moreover, it will probably be the most depreciated currencies which will suffer from these disturbances; not only because such currencies are most easily discredited, but also because it is of the most depreciated currencies that the largest stocks exist abroad and because for several of these currencies there are hardly any markets at all, so that a sudden offer of a relatively small amount is sufficient to drive their exchange down to a noteworthy extent.

(*h*) Another class of circumstances — in my opinion of great importance — arises from the *inertia of prices.* By this I mean the fact that, when the exchange rate between two valutas changes, for reasons apart from their relative purchasing power in their respective home markets, prices also vary correspondingly, but not at the same rate and only after a certain delay.

Let us suppose that, owing to the growing lack of confidence abroad in the economic solvency of a State, or owing to the persistence or growth of a deficit in the balance of its payments, or owing to the announcement of an increase in circulation, or of political troubles, its exchange, which was formerly, let us suppose, three to one below par, has fallen within a few months to six to one.

If a merchant has purchased abroad certain goods for a sum of 100 a few months ago, to-day, owing to the subsequent depreciation in the exchange, he would have to pay in the currency of the country, 200. He will certainly not place his goods on the market at the price of 100 plus x, *i.e.*, the amount necessary to repay interest on the capital during the interval and the expenses of the operation — but he will not even place the goods on sale at 200 plus x. Such a course, however, is often imposed by an official fixing of prices, but this does not afford a complete explanation, for the fixing of maximum prices, if the price of certain goods is thereby lowered, causes, as we have seen, the prices of non-controlled goods to increase still more. This phenomenon occurs independently of all fixing of prices as the result of a certain cautiousness which, perhaps unconsciously, is displayed by all merchants.

Certainly if the merchant who has borrowed 100 in order to purchase goods months ago had to repay, apart from interest, no longer 100 but 200 at the moment of sale, this state of affairs would not arise; but since his debt does not vary nominally with the variation in the exchange, in practice the merchant is content to realise a price which is lower than the cost of a further supply of goods, from abroad at the moment when these are sold, because even in this way, when he has repaid the capital borrowed and paid the interest, he will still be able to realise a considerable profit. It is true that, when the level of prices rises, the rate of interest is, or at any rate should be, higher, if it is not artificially controlled, but the difference is certainly not sufficient to compensate for the diminution in the purchasing power of capital in the home market, which arises from the increase of prices, and still less for the diminution of its purchasing power in the foreign market, which arises from the depreciation of the exchange.

The goods, however, which the merchant purchased abroad at the existing rate of exchange will naturally come to be sold on the market at a subsequent period at a price which, compared with the actual selling price, is increased in correspondence with the increase, in the national currency, of the price of their purchase abroad. But it is possible that at that moment the exchange will have subsequently depreciated in such a way that then also the rise in prices, as compared with the original situation, will not correspond to the degree of depreciation of the exchange. The increase in the price of imported goods then feels to the full extent the influence of the deterioration of the exchange, but only after a certain period of time.

Home-produced goods, of which all the component elements are supplied from the home markets, do not, on the other hand, feel directly the influence of the depreciation of the exchange; but at a later period they none the less increase in price, because consumers avoid imported goods, which are dearer, and turn to home-produced goods, which are cheaper, so that equilibrium is re-established between the demands and the prices. The influence of the depreciation of the exchange upon such goods is felt much more slowly.

Finally, goods which are produced at home, but partly from materials acquired abroad (raw material, tools, etc.), are affected to an intermediate extent. The influence of the depreciated exchange is then felt directly on the cost of those materials which are imported and indirectly on the cost of materials which are home-produced.

In such cases the divergence between the home selling price and the cost of the imported article can be such that there is a profit to be made by purchasing the goods in the market of the importer and re-importing them to the market of the exporter. Thus in Italy there was a certain period when Gillette razor blades, originally purchased in England, were sold at a price so much lower than that at which, at the current rate of exchange, they could have been purchased in England, that purchases were made on a large scale for the purpose of re-exporting to London, where they were sold at much higher prices. In order that there may be a profit in such operations, it is naturally necessary that the difference between the home price and the cost of purchasing abroad shall be so great as to compensate for the cost of transport and the possible duties imposed upon the goods. It is naturally only in exceptional cases that the difference is sufficiently great; but without reaching such a point it may be considerable. There was a long period during which many articles were to be purchased in the Italian markets at a price lower than would have been possible for goods newly imported. Merchants were therefore able to state with certainty that goods which were arriving would soon be sold at a higher price, and this was one of the circumstances which led consumers to make purchases at once. A similar state of affairs was probably noticeable in many other countries. As regards home-produced goods, and in particular foodstuffs, the difference between prices on the home market and prices on the foreign market may become still greater, not only because prices in the home market only feel the effect of a depreciation in the exchange more slowly, but also because prohibitions on exports, and the

perishable nature of certain products, prevent the direct action of the compensatory forces.

It is this process of adjustment which often leads economists to state that, if complete free trade were the rule, the exchange between two countries would tend to correspond with the level of prices on the two home markets. These economists point out, indeed, that if the level of prices in one of the two countries comes to be lower than it should be, in comparison with the exchange rate, the valuta of this country which is held abroad will flow back into the country, by means of purchases which are effected at a cheap rate, until perfect equilibrium is arrived at. In reality, as has been seen, perfect equilibrium, even with complete freedom of trade, cannot be attained, because of the cost of transport and the perishable nature of certain goods. Equilibrium would, in any case, only be attained after a more or less long period, which might in practice be of great importance. But it is essential to note that this interval may be prolonged indefinitely, if the cause which gave rise to the disequilibrium is a persistent one. If in any one country the urgent need for imports continues to be greater than its capacity for export, or if the lack of confidence felt by foreign markets in its political stability and solvency becomes more pronounced, it may well happen that the depreciated level of prices in the home market of the country does not enable it to secure, even though trade be unrestricted, sufficient valuta to re-establish equilibrium in the balance of payments. In such a case the compensatory forces do indeed operate, it is true, but only to an extent insufficient to re-establish equilibrium, in face of the persistent recurrence of the causes of the disequilibrium; the rate of exchange grows worse, and the divergence between the rate of exchange and the relation between the rate of level of prices persists, and may even become accentuated. That has happened for a long period. The low prices at which goods could be purchased by foreigners in Poland, Austria and Portugal certainly stimulated export, but not to a sufficient extent to compensate for the imports necessary to the country; thus the amount of money belonging to these countries in foreign markets grew steadily greater: these markets — also because of growing lack of confidence in the Government of the countries referred to — retained such valuta with increasing want of confidence; the rate of exchange grew worse accordingly, and the difference between it and the level of prices persisted. It is no doubt true that the artificial restrictions have increased the difficulties, but it can scarcely be admitted that without these measures the commercial balance could rapidly have recovered its equilibrium.

It should be observed that when I speak here and in the previous pages of "artificial barriers to exportation", of the "exporting capacity of a country" and of the "maximum of commercial freedom", I refer to the exportation of and the trade in commodities other than gold; the circulation and export of gold are subject to such general restrictions in Europe that it would be impossible to ignore them without losing touch with realities. But it is nevertheless easy to understand that, even if the circulation and export of gold had been completely free, the disequilibrium of exchanges could not thereby have been prevented, though it would have been delayed.

Economists observe in this connection that if there were complete freedom of export of gold between two countries, the rate of exchange between their currencies could not depart from the relation between the levels of the prices on the home markets further than the distance represented by the cost of transport of gold from one country to another. If the valuta of one of these countries is at a premium on the basis of this relation, the nationals of the other country who require this valuta will gain by buying it only up to the point where the premium is not more than the expense incurred in the dispatch of the corresponding quantity of gold. But this supposes that there is sufficient gold available in the country to meet the deficit of the balance of payments. Now if we examine the gold available in the various countries and the condition of their balance of payments during and after the war, it is evident that, at any rate in the case of the majority of the countries with depreciated currency, even the whole of the gold at their disposal would have

been insufficient to meet the deficit of their balance, except for a limited period, after which the disequilibrium of exchanges would have inevitably appeared.

Neither could one count upon attracting foreign capital by raising the bank rate. Even in normal times the rate would have to be very considerably raised to achieve this result, and during the war it was considered necessary to avoid any excessive raising of the rate of interest in order not to discourage industry; furthermore, even assuming that there had been no uncertainty in regard to exchanges, the uncertainty of the international situation and the lack of confidence in other countries would, no doubt, have been sufficient to drive away foreign capital.

It might be maintained in reply that, after the disequilibrium had become apparent, gold would have returned, if it could have been freely exported from the countries whose currency was sound and standing at a relatively high level to the countries whose currency was depreciated and standing at a relatively low level, and that this would have given further proof of the effective working of the mechanism of compensation of which we have spoken above. But it would seem difficult to admit that this would have taken place to a sufficient degree. For the reasons which we have shown in the preceding pages, countries with sound exchange do not make sufficient purchases in the countries with depreciated exchange to re-establish the equilibrium, even though they can now use for the purpose the valuta and paper money of which their markets have a superabundance. How, then, can we believe that they would have decided to do so to a sufficient extent by exporting gold ? As a matter of fact, the United States have raised the prohibition on the export of gold since the month of June 1919; the level of prices reduced to the same monetary unit on the basis of the exchange was higher in the States from the months of July and August than in the majority of the European countries, and possibly than in any European country; and nevertheless in 1920 the imports of gold from Europe to the States were not only not less but were, in fact, greater than the exports from the States to Europe.

It must be noted that, if the mechanism of compensation were sufficiently active, the rate of exchange, setting aside accidental oscillations, would become stabilised.

Afterwards, when the rate of exchange is stabilised, the difference between it and the relation between price levels in the national markets tends to disappear, both by the action of the process of adjustment referred to above, and because the circumstances which tend to produce this difference cannot then persist, and their influence tends to disappear.

The effect of the greater sensitiveness of the foreign markets and the inertia of prices presupposes the fact that the exchange is getting worse. On the other hand, these factors only cause a delay in the rise of prices; the latter, when the depreciation of the exchange has been arrested, tend at length to reach a level corresponding to that determined by the rate of exchange.

With a stable exchange rate, a diminished confidence in the country's valuta in foreign markets may exist for a time; this is due to lack of confidence in the stability and solvency of the country in question. But it may be understood that after it has become evident that the level of the exchange has not depreciated for a long time, such a lack of confidence must gradually disappear.

The presence among the national currency held abroad of considerable quantities of false notes which cannot easily be detected has an effect which cannot be removed by the stabilisation of exchange alone, but which tends to diminish with the equilibrium of the balance of payments, an equilibrium which, moreover, is normally a condition of the stabilisation of exchange. The disappearance of the deficit in the balance of payments affords, in fact, more frequent opportunities for the national money held abroad to return to its own country; in this way the false notes are circulated on the home market and this tends to place the national currency, from this point of view also, in the same position on the home as on the foreign markets.

The excess of the supply of the currency of a country over the demand in the foreign market is most marked, as has already been shown, when the exchange

of that country is falling, and since this has a cumulative effect, it still further tends to lower the exchange. Its effect differs, however, from that produced by the causes referred to previously, inasmuch as it does not automatically disappear even when the causes have ceased to exist. When the excess of supply over demand disappears and the exchange is steadied, the difference between the latter and the level of prices does not immediately disappear; compensatory machinery has to be set in motion in order to remove it. Where this is interfered with by prohibitions or restrictions on international trade, the correspondence between the rate of exchange and the level of prices is thus restored more slowly.

On the other hand, these commercial prohibitions and restrictions, duties on exportation or importation, and controlled prices, in so far as they limit in a unilateral manner the utilisation of the currency by foreigners and increase the cost price for foreigners, render the rate of exchange less favourable than the relation between the levels of prices. This result, and the other which arises from the fact that certain series of notes are not recognised as valid in the foreign exchange market, have a static and not a dynamic effect, and, unlike the effects of the other circumstances referred to, their consequences remain even when the exchange has become stabilised.

We can conclude with the following propositions:

When speaking of the parity of purchasing powers or of the relation between price levels as the condition of the equilibrium of the exchange, it is necessary to make quite clear what is understood by these rather vague expressions.

The important factor in the determination of the rate of exchange is not exactly the general level of prices, that is to say the average prices realised by all the transactions into which money enters, and still less the cost of living; it is the average of the prices of goods and services which are taken into account in the balance of international payments. If, as is generally done, the relation between the general price levels is regarded as the condition of the equilibrium of the exchange, and still more if, as is often done, the general level is deduced from the cost of living, a permanent disequilibrium of the exchanges results every time that controlled prices, or other similar measures which play a greater part in one State than in others, cause the raising of the prices of the goods and services which are taken into account in the balance of international payments as compared with the goods and services which serve the home markets.

It should also be remembered that the important factor in determining the rate of exchange is not exactly the relation between the prices paid on the home markets by nationals, but, in the case of goods and services paid by country A to country B, the relation between the prices in national currency which the nationals of country B would have to pay to produce them on the home market, and the prices in foreign valuta which they pay (after paying all the export and import duties, the co-efficients of increase, the expenses of transport, etc.) if they buy them abroad. It follows that if we regard as the condition of the equilibrium of the exchange the relation between the price levels paid for goods by nationals on the home market, we observe a permanent disequilibrium of the exchange whenever prohibitions of or restrictions on exportation or on investment, or whenever special duties, or special transport charges, or similar measures, which play a greater part in one State than in others, have the effect of restricting the field of utility of the national valuta for foreigners, or raising for foreigners the level of cost prices.

Setting aside these causes of the disequilibrium of the exchange (and it may be further asked if the disequilibrium in this case is not merely an apparent disequilibrium, in that it arises from a vague conception of the condition of equilibrium of the exchange) it may be maintained that when the exchange between two States is steady, or at least has not a constant variation in one direction, the relation between the level of prices tends to conform to the rate of exchange, the rapidity and completeness of this conformity being dependent on the freedom of trade, and the activity of the international exchanges.

When the rate of exchange between two States has a constant variation in one direction, and such variation is not determined by the previous variations

in the level of prices, the relation between the level of prices varies in the same way; their variation is, however, slower and less intense, and then the level of prices, expressed in the same currency, remains lower in that State whose currency is the more greatly depreciated. The equilibrium only tends to be re-established when the constant variation of the rate of exchange ceases, and a state of affairs is reached similar to that previously mentioned.

Finally, when the level of prices varies in one of two States, and such variation is not determined by previous variations of the rate of exchange, the exchange tends to conform immediately to the new relations between the level of prices.

The latter case is, however, rare, and need not perhaps be considered; it can only, in fact, occur when the variation in the level of prices is brought about by unforeseen contingencies. If, on the contrary, such contingencies are foreseen, the rate of exchange falls before their effects are felt on the level of prices by reason of the greater sensitiveness of the foreign market, and a result is reached similar to that arising from our former hypothesis.

The above propositions explain the lower level of prices which exists in countries whose currency is much depreciated. On the one hand it arises from the circumstance that it is not either the general level of prices or the cost of living which must be regarded as the important factor in determining the rate of exchange, but rather the prices of the goods and services which are taken into account in the balance of international payments. This inferiority, therefore, is seen to be more marked in the countries such as Germany, where the control of prices is more efficient and foreigners have most to reckon with co-efficients of increase which raise the prices of the goods and services which are taken into account in the balance of international payments in comparison with the general level of prices and of the cost of living within the country.

On the other hand this inferiority does not, properly speaking, depend on the actual depreciation of the currency, but on the progress of such depreciation over a long period of time. If such a condition continues to exist, even in States in which the exchange has remained steady for some time, the reason lies partly in the fact that the lapse of time has not been sufficient to re-establish the equilibrium; for, as has already been remarked, in the case of goods of home production, the lapse of time necessary for such re-establishment is considerable. Generally speaking, prices in countries whose exchange has not for some time been subject to a constant variation are already notably higher than those in States whose exchange continues to fall, or has only recently ceased to do so.

The disequilibrium of the exchanges, that is to say, the lower relative level of real prices in countries whose currency is depreciated, is a characteristic feature of post-bellum economies. Doubtless certain differences of prices existed even in pre-war days. In rich countries, where purchasing power was greater, and in cities, where demand was higher, prices also were notably higher. But this was merely a result of the balance of supply and demand. To-day, on the other hand, prices are higher in certain countries than in others although such a result may not be due to a greater demand.

The differences of prices in pre-war days represented a balancing factor and corresponded with an approximative agreement between the rate of exchange and the monetary parities; the differences in prices to-day are, on the other hand, the expression of an economic disequilibrium which persists throughout the world. What essential differences from the economic point of view have then occurred between pre-war conditions and the present conditions which permit of the continuation of this disequilibrium ? In the preceding pages we have analysed the factors which were an immediate relation to the disequilibrium of the exchanges; in endeavouring to reply to the question which we have just raised we shall endeavour to throw light upon the more deeply seated causes.

These causes may be grouped as follows:—

(*a*) The excess in many European countries of the urgent need for foreign goods over the goods which the home market can offer to foreign trade. This

is the fundamental cause. This is the direct source of the disequilibrium between the demand and the supply of foreign valuta; and indirectly all the causes which are shown under the following headings (*b*) to (*i*) also derive from this source in a greater or a less degree.

(*b*) The adoption in nearly all the countries of the world of paper money not convertible at sight, that is to say, of a fiduciary circulation which is not accepted for payment except in the country of issue. Such currency is not only a medium of exchange but it also has the character of an instrument of credit, the payment of which, however, remains within the power of the debtor. Confidence in this payment is clearly to a large extent subjective; it is this subjectivity which gives rise to the different valuations of the valuta on the part of foreigners and nationals. The adoption of fiduciary currency, moreover, renders possible the manufacture of money which is only valid for home payments and makes forgeries easier and more remunerative, with effects upon the disequilibrium of the exchanges which we have noted above. The fact that the currency is not accepted outside the country of issue makes it useless as a normal means of meeting the deficit of the balance of payments or of preventing or correcting speedily the disequilibrium of the exchanges. Paper money is sometimes accepted, it is true, by foreign speculators, but as it cannot circulate abroad it weighs heavily upon the rate of exchange, or at least it will weigh heavily at the moment when the speculators replace it on the market.

(*c*) The impossibility, or at least the difficulty, of exporting gold from countries with depreciated exchange. When there is a disequilibrium in exchanges the mechanism of compensation cannot operate by means of the transport of gold from the country where the price of gold is relatively low to the countries where its price is relatively high. The compensation can only be effected by more expensive or slower means, such as the exportation of other goods, or the sale abroad of securities or real estate, or by the emigration of the population of one country to another.

(*d*) Commercial restrictions, such as hindrances to the exportation of goods from countries with depreciated exchange, and the duties imposed on such goods, — hindrances and duties imposed either by these countries or by the importing countries; as well as all the hindrances to the purchase of securities or real estate by foreigners, and all the measures and tariffs which increase directly or indirectly the cost price of property purchased by foreigners as compared with the prices of property purchased by the nationals of the country.

These restrictions render the action of the mechanism of compensation more difficult, slower and more onerous, and therefore less efficacious. Furthermore they accentuate the differences between the uses of money by foreigners and by nationals, and in this way, when they have more effect in one country than in another, they contribute, as we have shown above, to the disequilibrium of the exchanges.

(*e*) Restrictions on international emigration movements, either emigration to the countries with depreciated exchange on the part of rich people who spend more than they earn, or emigration from these countries on the part of workers who save more abroad than they can do in their own country and send their surplus earnings home. These restrictions accentuate the deficiency of the balance of payments and hinder the operation of the mechanism of compensation.

(*f*) The fear of a subsequent depreciation of the already depreciated currency of a country or the fear that the country's economic conditions may become worse, or that the fiscal burdens may become heavier. This fear acts as a deterrent to foreigners who might desire to buy the country's valuta for purposes of speculation or to invest in the country's securities or real estate, or to furnish credits to the country's industries. Hence arises a new difficulty in the working of the mechanism of compensation. If the nationals share this

fear, the national capital also flies abroad and there is a tendency for nationals to buy foreign stocks and valuta, which causes an accentuation of the deficit in the balance of payments.

(*g*) The more or less justified fear entertained by rich people who wish to travel in, or emigrate to, certain countries with depreciated exchange that their personal safety is not secure. In certain extreme cases a similar fear may affect the rich people of the country itself, who emigrate in consequence. These circumstances have results similar to those pointed out under heading (*f*). The emigration of rich people from a country does not, however, contribute to an accentuation of the deficit in the balance of payments unless they continue to draw abroad the revenues which they previously drew within the country.

(*h*) The difficulty of anticipation (which to-day is incomparably greater than before the war) of future movements of prices in the various countries and of the economic and political future of the various States — circumstances which give a quite special importance to the greater economic sensitiveness of the exchange market as compared with the home markets for other goods.

(*i*) The importance of variations in the exchanges. These variations destroy any hope of limiting the disequilibrium of the exchange by attracting foreign capital by means of an increased bank rate. The variations in the exchanges which occur from week to week, or even from day to day, sometimes, in fact, exceed — as has been well observed — the amount of the profit which could possibly be offered to the said capital. If the variations of the exchanges occur for reasons different from the reasons which cause the variations in the price levels, they have another important consequence. Because, in practice, when prices vary, the selling price of goods does not correspond exactly to their cost of reproduction but is half-way between the cost of production and the cost of reproduction, the result is the phenomenon of the inertia of prices which we have examined.

(*j*) The necessity of paying indemnities to enemy Powers, or of paying to Allied Powers or neutrals the debts or interests which are the heritage of the war. I mention this cause last because, in practice, no important payments under this head have yet been made by the Powers with depreciated exchange, except by Germany, and that only to an amount which is not yet very great.

After having analysed the causes of the disequilibrium of exchanges, let us examine their consequences. These are of capital importance, both in relation to production, to international trade and to unemployment. To-day the countries with depreciated exchange can, since the prices of their foodstuffs, home products and manual labour are lower than those in countries whose currency is normal, produce the same goods for export at a lower price, and are thus in a favourable position to compete in international markets. Such a condition does not materially affect the trade of countries whose currency is normal, as long as supply is just equal to, or lower than, demand, as was the case in the last crisis. But it may be of the greatest importance at a time when, as now, there is a notable crisis of markets. It contributes itself moreover by its influence to the accentuation of the crisis of markets. It is for this reason that the crisis to-day assumes the largest proportions in countries whose currency is normal, such as the United States, Sweden, Switzerland, England, and in others to a less extent. Those countries, on the other hand, whose currency has become still further depreciated, such as Poland, the Baltic States, Portugal and Austria, are, one may say, unaffected by the crises of markets, and if a certain measure of unemployment exists in them, the reason is furnished by other circumstances; in the Baltic States, for example, by the number of workers repatriated from Russia who have so far been unable to find work, or in other States by a legislation which tends to favour unemployment.

The favourable conditions brought about in certain countries by the depreciation of their currency have given rise to a question as to the advisability, under present economic conditions, of a policy of progressive depreciation of the currency. Such a policy has been recommended in the case of Switzerland, and many consider that it is deliberately practised by Germany.

Whether such a policy has been deliberately adopted by Germany is difficult to decide; it is, however, certain that in Germany the currency in circulation increases, the sale of notes abroad continues, and the exchange falls; and that these circumstances tend to keep prices, and therefore cost of production, expressed in the same money, at a lower level, thus securing an advantage in foreign markets and preventing unemployment.

It is clear that such a policy cannot continue indefinitely, since, when the demand is no longer below the supply, the advantages enumerated above cease to exist, while the losses resulting from inflation remain. For this reason the conditions of Germany were particularly difficult when the last crisis of insufficient production was at its height. Whilst, on the other hand, a lack of markets exists, the advantages derived from a policy of inflation may well be greater than its disadvantages.

The extent of such losses must not, however, be exaggerated. The economists who have so rigorously opposed the policy of inflation practised by countries, although they were right from many points of view, have at times allowed themselves to be drawn by their zeal into exaggeration on this head. Theoretically it would be quite easy to conceive a State so regulated that an inflationist policy would not produce appreciable loss.

The first and most important disadvantage to which it would be liable is, in fact, that of the uncertainty which would attach to all contracts and all financial estimates. Such uncertainty could, however, be avoided by a regulation of the issue of paper money, calculated to produce an almost constant increase of prices. Before the war we were, in fact, accustomed to a period of almost steady prices, and this was a further reason why our economic life was thrown into confusion by the rise of prices during the war; but, theoretically at least, if prices vary in a manner which can be measured, provision can be made with the same certainty. The system of a sliding scale, based on the level of prices, which has now been put into operation, may be also used to correct, to any extent, the influence of the variations in the purchasing power of money. It may indeed be applied, not only to salaries, but also, as was proposed long ago, to all taxes and contracts. Should the policy of inflation be adopted at a moment when the level of prices in the world market is falling, it may prevent or retard the fall of prices in the State which adopts it, and thus may be regarded as a factor of stability.

The other drawback which results from the policy of inflation, when such a policy brings about a rise in nominal prices, is the levying of a kind of tax on all holders of capital or creditors and on all possessors of fixed incomes, or incomes which cannot immediately expand in relation to the rise of nominal prices. Such taxation is all to the advantage of debtors, business men and those who have to pay these incomes. Among these are employers if, as often occurs, wages adapt themselves only slowly and incompletely to the general level of prices. Such injustice could, however, only arise if the various classes of the population were equally affected by taxation; but it is easy to conceive of a system of taxation which would weigh less heavily upon the classes which suffer from the inflation of the currency. In such circumstances, this effect of the inflation of currency is not incompatible with the equalisation of burdens, but is a corrective to the system of taxation. It may be added that, for various political reasons, a system of disguised taxation on holders of securities, bonds, and capital, and on workers, may be preferred to an open system of taxation; whilst it may be advantageous for the nation to stimulate enterprise, even if such a result can only be obtained at the price of inequality of taxation. When the level of prices falls, the policy of inflation, by preventing or delaying the fall, prevents or limits automatic realisation of profits by creditors, holders of capital, securities and bonds and by the possessors of fixed incomes, and minimises or eliminates the difficulties of employers; such a result cannot be said to be for the moment injurious.

In practice the disadvantage of a policy of inflation, adopted by a State which is in financial difficulties, may, according to circumstances, be more or less serious than those which it would incur if it followed a different financial policy.

In considering the present condition of Germany, it will be seen that many of the above-mentioned circumstances calculated to minimise the losses on the issue of paper money, or to turn them to momentary advantage, are more or less present. So that, whether the policy of inflation be carried out deliberately or no, whether it be adopted for the benefit of the whole nation or for the benefit of a single class of persons, particularly influential as regards the economic policy of the State, it is certain that it may be adopted with advantage to Germany under present economic conditions.

A financial deficit may result, since the depreciation of currency is more likely to increase expenditure than revenue. This may certainly be remedied by the adoption of a more elastic system of taxes, if not by the actual adoption of the principle of the sliding scale in this matter also. But it is doubtful whether the German statesmen really wish to balance the budget, or whether they do not rather consider that the political interests of the country demand a display of serious financial difficulties in the face of the neutral and ex-enemy Powers.

Even without considering such political contingencies, it is certain that the particular advantage which may be secured by a nation from a policy of inflation does not correspond to general advantage in world economics. Indeed, the advantage of one nation necessarily corresponds to the sacrifice of other nations, since, owing to the crisis of markets, the exportation of one nation naturally diminishes the possibilities of exportation for other States.

Another observation may be made, calculated to explain the close relationship which would appear to exist between the depreciated exchanges, which sometimes all fall at the same time, as a result of fresh issues of paper money on the part of a single State. A portion of the new paper money is actually taken up within the country or abroad by speculators, who, in order to purchase it, frequently sell paper money of other States which they had previously bought. The supply of the paper money of these States is thereby increased and the exchange consequently drops.

The present conditions of the exchanges are, therefore, economically harmful, not only inasmuch as they prevent the furnishing of raw materials and foodstuffs, and inasmuch as they place difficulties in the way of those remedies which might be provided by international credit and by the adoption of a free-trade commercial policy, but also in that they accentuate inequalities between the various nations, some prospering by the loss of others.

It is therefore important from every point of view to endeavour to improve this state of things.

Excluding the idea of an artificial regulation of the exchanges, which has been shown to be harmful, in practice not less than in theory, at least in time of peace, the only course is to attack the root of the evil and endeavour to obtain the re-establishment of a normal currency circulation. It is therefore advisable to return to a circulation on a gold basis, such as was generally in use before the war. It is clearly difficult for many States, and is certainly impossible for some, to return to this method, at least in a short period of time, by means of the re-absorption of the surplus paper money. It should be added that, even if the re-absorption was possible, it would probably be harmful rather than useful, since it would give rise to a rapid fall in prices or accentuate this where such a tendency is already existent; such a fall in prices, always dangerous, would be absolutely disastrous under present economic conditions.

A proposal has been put forward to introduce an international unit of account. This would be an appreciated currency, in terms of which the contracts would be drawn up, subject to the condition that, when the contracts lapsed, the payments would be made in national currency reckoned at the rate of the exchange of the day.

Such a proposal was judged to be useless by the Brussels Financial Conference; and this is indeed the case, inasmuch as an international unit of account already exists in the form of gold or a currency such as the dollar, which is convertible into gold. Certain countries, such as Poland and Latvia, have already had recourse to this device.

An international unit of account is, however, useful in so far as it simplifies accounts. Anyone who has been in the countries which have daily commercial dealings in a dozen different currencies, from the Swedish, which is the highest, to the lowest, will realise the extent of this advantage.

An international unit of account may also have another and more importantl effect, which is to decrease the risk in contracts. If contracts are drawn up in the money of the country, those concerned are liable to the risks caused by variations in the purchasing power of the said currency during the period between the making of the contract and its expiration; but if, on the other hand, contracts are drawn up in the international unit of account the contracting parties are only subject to the risks caused by variations in the purchasing power of gold. If the national currency varies greatly, this second risk may be considerably reduced. For this reason it will be understood that, wishing to offer reasonably secure guarantees abroad, countries such as Poland and Latvia, where the purchasing power of the national currency has rapidly diminished, have been compelled to have recourse to an international unit of account.

It will be understood also that prudent ministers of finance, who are obliged to reckon upon safe revenues, have established their customs duties on a gold basis. This was done in Latvia. The customs tariffs for imports and exports are valued in gold francs and paid in Latvian roubles in accordance with the rate of exchange of that day on the London Stock Exchange. The application of this system to the taxes is under contemplation. Finland and Lithuania propose to follow this example.

The introduction of an international unit of account would reduce the difficulties caused by the fluctuations and systematic variations of the exchanges, in so far as they depend on paper money, but it would not obviate the difficulties, possibly more serious, which arise from the disequilibrium of the exchanges. These difficulties, however, might be avoided by the effective introduction into circulation of an international currency — either a gold currency or a currency convertible into gold — which would be destined for international trade and which would take its place by the side of the national currencies destined for internal exchanges. There would naturally be nothing to prevent traders of any country making their contracts in an international currency, and there would also be nothing to prevent the nationals of different countries establishing their contracts in a national currency. But, with such a system in operation, the rate of exchange between two national currencies would correspond to the prices at which, in the national currencies, the international money could be purchased in the markets of the two countries. It would always be possible to buy international currency with a national currency and to exchange international currency for another national currency. But international currency, if equitably distributed, would not have any systematically different purchasing power in the two countries, so that the relation between the price of the international currency expressed in terms of national currency and therefore the ratio of exchange between the two national currencies would tend to coincide with the proportion between their purchasing powers, and the disequilibrium of exchanges would in this way disappear.

Let us examine how the system would operate. Every country would have at its disposal a certain quantity of international currency. If this were a gold currency, the State would have to provide or acquire the necessary gold; if it were only exchangeable with gold, the State would have to offer guarantees consisting of a gold reserve, or of securities of international value, such as oil-wells or taxes and customs revenue. It is easily understood that the adoption of this proposal presupposes that a balance of payments with other countries is possible, because otherwise the international currency would leave the country. It might even completely disappear from the country, but before this point had been reached, there would no longer be that equitable distribution of the international currency which is the condition of its possessing the same purchasing power in the various countries and thus preventing disequilibrium in the exchange. But this is not the only hypothesis essential to the working of the system, for if, in fact,

a large quantity of national money is held abroad, foreign holders will always be able to put it on the national market and to acquire there by this means international money in exchange, which they can subsequently export. To be sure, therefore, that the international currency will not leave the country, it would also be necessary to re-absorb the national money which may be held on foreign markets. But there is no guarantee that, when such an absorption has taken place, foreign markets will not later acquire national money for the purpose of speculation, and will not throw it back again upon the home market at a time of panic, and withdraw the international currency in its place. In order, therefore, that the system should operate without danger, it is also necessary that a fixed proportion should be maintained between the international and the national currencies.

It is conceivable that such a result might be achieved by well-timed regulation of the issue and the re-absorption of the national money; but I believe that the majority of economists and business men, who distrust on principle and from experience any unnecessary State intervention, would prefer to confide the maintenance of the balance to the automatic action of economic forces. There remains the alternative of fixing the relations between the national and the international currencies on the basis of their effective purchasing powers; but this amounts in fact to the putting into operation of the scheme of substitution, or, as it is more commonly called, of the devaluation of the currency.

According to such a proposal, the depreciated currency which is actually in circulation would be replaced at the current rate of exchange by a currency exchangeable at sight with gold. This exchange could only be permitted for international payments or also for the currency in the interior. In either case it would naturally be advisable for the State to provide itself with a certain gold reserve. This should clearly be larger in the latter case, and for this reason the former seems more advantageous. In both cases, however, certain conditions are presupposed, for, in the absence of such conditions, the reserve would be quickly exhausted and the former economic conditions would again arise.

Once the conversion has been effected, it will, first of all, be necessary to stop any further use of paper money. Otherwise the paper money would certainly tend to fall below the stabilised rate of exchange, and, consequently, holders of such paper money would demand its conversion into gold, either in order to make purchases abroad which would yield them a profit, or, on the latter supposition, in order to obtain a more reliable currency.

Secondly, there must be equality, if not a credit surplus, in the balance of payments, for otherwise all the gold would ultimately be exported abroad.

Thirdly, the State must possess a certain political solidarity and consequently inspire confidence abroad and at home, so that holders of paper money may not make an excessive demand for conversion in gold. It is even a question whether previous withdrawal of the paper money abroad would not be expedient. For foreigners only hold the paper money of a given country because they hope for its appreciation. The substitution of this paper money by a new currency exchangeable at sight for gold would exclude this hypothesis. It is safe to assume that foreigner holders of paper money would then prefer to have gold which has purchasing power in all countries rather than paper which has purchasing power only in a foreign country, and which, moreover, can no longer improve in value. If therefore the State has not previously withdrawn its paper money held in foreign countries it must be prepared to convert into gold.

When the conditions enumerated above are fulfilled, the devaluation of the currency and its conversion into sound currency is a measure which is certain of success. As is well known, this measure has already been successfully carried out in the past in Austria, in Russia and in the Argentine. It is to be remarked that, when the above conditions are fulfilled, the exchange with countries on the gold standard remains steady or improves, and, on the other hand, when the exchange with countries with the gold standard does not fall for a considerable period, it may be taken as a sign that the above conditions are present. The devaluation of the currency can then be carried out.

It is considered by some that, in the present state of the money market, such a measure could only be carried out by a very powerful State, such as England, or, in the case of weaker States, by a group of them; otherwise the gold reserve might easily pass to foreign countries. This eventuality, however, when the above conditions are present, could only be brought about by surprise, and it would be easily prevented by entrusting the duty of exchanging the currency for gold to certain fixed organisations. It is, nevertheless, evident that the measure would be better carried out simultaneously by several States.

The advantage of such a measure lies essentially in its power to render fully effective, by the introduction of circulation on a gold basis, the stabilising forces of the exchange; under a regime of fiduciary circulation there, forces operate, as we have seen, far less perfectly. Should the exchange have a tendency to improve, this measure would also have the advantage of eliminating a factor of price variation. Therein lies the answer to an objection which has been raised: that if the conditions outlined above are verified, the disequilibrium of the exchanges disappears of itself, without any necessity of recourse to the devaluation of money. The disequilibrium of the exchanges would doubtless disappear, but more slowly. The establishment of a gold standard would render possible a more rapid recovery: this is an important advantage; the establishment of such a standard would, moreover, prevent any further disequilibrium occurring in the future, which is, perhaps, a still greater advantage.

Such a measure has been recommended by many, and among the first, I think, in Italy, by the present writer, with the reservation that its execution was still premature. It has, however, been opposed by those who, rightly or wrongly, hope that the currency of their country will return to the normal by means of a gradual re-absorption. Their argument is that a devaluation would be equivalent to State bankruptcy. The objection is completely unfounded, since the holders of capital do not really lose anything by the devaluation of State currency, which merely changes bad currency into sound currency at the actual exchange values. It is a merely nominal "devaluation"; in reality it is only a "substitution". The only thing of which the State deprives the holders of capital is the hope of a recovery in the value of the currency; and it is therefore evident that the measure would meet with far greater opposition in a State in which the exchange was improving than in a State in which the exchange was steady. The only serious objection to the measure is that those who in the past have acquired currency or public securities from the State, from which a fixed income in that currency is derived, counted upon the maintenance of its parity when the currency was still sound, or on its recovery when it was already depreciated. It may be replied that, judging by past experience, they should also have taken into account the possibility of an eventual devaluation and substitution of the currency, and that they have no right to complain if this is again carried out. And, on the other hand, it must be remembered that, owing to the rapidity with which currency and bonds circulate, such valuta and securities would seldom be found in the possession of those who originally acquired them from the State. But a more potent argument, in my opinion, is that, in this case, as in so many others, every measure has its drawbacks, and it is necessary to select from the various measures proposed that which presents the least serious difficulties.

Whether it is justified or not, this question of State prestige does not arise in the case of new States which have inherited a depreciated currency and whose citizens cannot ask the Treasury to assume the burden of the revaluation of the currency. This is precisely the case in the Baltic States, in Poland, and in the Austrian Succession States. For the Polish marks, moreover, no fixed value in fact was placed upon them at their issue; it was simply declared that the value would be subsequently determined by Parliament. It is therefore clear that the idea of a devaluation of the currency is in these States considered as a perfectly reasonable measure which should be carried out as quickly as possible. In the case of Austria such a measure is recommended by the Financial Commission entrusted with the financial reorganisation of that country. In the case of Poland the new currency which is to replace the Polish marks is already prepared and will be called

"zlotis" (golden): it is merely a question of finding a propitious moment to carry out the substitution. In Latvia, the gold franc, which at present represents merely an international monetary unit of account, is destined to be subsequently put into circulation under the designation "Lat." Contracts are being concluded for the manufacture of this money, which will probably be issued in a month's time.

As has however already been remarked, it is above all necessary to re-establish equilibrium in the balance of payments, to re-establish financial equilibrium in the national budget, to inspire confidence abroad and at home in the political stability and in the economic solvency of the country so as to stabilise the rate of exchange. Once devaluation has occurred, fiduciary currency held abroad must be previously withdrawn by the State or else the State must be prepared to convert it to gold.

This in itself shows clearly enough that the disequilibrium of exchange is not an isolated evil; it is but a secondary evil, and at the same time the symptom of a deeper evil undermining the whole economic and financial organisation of the country. It may be possible to hasten the disappearance of the disequilibrium, but, above all, it is essential to restore the organisation to normal health.

Some nations, such as Czecho-Slovakia, are already almost in a position to realise the above-mentioned conditions. Others, such as Poland, Austria, the Baltic States, and probably Hungary and the Balkan States, are still more or less far from doing so. In my opinion there is no reason to suppose that the majority, if not all, of these States, will not in time find a way of improving matters.

It is considered by many that loans accorded to private individuals from abroad would be of assistance in stimulating the import of raw materials and therefore production, insuring thereby the economic reconstruction of the country and fostering its future exports. But as we have seen, although loans for industries of exportation are not lacking, loans for industries working for home markets are impeded by difficulties arising from the instability of the exchanges. We are therefore moving in a vicious circle: on the one hand, the stability of the exchange is necessary to stimulate loans from abroad; on the other, loans from abroad must be stimulated in order to re-establish the stability of the exchange. Some other means of financial reconstruction must be found to break this vicious circle.

The method of breaking this circle and of arriving at that financial reconstruction which is indispensable for the improvement of the currency is to be found in the introduction of new taxation or in a revision of the former system and, if necessary, in national or foreign loans. Economic conditions are such as to permit that these measures may be carried out almost immediately and in all States; agricultural production, which forms the chief industry in the poorer countries, is to-day almost completely re-established; industrial reconstruction has also been effected in most of these countries on a fairly large scale; for the industries, on account of the disequilibrium of the exchange, do not experience any serious difficulties as a result of the marketing crisis from which the richer States suffer.

The difficulties with which the States whose exchange is unfavourable are faced, not excluding Austria, are of financial rather than of economic character. In all the Baltic States, in fact, and in Poland, the reorganisation of the financial administration was necessarily carried out by inexperienced personnel which had no practical familiarity with the work of administration, since in Russia it was difficult for subjects of those countries to obtain public appointments, these being reserved for Russians who have now returned to their country of origin. It seems that similar difficulties are present to a certain extent in Roumania, whilst German-Austria suffers from the opposite difficulties arising from a surplus of officials. The latter, dismissed by other States at the dismemberment of the Empire, now constitute a heavy burden on the State and municipal budgets and increase the defects of the public services. In addition to the defects of the administration, there is often the difficulty of finding competent technical authorities capable of dealing with the situation, in the political parties in power which are themselves new to public life. Political contests present another difficulty, since the politicians who are desirous of carrying out a sweeping programme of financial reforms cannot always or everywhere bring such a programme to completion, for their opponents take advantage of it to raise

public opinion against them and expel them from office. This is especially the case in Portugal in which, since it is an old-established State, the preceding difficulties do not arise. The remedy, or partial remedy, for this difficulty may be found in the appointment, in States which are faced with financial difficulties and whose exchange is particularly unfavourable, of technical advisers selected from persons of special competence to advise the ministers of finance to proceed with caution, shield them from the suspicion of a one-sided policy and carry out in the various States a plan based on a common programme. The duties of such technical advisers would naturally be dictated in relation to the conditions and wishes of the various countries.

The need for such technical advisers is so great that certain efforts have already been made in this direction in the past: thus, in Latvia, an adviser was desired for questions of credit, and in Poland steps were taken to obtain the services of persons who would have acted in the capacity of technical advisers upon all financial questions. In Poland itself, the measure has actually been carried out in the case of the railways, the administration of which has been greatly improved with the help of an American adviser. In other cases, various difficulties have arisen, either owing to financial reasons — such, for example, as that of the high salary in national currency which it would be necessary to give to foreign advisers, — or owing to political reasons, it being undesirable that persons with an official position should appear as advisers af Governments which are still in political conflict with neighbouring States.

Earlier precedents are, of course, numerous: England, by means of technical advisers, has been able to direct the economic policy of several Asiatic States with advantageous results to their economy and to her prestige. It would, however, be difficult to-day for one State to have recourse to such a system since it might disturb the existing international equilibrium in giving rise to jealousy and suspicion on the part of other Great Powers and thus alienate their sympathies from the State which had made use of the services of national advisers.

Such difficulties would perhaps be avoided if the appointment of technical advisers were made by the League of Nations. They would then be considered as employees of the League, which should also provide a part of their salary. For example, the States which made use of the technical advisers could allow them a salary in local currency corresponding to the highest salary of local officials, whilst the Leagne of Nations could, for its part, provide a special allowance. This would be the only method of assuring the co-operative action of a common programme of the various advisers. It would, moreover, ensure that these advisers did not, by reason of their sympathy towards the country in which they are living or of deference towards the Government which pays them, place the particular interest of the country before the general interest, with which in certain cases that particular interest might, as has been explained, find itself in conflict. The technical advisers would act in a sense as members of a commission for the reconstitution of the depreciated currencies distributed in the various countries. By their distribution in various States, their work would not only be simplified but its results would be improved, since, as has already been seen, the introduction of a currency on a gold basis would be more easily effected simultaneously in several States. The solidarity which links all the nations in these matters, as we have already shown, justifies the fact that a part of the advisers' salaries would be drawn from the budget of the League of Nations, and thus indirectly from all the States which are Members of the League. This would, moreover, place a reasonable limit upon the number of financial advisers appointed who might be claimed by many more States than those actually concerned, and for more numerous services than could be required.

The advisers should be supplied by the League of Nations only to those States the exchange conditions of which are particularly unfavourable, and in which, for that reason, the task of rehabilitation is the more difficult and urgent. The advisers should further be charged only with such duties as, for instance, the regulation of the exchange, which are particularly important, not only for the country in question, but also in general for all countries. The Secretariat of the League of Nations might propose in each State a list of names of persons, belonging possibly

to different nationalities, suggested by the Secretary-General or by the Technical Committees of the League of Nations, or, finally, by other organisations. From amongst those persons the country in question might select the name or names which inspired them with most confidence.

These technical advisers should be responsible either to the League which has appointed them and might recall them, or to the Government which has accepted them and which might withdraw its acceptance. In this they would differ from the technical advisers formerly sent by England, who were responsible only to the Government to which they had been accredited.

The idea which is here put forward has arisen from a consideration of the precarious state of the finances of Portugal, a country which nevertheless possesses considerable natural resources. Pre-war experience, indeed, shows how a sound and wise financial policy may, in a short space of time, bring about a complete financial re-establishment in that country. But to-day, perhaps to a greater extent than formerly, political reasons are opposed to such a course. Perhaps in that country, political reasons also are opposed, at any rate, to take the lead in accepting the suggestion of technical advisers nominated by the League of Nations, on the ground that the national susceptibilities would, according to authoritative information I have received, regard such a course as a diminution of the Government's freedom. No such difficulties, however, arise in the Baltic States and in Poland, where the idea was, on the contrary, accepted by experts, diplomatists and politicians, with whom I have had occasion to converse, with general approbation — it may even be said with enthusiasm. Well-informed persons are of the opinion that even in Austria the technical advisers might exercise a useful purpose, even should the programme of restoration proposed by the League of Nations come into operation in that country; this programme would in itself involve a Commission composed of nationals and foreigners, for the administration of the Central Bank and of the Government securities offered as a guarantee for international credits.

Some persons raise as an objection the difficulty of finding such technical advisers; but this difficulty does not appear to me insuperable; for I am sure there are not lacking persons of competence whose *amour-propre* might be flattered by their selection for a task of such great social importance and corresponding prestige. The difficulties of execution which are feared should not in any way prevent an attempt being made in a matter of such vital importance.

Nor should it be thought, in my opinion, that the usefulness of the technical advisers would not be felt for some time. Whoever is acquainted, even in outline, with the circumstances which, in certain States whose exchanges are depreciated, contribute to produce a still greater depreciation, is aware that these circumstances are partly of such a nature as to be incapable of removal save by a continuous financial policy, but that they are also in part, it may be said, artificial, and that, as far as this part is concerned, they could be rapidly eliminated. Amongst such circumstances might be mentioned the existence of various series of notes, which are only current in the home country, or which have been imitated abroad on a large scale, and which therefore cast suspicion on all the valuta which is offered abroad; the practice of paying for labour in kind, which greatly diminishes the need for currency and thus contributes to the fact that the paper money issued becomes excessive in relation to requirements; the similar custom of supplying Government employees with coupons with which they can obtain foodstuffs at a reduced price from co-operative stores; the restrictions on the export of goods which, as was explained, cause a scarcity of foreign currency in the home market and diminished the utility of the national currency for foreigners; also propaganda which casts doubt upon the solvency and stability of the State, such as is sometimes carried on, and maintained for that very purpose abroad by enemy States, with the object of reducing the confidence of the Great Powers in countries with which political disputes are still pending. The suggested Customs Unions, on the other hand, some of which, as I have said, are being brought into force, might,for the reasons explained, involve certain risks, or at any rate might cause considerable inconvenience, if

they were not accompanied by provisions governing the currency circulation. For the matters, at any rate, the advice of technical experts would be of great value.

The considerations which have been developed will, I hope, serve to persuade the Economic and Financial Committee that the appointing of such technical advisers might be a step of the greatest value, and might serve to increase considerably the prestige of the League of Nations.

IV.

PRINCIPAL CONCLUSIONS AND PROPOSALS.

Being a summary of the principal conclusions and proposals of a practical character [1].

I.

The market crisis through which world trade is at present passing is due fundamentally to the small purchasing capacity of the countries which were most seriously affected by the war, and which the richer countries have been unable or unwilling to aid sufficiently to enable them to re-establish normal economic life.

This is the natural outcome of the crisis of under-production, from which world economy has lately suffered, and during which the enquiry on raw materials and foodstuffs was undertaken. The gravity of the present crisis was undoubtedly augmented, however, by the lack of international solidarity shown by the richer countries during the past crisis.

II.

The difficulties in respect of the supply of raw materials and foodstuffs still persist in many States during the present crisis, though they do not take the same form as during the past crisis. It is, moreover, possible that, in the case of certain raw materials, a crisis of under-production may shortly arise, resulting in an excess of demand over supply, and in difficulties of a kind similar to those which characterised the past crisis; whilst it is to be expected that, by reason of the natural repetition of economic phenomena, crises of under-production will arise in a general way in a more distant future. It is therefore still important to continue the study of measures to overcome the present difficulties and to prepare for those which may arise in the future with respect to the supplying of raw materials and foodstuffs.

III.

Difficulties in connection with the supply of raw materials and foodstuffs may depend upon:—

(*a*) Scarcity of resources; (*b*) increase of requirements; (*c*) difficulty in distribution (commercial restrictions, difficulties of land or sea communications, distance of centres of production of raw materials from centres of manufacture or consuming countries); (*d*) difficulties of a financial character (lack of means of purchase, instability and disequilibrium of the rates of exchange); (*e*) speculation which results in a lack of goods on the market at certain definite periods.

IV.

Economic and social considerations clearly point to the inadvisability of a policy which leaves the recovery of the nations to the work of natural forces alone. Moreover, the worldwide interest which was shown in the discussion on the question of raw materials at the last Assembly of the League of Nations and the expectant hope with which the most necessitous countries followed the ensuing enquiry make it dangerous for the League of Nations to adopt any programme but that of fully

[1] For arguments and conclusions of a more theoretic and scientific character the reader is referred to the main body of the Report ; for the post-bellum economic crises and the crisis of markets, see pp. 17-21 ; for Free Trade proposals and protectionist practices, see pp. 27-31 ; for exchange and especially the question of the difference between the home and foreign purchasing powers of currencies, examined in detail, see pp. 50-71. In regard to the latter subject our analysis is — at any rate to a large extent — of an original character.

examining the question and energetically taking any measures which may serve to alleviate the crisis.

V.

The measures which may be taken in the matter by the League of Nations may be distinguished according as they apply: (1) to the distribution of raw materials and foodstuffs; (2) to the distribution of their consumers, *i.e.*, emigration; (3) to transport; (4) to the production of these raw materials and foodstuffs; (5) to international credits, and finally (6) to the question of exchanges.

VI.

In so far as the distribution is concerned, three solutions have been put forward: (1) the nationalist solution, according to which every nation should have the right to obtain from a territory under its control sufficient raw materials and foodstuffs for its populations and its industries; (2) what may be called the "State" solution, according to which all the raw materials and foodstuffs of the world would be acquired by a central organisation and equitably distributed by it, in the common interest, among the various States, according to the requirements of each individual State; (3) the "Free Trade" solution, which would consist in establishing complete freedom in international trade and in economic relations within individual States.

VII.

The nationalist solution, apart from the political difficulties to which its adoption would give rise, could not be completely carried out except to the advantage of certain nations. From the international point of view it cannot claim to be called a solution. It cannot, however, be denied that this solution would furnish one of the guiding principles for the allotment of the zones which are still contested between antagonistic States, above all when it is difficult to foresee a cordial economic collaboration between them in the future.

VIII.

The adoption of the "State" solution gives rise to difficulties of a practical nature, which are admitted even by its most enthusiastic supporters. The latter now limit themselves to demanding a statistical organisation which would follow closely, and accurately record, the rise and fall of stocks and prices. Such an institution would undoubtedly be of value from a scientific point of view, even though from a practical point of view it could probably in no way further the solution of the supply problem.

IX.

The control of raw materials by the League of Nations might, on the other hand, become essential, if it were necessary to have recourse to measures of blockade against countries which had become its enemies. The question may therefore be asked whether it would not be expedient to consider immediately what measures would, in case of necessity, have to be adopted for the establishment and operation of an organisation for the control and distribution of raw materials and foodstuffs.

X.

The complete adoption of the "Free Trade" solution, which to-day is supported by many influential persons, would only be expedient if a super-State organisation could guarantee the continuity of such a policy during a period of economic crisis, and, further, exclude the possibility of wars which would necessarily result in the destruction of the policy. The League of Nations cannot, of course, hope, at any

rate at present, to bring about the complete realisation of such a programme, but it might profitably undertake measures tending towards free trade.

XI.

The first step should be in the direction of encouraging, supporting or assisting the formation of Customs Unions between groups of States. Already some such unions are spontaneously springing up. It would be useful from various points of views for the League of Nations to take an interest in their organisation.

XII.

A second measure might aim at securing representation for the interests of third parties in commercial treaties or conventions between two States.

It is desirable that the League of Nations, with a reputation for impartiality, should undertake such representation.

XIII.

In so far as export duties and discrimination in prices are concerned, distinctions must be drawn between different cases. Should it be considered that such duties are not a necessity for the State, but merely a means of profiting more fully from its particularly favourable conditions, the League of Nations might well, on the request of the countries suffering thereby, intervene for the purpose of eliciting an explanation of the circumstances from the States which would be placed, as it were, at the bar, and of enforcing the reduction or suppression of the duties, should such explanation be insufficient.

XIV.

Useful measures might be taken by the League of Nations in the case of special duties on imports from countries with a depreciated currency. Though such measures may momentarily alleviate the market crisis in the States which applied them, they are likely, in their final results, to maintain or aggravate the crisis, thus causing a general loss and a loss to these States.

XV.

In the matter of monopolies, the work of the League of Nations should not aim at suppressing groups of producers and sellers of a monopolistic character, the existence of which may be inevitable and the control of which is in any case a domestic problem for the State concerned, but at preventing certain groups dealing in new materials of international interest, from assuming a national character by means of privileges that one State reserves to its own nationals, or through the administration of such groups by the State itself.

XVI.

The difficulties placed in the way of immigration prevent the working of a natural and useful mechanism of readjustment by which the population tends to pass from impoverished countries to countries enriched, or impoverished to a lesser degree, during the war. It would therefore be undoubtedly in the general interest for the League of Nations to take action in this matter.

XVII.

In the mandated territories a special situation exists with regard to freedom of commerce and of immigration.

Article 22 of the Covenant states that it is the sacred trust of all the Members of the League of Nations to co-operate in the well-being and development of the populations of these territories, whilst in the case of C Mandates this Article lays

upon the Mandatory the obligation to observe the preceding safeguards in the interest of the native population. Among these safeguards is that of equality of trade and commerce between the Members of the League of Nations. It is thus of the greatest importance from this point of view to decide whether the freedom of trade, commerce and of immigration in the territories under mandate should be considered as a measure in the interests of and favourable to the well-being and development of those populations. No economist could doubt that this is so, but it is in every way to be desired that a categorical ruling in this matter should be given by the Economic Committee, which is certainly the most competent organ of the League of Nations to give it.

XVIII.

The transport crisis contributes in no small degree either directly or indirectly to the difficulties of the Balkan States, the Succession States of Russia and several of the Succession States of Austria, in the supply of raw materials and foodstuffs. In this field, the League of Nations could do useful work either by demanding strict observance of the Treaty of Versailles by States which in virtue of that Treaty are bound to grant free transit to foreign goods or above all by reviving the organisations for the international use of rolling-stock which were put an end to during the war.

XIX.

There is an impression that the adoption of the eight-hour day has contributed to the present crisis by reducing production, especially in the Southern countries, which are generally the poorer. Individual experience and the evidence of biological science seem to justify this hypothesis. It would therefore be desirable for the League of Nations to take measures to ensure that the enquiries into the influence of the length of the working day upon production should be resumed on a larger scale, and should be extended to the Southern countries. These enquiries should be carried out with all the care enjoined by science: the various industries, ages, seasons and States, the different degrees of technical organisation, the different systems of payment for labour and the various climates should be taken into consideration, and the conclusions should be based only on the most carefully weighed facts. Even if it is not possible, for political reasons, to apply the scientific results of such investigations, it would in any case be interesting to know that sacrifices have been imposed upon the economic systems of the different States by a standardisation of the working day.

XX.

The consideration of the economic conditions of the various countries, and the examination of the international credit schemes tried or adopted by them, show clearly that no single scheme for international credits can result in an equal benefit to all countries in the supply of raw materials and foodstuffs. Each country must be considered according to its needs, its technical and social organisations, the psychology of its population, the nature of its industries, the markets for its productions, its size, and many other circumstances. The organisation of international credits must, if it is to succeed, conform to these data. In a general way it is, however, clear that, in granting credits, great consideration must be paid to the personal conditions and to the capacity of production of the receiver. It therefore follows that the concession of credits for raw materials is left to private initiative rather than to State or inter-State organisations, which, to a greater or less degree, are affected by the narrow outlook and slow methods of working common to all bureaucratic bodies.

XXI.

The introduction of international credits — like the adoption of free trade and the reorganisation of international transport — is greatly hindered by the instability and disequilibrium of the exchange rates. These, moreover, since they introduce enormous increases and considerable fluctuation in the cost of the pur-

chase of raw materials from abroad by countries with a depreciated currency, under present conditions perhaps constitute, for these countries, the greatest difficulty in the way of supply. Without excluding the possible utility of certain measures (such as the accumulation of stocks of goods by exporting countries in importing countries), it is clear that the evil must be attacked at its roots, and that energetic measures must be taken for re-establishing the currency on a sound basis. In the Succession States of Russia and Austria, in the Balkan States and in Portugal, the most useful measure for this purpose would perhaps be the appointment of technical advisers to the Governments, selected from persons of special competence who could advise Ministers of Finance to proceed with the greatest caution, shield them from the suspicion of a one-sided policy, and carry out in the various countries a similar plan based upon a common programme. The duties of the technical advisers would naturally be determined according to the conditions and wishes of the various countries. They would be appointed, and their salaries furnished, in part, by the League of Nations, and they would regard themselves as officials of the League. More precise details of the organisation should be formulated after mature consideration, account being taken of the conditions of the various countries. I am in any case authorised to make myself the mouthpiece of the Governments of Latvia and Poland, which are anxious for the appointment of such technical advisers, and I hope that the Commission will share my belief that the appointment of such advisers would constitute a highly useful measure, and one which would greatly increase the prestige of the League of Nations.

Geneva, August 28th, 1921.

ANNEXES

I. STATEMENT OF THE POSITION CONCERNING

CEREALS

PREPARED BY PROFESSOR VINCI

CONTENTS

CEREALS

I.

SITUATION BEFORE THE WAR.

1. On the eve of the world war, most European countries depended upon foreign countries for their wheat supply. This dependence was felt not only in countries which, like the United Kingdom, had restricted their own wheat culture or which, like France, for example, had kept it almost stationary, but also in Germany, Austria, Italy, etc., where wheat growing had shown a remarkable development both in extent and yield. It may be said that among European States only Russia, Hungary, Roumania and Bulgaria could dispense with foreign supplies and even export a part of their harvests. These exports are almost exclusively directed towards other European countries where they were merged in the great stream of exports fed by the United States, Canada, the Argentine, British India, Australia and other less important extra-European countries.

On the other hand, the latter countries exported also to Japan, Egypt, Tunis, South Africa, Brazil and other countries where the harvest was insufficient for their needs.

2. To sum up, in the five years preceding the war, the harvest in Russia, Hungary, Roumania and Bulgaria amounted to 303.3 million quintals of wheat, and their net exports were 72.9 million quintals, while the five countries constituting the chief extra-European producers exported, net, 103.4 million quintals out of a total harvest of 400.9 quintals. Out of the 176.3 million quintals exported by these countries, 148.1 millions at least were consumed by European countries. It may, therefore, be said that the world's wheat trade was largely absorbed in the supply of Europe, although the latter itself produced more than half of the wheat of the entire world, estimated at a little over one million quintals[1].

Here are the figures relating to harvests, to trade (grains and flour listed as grains) and to available stocks, for the five years immediately preceding the war (annual average):

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[1] The majority of the data used in the text have been taken from the publications of the International Agricultural Institute: *International Year-Book on Agricultural Statistics; Bulletin of Agricultural and Commercial Statistics; Statistical Notes on Cereals*, etc. We shall quote the special sources from which we have taken other data and information.

WHEAT

Countries	Crops (1909 to 1913)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources without seed (1909-10 to 1913-14)	Available Resources incl. seed (1909-10 to 1913-14)
	Thousands of quintals			
Germany and Luxemburg.	41,567	+ 18,599	56,809	60,166
Belgium	4,054	+ 13,442	17,246	17,496
Austria.	16,558	+ 13,973	28,412	30,531
Denmark.	1,454	+ 1,710	3,076	3,164
Spain	35,502	+ 1,686	31,896	37,188
France.	86,447	+ 11,886	88,685	98,333
United Kingdom . . .	16,231	+ 58,801	73,997	75,032
Italy.	49,896	+ 14,484	58,435	64,380
Norway	83	+ 1,044	1,116	1,127
Netherlands.	1,333	+ 5,961	7,206	7,294
Sweden.	2,205	+ 1,918	3,885	4,123
Switzerland.	902	+ 4,606	5,424	5.508
Total	256,232	+ 148,110	376,187	404,342
Japan	6,577	+ 1,106	7,389	7,683
Russia in Europe and Asia, except. Finland [1]	221,809	— 44,674	136,866	177,135
Hungary	46,170	— 11,063	29,665	35,107
Roumania	23,893	— 14,599	5,846	9,294
Bulgaria	11,429	— 2,547	6,228	8,882
Total	303,301	— 72,883	178,605	230,418
United States.	186,889	— 29,103	137,579	157,786
Canada.	53,648	— 23,741	24,916	29,907
British India	95,735	— 13,496	67,239	82,239
Argentine.	40,026 [2]	— 22,635 [3]	12,324 [3]	17,391 [3]
Australia.	24,630 [2]	— 14,452 [3]	8,150 [3]	10,178 [3]
Total	400,928	— 103,427	250,208	297,501

By adding the few countries omitted from the above table, the totals would be only slightly increased and our conclusions would be unchanged.

3. It is impossible to draw up a table covering production, trade and world consumption of wheat, without taking into account certain other cereals used by certain countries, or consumed in periods of want as substitutes for wheat.

After wheat, rice is the chief cereal used for human food. It is the principal food of the inhabitants of India, China, Siam, Japan, Corea, Formosa, Philippine Islands, Ceylon and the Malay Peninsula.

Further a great deal of rye bread is consumed in Northern and Central Europe.

Maize is used to a large extent as food by inhabitants of South America, Africa, Asia and Southern and Eastern Europe. In Europe and North America, however, it is chiefly used as food for cattle.

Barley is used as food for animals and the better qualities are used for distilling purposes in Europe and in North America; but in Northern Africa and some parts of Asia barley is used for human food.

Oats are almost entirely consumed by cattle; they are used as human food in the form of flour, but only to a small extent.

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[1] Production of Russia in Europe was 180,683, and that of Russia in Asia 41,126 thousands of quintals.

[2] 1909-1910 to 1913-1914.

[3] 1910 to 1914.

Other cereals, such as millet, were entirely negligible, before the war, in comparison with the cereals mentioned above[1].

4. The pre-war world production of husked rice was estimated at nearly two milliard quintals; almost all of this was produced in Asia (1.855 millions), chiefly in China, (about 1.230 millions) in British India (488 millions), and in Japan, including Corea and Formosa (110 millions).

The production in the Dutch Indies (54 millions), in the Philippine Islands (8.5), in Madagascar (6) and in Egypt (4) was important. North American production amounted to a little over 6 million quintals, 5 millions being furnished by the United States; European production reached almost 7 millions, 4.7 furnished by Italy and 2 by Spain, and was very insufficient for the needs of Europe.

Far the greater part of the exports naturally came from the great producing countries of Asia and were divided among the other Eastern countries and the various European countries.

Unfortunately trade statistics for rice do not make it possible to ascertain with precision the movement of traffic and the consumption of rice. A large number of countries make no distinction between raw rice and husked rice; moreover there are differences in classification adopted by countries which provide detailed information on this cereal. Finally, it is impossible to obtain conversion co-efficients for the different steps in rice production and trade.

5. About 450 million quintals of rye, representing the average world production for the five years immediately preceding the war, were almost entirely furnished by Europe (429 millions) more than half by Russia (in Europe 225.9 and 8.3 in Asia), 113 millions by Germany, 28 by Austria and the remainder by Hungary, France, Italy and other less-important countries.

Among the only extra–European countries deserving mention, the United States produced nearly 9 million quintals.

Rye

Countries	Crops (1909 to 1913)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources without seed (1909-10 to 1913-14)	Available Resources incl. seed (1909-10 to 1913-14)
	Thousands of quintals			
Austria.	27,996	+ 3,160	27,940	31,156
Belgium	5,803	+ 1,242	6,666	7,045
Denmark.	4,515	+ 2,081	6,243	6,596
France.	12,453	+ 812	11,810	13,265
Italy.	1,354	+ 157	1,339	1,511
Norway	247	+ 2,619	2,842	2,866
Netherlands.	4,109	+ 2,898	6,605	7,007
Sweden.	6,122	+ 967	6,358	7,089
Switzerland.	453	+ 185	597	638
Canada.	532	+ 25	511	557
Total.	63,584	+ 14,146	70,871	77,730
Russia in Europe and Asia, except Finland[2].	234,176	— 7,068	186,407	227,108
Germany and Luxemburg .	113,258	— 6,712	95,965	106,546
Hungary.	13,100	— 3,479	8,080	9,621
Roumania	1,188	— 961	84	227
Bulgaria	2,093	— 409	1,254	1,684
United States.	8,869	— 239	7,697	8,630
Spain	7,020	— 8	6,064	7,012
Total.	379,704	— 18,876	305,551	360,828

[1] *The Future of Wheat Production, with Special Reference to the Empire*, in "Bulletin of the Imperial Institute," London, 1919.

[2] In Russia in Europe 225,876 thousand quintals; in Russia in Asia 8,300 thousand quintals.

The above table chiefly shows the slight importance of the trade in rye in comparison with the production. It should be pointed out, moreover, that the exports, supplied almost exclusively by European countries, reached a total of nearly 19 million quintals, of which at least 14 were absorbed by the remaining European countries.

6. The world production of maize reached about a milliard quintals, more than half of which came from the United States.

MAIZE

Countries	Crops (1909 to 1913)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources without seed (1909-10 to 1913-14)	Available Resources incl. seed (1909-10 to 1913-14)
	Thousands of quintals			
Germany and Luxemburg	—	+ 8,120	8,120	8,120
Austria	3,763	+ 5,948	9,530	9,711
Belgium	—	+ 4,386	4,386	4,386
Denmark	—	+ 2,982	2,982	2,982
Spain	6,743	+ 2,476	8,944	9,219
France	5,662	+ 5,031	10,596	10,693
United Kingdom	—	+ 20,474	20,474	20,474
Italy	25,488	+ 3,684	28,372	29,172
Norway	—	+ 305	305	305
Netherlands	—	+ 5,521	5,521	5,521
Sweden	—	+ 420	420	420
Switzerland	29	+ 1,013	1,041	1,042
Canada	4,269	+ 2,709	6,966	6,978
Japan	870	+ 22	869	892
Tunis	58	+ 110	164	198
Egypt	17,428	+ 112	16,958	17,540
Chile	391 [2]	+ 4 [3]	385 [3]	395 [3]
Uruguay	1,555 [2]	+ 42 [3]	1,563 [3]	1,597 [3]
Australia	2,560 [2]	+ 108 [3]	2,644 [3]	2,668 [3]
Total	68,816	+ 63,467	130,240	132,283
United States	687,944	— 9,247	674,012	678,697
Hungary	49,295	— 2,119	45,895	47,176
Argentine	48,694 [2]	— 31,741 [3]	15,748 [3]	16,953 [3]
Roumania	27,303	— 11,388	15,542	15,915
Russia in Europe and Asia excluding Finland [1]	21,849	— 7,113	14,115	14,736
South African Union	7,545 [2]	— 694 [3]	6,652 [3]	6,851 [3]
Bulgaria	7,168	— 2,346	4,658	4,822
Total	849,798	— 64,648	776,622	785,150

It is noticeable that, as in the case of rye, the trade in maize was relatively small, and that almost the total export of the chief producing countries was exported to the remaining European countries, and in particular the United Kingdom and Germany. A considerable quantity of maize was sent to Canada.

However, we have not been able to include Mexico (33.9 millions of quintals), China (26.4) and Brazil (38) among the chief producing countries.

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[1] In European Russia 17,837 thousand quintals; in Asiatic Russia 4,012 thousand quintals.
[2] 1909-1910 to 1913-1914.
[3] 1910 to 1914.

7. Barley was grown extensively in Europe, where the total crop was estimated at about 400 million quintals. Among the non-European countries, mention should be made of the United States and China, each of which produced a crop estimated at about 40 million quintals.

BARLEY

Countries	Crops (1909 to 1913)	NNet Imports (+) et Exports (—) (1909-10 to 1913-14)	Available Resources without seed (1909-10 to 1913-14)	Available Resources incl. seed (1909-10 to 1913-14)
	Thousands of quintals			
Germany and Luxemburg	33,445	+ 32,457	63,492	65,902
Austria	16,554	+ 916	15,842	17,470
Belgium	945	+ 3,298	4,193	4,243
Denmark	5,431	+ 28	5,123	5,459
France	10,491	+ 1,320	10,961	11,811
United Kingdom	14,226	+ 10,374	23,633	24,600
Italy	2,200	+ 178	2,131 [1]	2,378
Norway	557	+ 990	1,566	1,647
Netherlands	706	+ 2,409	3,091 [1]	3,115
Switzerland	96	+ 248	335	344
Japan	21,308	+ 3	20,456	21,311
Egypt	2,587	+ 151	2,522	2,738
Australia	658 [2]	+ 13 [3]	624 [3]	671 [3]
Total	109,304	+ 52,385	153,969	161,689
Hungary	15,595	— 2,527	11,495	13,068
Bulgaria	2,964	— 408	2,089	2,556
Spain	16,262	— 24	14,258	16,238
Roumania	5,441	— 3,908	711	1,533
Russia in Europe and Asia, excepting Finland [1]	109,861	— 37,691	55,209	72,170
Sweden	3,273	— 16	2,894	3,257
Canada (4 years' average)	9,306	— 1,190	7,460	8,116
United States	39,599	— 1,806	34,751	37,793
Tunis	1,704	— 594	814	1,110
Argentine (4 years' average)	957 [2]	— 176 [3]	729 [3]	781 [3]
Chile	938 [2]	— 238 [3]	615 [3]	700 [3]
New Zealand	272 [2]	— 16 [3]	237 [3]	256 [3]
Total	206,172	— 48,594	131,262	157,578

In the above table it has been found necessary to omit several countries producing barley in large quantities, and chief among these China; it should also be noted that the total crop considered above represents by itself three-quarters of the world's harvest.

As, moreover, the countries omitted in the table export to a certain extent, it follows that the total of the imports in importing countries is larger than that of the exports of the exporting countries. However, in view of the slight importance of the exports omitted, it may be taken as certain that the greater part of the barley export of the whole world has been included in the second half of the preceding table.

[1] In Russia in Europe 101,850 thousand quintals; in Russia in Asia 8,011 thousand quintals.
[2] 1909-1910 to 1913-1914.
[3] 1910 to 1914.

The large Russian export should be noted as well as the considerable quantities imported from Germany and the United Kingdom, where the crop was also fairly considerable.

8. If we consider the yearly average world production of oats, which was 650 million quintals just before the war, we observe that the chief growing centres were in Europe and North America; that even the Argentine, in spite of its small production, exported a fairly large quantity, and finally that 23.2 million quintals of oats exported by some of the producing countries were sent almost entirely to the remaining European countries and chiefly to the United Kingdom and France.

Oats

Countries	Crops (1909 to 1913)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources without seed (1909-10 to 1913-14)	Available Resources incl. seed (1909-10 to 1913-14)
	Thousands of quintals			
Germany and Luxemburg	86,420	+ 469	79,947	86,889
Austria	23,873	+ 1,910	22,883	25,773
Belgium	6,183	+ 1,188	6,956	7,371
Denmark	7,764	+ 662	7,791	8,426
France	51,569	+ 4,332	52,626	55,901
United Kingdom	29,986	+ 9,631	37,165	39,617
Italy	5,362	+ 1,184	5,946	6,546
Norway	1,733	+ 98	1,704	1,831
Netherlands	2,821	+ 1,175	3,852	3,996
Sweden	12,490	+ 127	10,946	12,617
Switzerland	694	+ 1,809	2,447	2,503
Australia	2,515 [2]	+ 84 [3]	2,261 [3]	2,599 [3]
Total	231.400	+ 22.669	234.524	254,079
Hungary	13,003	— 1,596	10,045	11,407
Bulgaria	1,434	— 9	1,161	1,425
Spain	4,225	— 20	3,734	4,205
Roumania	4,216	— 1,419	2,278	2,797
Russia in Europe and Asia, excepting Finland [1]	158,042	— 10,054	115,535	147,988
Canada (4 years' average)	54,238	— 2,387	47,900	51,851
United States	164,190	— 645	150,315	163,545
Japan	728	— 5	705	723
Tunis	573	— 443	97	130
Argentine Republic	7,875 [2]	— 6,029 [3]	1,357 [3]	1,846 [3]
Chile	508 [2]	— 383 [3]	66 [3]	125 [3]
New Zealand	2,534 [2]	— 210 [3]	2,169 [3]	2,324 [3]
Total	411,566	— 23,200	335,362	388,366

9. The facts given above prove:

(*a*) that the majority of European countries took the chief place in the cereal trade of the whole world;

(*b*) that they, in general, depended greatly on Asia for their rice supplies;

(*c*) that in the case of wheat this dependence was extremely marked, and the export from non-European countries (United States, Canada, the Argentine,

[1] In Russia in Europe 142,411; in Russia in Asia 15,631 thousand quintals.
[2] 1909-10 to 1913-14.
[3] 1910 to 14.

Australia, British India) was greater than that from certain other European countries (Russia, Hungary, Roumania, Bulgaria); the United Kingdom was the largest importer, followed at some distance by Germany, and then by Italy, Austria, etc.;

(*d*) that the situation was almost the same in the case of maize coming from the Argentine and the United States as well as from Roumania, Russia and Hungary, although the United States maize was mainly utilised in the country for fodder.

In spite of the considerable production of this cereal, Italy imported large quantities from abroad, but the chief importers were the United Kingdom, Germany, Austria, France, etc.

(*e*) Europe was less dependent for the supply of oats, and the exports of the non-European countries (Argentine and Canada) were less considerable than those joint of Russia, Hungary and Roumania.

The chief importers were the United Kingdom and France; while Germany relied almost entirely on her own resources.

Nearly the whole production of the United States was kept in that country.

(*f*) In the case of rye and barley this dependence was principally between European states. The exports of rye was supplied almost exclusively by Russia, Germany and Hungary; the exports of barley by Russia, Roumania and Hungary.

10. Reviewing the special case of each of the states under consideration [1], it is to be noted that the United Kingdom in 1913 imported more wheat from the United States than from Canada, and that she imported a smaller quantity from the whole of her possessions than from other countries.

Countries of Origin	Thousands of quintals imported in 1913
Russia	2,545.6
Germany	227.4
Netherlands	0.8
Roumania	19.6
Turkey in Europe	18.1
Turkey in Asia	2.7
Persia	5.1
United States	17,306.5
Chile	388.7
Argentine	7,496.1
Total (including the other foreign countries)	28,011.8
British India	9,533.2
Australia	5,144.3
New Zealand	28.5
Canada	11,068.3
Total (including the other British possessions)	25,774.4
Grand Total	53,786.2

The same thing may be said of wheat flour, of which the import amounted to 6 million quintals, coming chiefly from the United States (3.1), Canada (2.1), Germany (0.25), Australia (0.15), France (0.15), and from other less important countries.

As regards other cereals, the United Kingdom imported less rye and rice than maize, barley and oats.

[1] See the Customs statistics of the various countries referred to .

In actual figures the United Kingdom imported rather less than 500,000 quintals of rye, chiefly from Russia, the United States and Canada, and about 2.3 million quintals of husked rice or paddy, chiefly from British India, Siam and various European countries, directly and indirectly; while, on the other hand, it imported in 1913, 25 million quintals of maize, mostly from the Argentine (19.7) and in smaller quantities from the United States (3.5), Roumania (0.5) and from other countries; 11.4 million quintals of barley, of which 1.8 came from British India, 3 from Russia 2.2 from the United States, 1.3 from Canada, etc.; and 9.2 million quintals of oats from the Argentine, Germany, Russia, Canada and the United States.

The exports were altogether negligible, excepting small quantities of husked rice sent to the United States, South America, to a few European countries and the British possessions; and wheat flour sent to a few European countries, to Northern Africa and to the British possessions.

11. French wheat imports, which in 1913 rose to 15.6 million quintals, came chiefly from the Argentine (24 %), Russia (14 %), indirectly from Germany (16 %) and, in smaller quantities, from Australia (10 %), United States (8 %), British India (7 %) and Roumania (7 %).

Algeria also furnished a fairly large quantity (6.5 %).

The import of wheat flour was relatively unimportant, amounting to 100,531 quintals, coming principally from Germany, Italy, United States, Algeria and Tunis.

Among the other cereals those imported in largest quantities were: — Maize (5.9 million quintals), chiefly from the Argentine (3.5), from Indo-China (1), from Russia (0.6), from Roumania (0.5); oats (5.8 million quintals), chiefly from Germany indirectly, Russia, the Argentine, Algeria and Tunis; husked rice and rice flour (1.6) chiefly from Indo-China; barley (1.2) chiefly from Russia, Roumania, Algeria and Tunis; rye (0.5) principally from Germany.

In addition to this, the import of rye flour from Germany and the Netherlands amounted to about three times the quantity of wheat flour imported.

With the exception of 204,983 quintals of wheat flour, and about 200,000 quintals of husked rice and rice flour, the export of cereals from France was negligible.

12. Germany carried on a fairly important re-export trade; having imported in 1913 slightly less than 30 million quintals of wheat, she exported 5,4 millions, chiefly to France and other neighbouring countries.

Imports came chiefly from the United States (40 %), Russia (20 %), the Argentine (18 %), Canada (12 %), Roumania (4 %), British India (2.4 %).

The import of wheat flour amounted only to 178,680 quintals.

As regards the other cereals, those imported in largest quantities were:— maize (9.2 million quintals, chiefly from the Argentine and the United States); barley (30.9 million quintals, chiefly from Russia); husked rice (3.1) and paddy (1.6), chiefly from British India; oats (5.1) chiefly from Russia and the Argentine; rye (3.5) chiefly from Russia.

The export of oats and rye was also important (for oats 6.6 and for rye 9.3 million quintals in 1913); the export of rye flour (2.3), of wheat flour (1.9) and of prepared rice (1.8) was also important.

13. Italy imported, in 1913, 18 million quintals of wheat, chiefly from Russia (49 %), Roumania (18 %), the Argentine (16 %), the United States (8.5 %), Australia (5 %) and India (2.5 %).

In addition maize was imported in large quantities (3.5 million quintals) of which 0.8 came from Roumania and 2.5 from the Argentine. On the other hand, imports of the other cereals reached a smaller figure.

Among exports we must notice nearly a million of quintals of wheat flour, 710 of food pastes, chiefly for the United States, and 261 of raw and prepared rice.

14. We must also notice specially Belgium's re-export trade, set out in the following table (figures from the year 1912):—

	Imports	Exports
	Thousands of quintals	
Wheat	19,368.82	4,511.41
Rye	1,340.39	289.07
Barley	4,752.98	1,031.28
Maize	8,131.43	2,577.26
Paddy	599.74	108.12
Husked Rice	528.49	413.55

Belgium was a heavy exporter of flour: 650,650 quintals of wheat flour, 89,650 of maize flour and other flours of inferior quality, barley, oats, malt, and so forth.

15. The source of supply of the various kinds of cereals depends, for each country, partly upon its geographical situation, the price of transport, etc., and partly on the quality of the cereals produced on the markets of origin.

Wheat, of course, is put to various purposes (for making bread, for the manufacture of food pastes, etc.) according as it is hard or soft. Hard wheat is generally grown on a large scale in Southern Europe — chiefly in Southern Russia — in Northern Africa and also in North America.

The same may be said of the various qualities of rice produced in Europe and in the East, etc.

16. These economic reasons have, however, been modified to a certain extent by the Customs regulations in force in several of the countries with which we have dealt, and principally by the protective tariffs imposed to encourage production. As these tariffs increase the price of imported cereals, they enable protected countries to defeat, on the home markets, the competition of cereals coming from abroad, especially from extra-European countries where the cost of production is much lower; thus these countries have been able to encourage the cultivation and production of cereals at home, making themselves to a certain extent independent of foreign supply.

The working of the protectionist system in France, in Germany and in Italy was of special interest.

In France there was, on the eve of war, a duty of 7 fr. per quintal on imported corn and of 3 fr. on rye, barley, and maize.

In Italy this was somewhat higher; 7.50 lire per quintal on corn and white maize, 4.50 on rye and 4 on oats and barley.

In Germany the duty was fixed at 7.50 marks and 5 50 marks on corn (according to the general tariff and the treaty respectively) at 7, and 5 marks on rye, at 7 marks for barley and at 5 and 3 marks for maize.

II.

POSITION DURING THE WAR

17. The blockade of the Central Empires, the difficulties of maritime trade, the wholesale conscription of the agricultural population in all the belligerent countries, the invasion of enormous and fertile territories and the requirements of the world war, have in fact revolutionised the production of, the trade in, and the consumption of cereals.

It is not easy, in view of the forces set in motion by the war, to make an estimate of the world's supply of cereals sufficiently accurate to bear exact comparison with

the estimates in the preceding paragraphs. Nevertheless a decrease in the production of cereals in the belligerent countries may be noted, as well as a increase in this production in the chief neutral countries of Europe, and finally a notable increase in the exporting countries outside Europe, taken as a whole.

Among the belligerent States we do not include the former enemy countries, nor Russia, for which sufficiently detailed data are not available.

We must add that the data available for the period of the war relate, as regards the Northern Hemisphere, to the harvests of 1914 to 1917, that is to say, to one harvest produced in times of peace; this harvest should be taken into consideration, although it was not affected by the war, if it is desired seriously to study the resources in cereals available during the war.

These are the figures for wheat:—

WHEAT

Countries	Crops (1914 to 17)	Crops (1909 to 13)	Net Imports (+) Net Exports (—) (1914-15 to 1917-18)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources including seed (1914-15 to 1917-18)	Available Resources including seed (1909-10 to 1913-14)
	Thousands of quintals					
France (for 1915-16-17, not including the invaded territory)	57,489	86,447	+ 21,234	+ 11,886	78,723	98,333
United Kingdom	17,720	16,231	+ 52,284	+ 58,801	70,004	75,032
Italy (for 1917, not including the invaded territory) . . .	44,516	49,375	+ 18,889	+ 14,484	63,405	64,380
Total . . .	119,725	152,053	+ 92,407	+ 85,171	212,132	237,745
Spain	37,448	35,502	+ 2,169	+ 1,686	39,617	37,188
Denmark . . .	1,640	1,454	+ 814	+ 1,710	2,454	3,164
Netherlands . .	1,427	1,333	+ 5,209	+ 5,961	6,636	7,294
Sweden	2,341	2,205	+ 1,669	+ 1,918	4,010	4,123
Switzerland . .	1,062	902	+ 3,880	+ 4,606	4,942	5,508
Norway . . .	88	83	+ 1,561	+ 1,044	1,649	1,127
Japan	7,342	6,577	— 398	+ 1,106	6,944	7,683
Total . . .	51,348	48,056	+ 14,904	+ 18,031	66,252	66,087
United States .	217,033	186,889	— 59,793	— 29.103	157,240	157,786
Canada	73,793	53,648	— 47,098	— 23,741	26,695	29,907
British India .	94,485	95,735	— 9,594	— 13,496	84,891	82,239
Argentine . . .	43,677[1]	40,026[2]	— 23,358[3]	— 22,635[4]	20,319[3]	17,391[4]
Australia . . .	32,064[1]	24,630[2]	— 10,265[3]	— 14,452[4]	21,799[3]	10,178[4]
Total . . .	461,052	400,928	—150,108	—103,427	310,944	297,501

It should here be noted:—

(*a*) That not only production but also the export of the United States, Canada and the Argentine increased to a marked degree during the war, thus balancing the deficit which occurred at the same time in the other exporting countries, and causing an increase in the imports of France and Italy.

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[1] 1914-15 to 1917-18.
[2] 1909-10 to 1913-14.
[3] 1915 to 18.
[4] 1910 to 14.

(*b*) That the increase in imports did not prevent a reduction in the resources of these two countries, notably in France, as a result of the decrease in the harvests, which was due, above all, to the invasion.

(*c*) That in the United Kingdom, on the contrary, the average yield of the harvest slightly increased, whereas the imports have not; the resources have thus appreciably diminished.

(*d*) That in spite of the increase of exports, the resources outside Europe appear to have increased to a considerable extent. This increase has been greatly influenced by Australian production.

18. Since the main rice-producing centres are situated in Asia, the war has not entailed any decrease in production; on the contrary, it has led to a considerable increase in the harvest.

The 448 millions of quintals produced in British India during the 5 years preceding the war increased in 1914-1917 to rather more than 500 millions; in Japan the harvest increased from 95 millions to 102; in the Philippines from 8.1 to 9.6; in the United States from 4.9 to 6.5.

The rice production of Spain also increased from 2 millions of quintals to 2.4. Even in Italy a marked increase from 4.7 to 5.4 can be noted, and this in spite of a slight reduction in the area under cultivation.

As we have stated in connection with the pre-war period, the export figures of the producing countries cannot be made use of to any great extent. It would seem, however, that exports to France have changed but little; they have, on the other hand, largely increased in the United Kingdom, in Canada and the United States. But while exports have decreased and imports increased in Italy, an opposite result occurred in the case of Spain.

19. Since the main growing districts are situated, as we have already said, chiefly in Russia, Germany and Austria, the product of rye greatly decreased during the war.

The figures at our disposal enable us to draw up the following table for the Allied and neutral countries:

RYE

Countries	Crops (1914 to 17)	Crops (1909 to 13)	Net Imports (+) Net Exports (—) (1914-15 to 1917-18)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources including seed (1914-15 to 1917-18)	Available Resources including seed (1909-10 to 1913-14)
	Thousands of quintals					
France (for 1915-16-17, not including the invaded territory)	8,575	12,453	+ 147	+ 812	8,722	13,265
Italy (for 1917, not including the invaded territory)	1,225	1,354	+ 285	+ 157	1,510	1,511
Denmark	2,801	4,515	+ 473	+ 2,081	3,274	6,596
Norway	252	247	+ 1,544	+ 2,619	1,796	2,866
Netherlands	3,352	4,109	+ 291	+ 2,898	3,643	7,007
Sweden	5,552	6,122	+ 230	+ 967	5,782	7,089
Switzerland	478	453	+ 43	+ 185	521	638
Total	22,235	29,253	+ 3,013	+ 9,719	25,248	38,972
Spain	6,543	7,020	— 5	— 8	6,538	7,012
Canada	708	532	— 193	+ 25	515	557
United States	13,248	8,869	— 3,811	— 239	9,437	8,630
Total	20,499	16,421	— 4,009	— 222	16,490	16,199

The blockade of the Central Empires, the difficulties of trade with Russia early in the war, followed by the Russian Revolution, have entailed a great reduction in the supply of rye for the Allied and neutral countries; the United States, which formerly exported a negligible quantity, have almost wholly fed the depleted imports of these countries.

20. The production of maize has increased in the principal producing countries outside Europe, except in the Argentine; but it has not proved sufficient for the export trade, which is lower than before the war. If we add to this the fact that European production has also decreased, we shall understand the great reduction which has taken place in the resources of the Allied and neutral countries. Finally, we must note the increase of the resources available in the exporting countries of which we have made mention:

MAIZE

Countries	Crops (1914 to 17)	Crops (1909 to 13)	Net Imports (+) Net Exports (—) (1914-15 to 1917-18)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources including seed (1914-15 to 1917-18)	Available Resources including seed (1909-10 to 1913-14)
	Thousands of quintals					
France (for 1915-16-17, not including invaded territory) . . .	4,520	5,662	+ 3,669	+ 5,031	8,189	10,693
Italy (for 1917, not including invaded territory) .	24,372	25,488	+ 1,677	+ 3,684	26,049	29,172
United Kingdom.	—	—	+17,133	+20,474	17,133	20,474
Spain.	7,457	6,743	+ 1,183	+ 2,476	8,640	9,219
Denmark	—	—	+ 3,901	+ 2,982	3,901	2,982
Norway.	—	—	+ 392	+ 305	392	305
Netherlands . . .	—	—	+ 5,418	+ 5,521	5,418	5,521
Switzerland. . . .	41	29	+ 932	+ 1,013	973	1,042
Canada	2,689	4,269	+ 2,251	+ 2,709	4,940	6,978
Japan.	992	870	+ 5	+ 22	997	892
Tunis.	53	58	+ 74	+ 110	127	168
Total . .	40,124	43,119	+36,635	+44,327	76,759	87,446
United States . .	717,563	687,944	—12,163	— 9,247	705,400	678,697
Egypt.	19,433	17,428	— 459	+ 118	18,974	17,540
Argentine	45,456[1]	48,694[2]	—21,800[3]	—31,741[4]	23,656[3]	16,953[4]
South African Union. . . .	9,106[1]	7,545[2]	— 2,215[3]	— 694[4]	6,891[3]	6,851[4]
Total . .	791,558	761,611	—36,637	—41,570	754,921	720,041

[1] 1914-15 to 1917-18.
[2] 1909-10 to 1913-14.
[3] 1915 to 18.
[4] 1910 to 14.

21. It will be noticed that the production of barley in the Allied countries has decreased and that the supplies available for consumption have been reduced in spite of the increased production and export trade of the United States, Spain and Canada. The available resources of the exporting countries have increased considerably.

BARLEY

Countries	Crops (1914 to 17)	Crops (1909 to 13)	Net Imports (+) Net Exports (—) (1914-15 to 1917-18)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources including seed (1914-15 to 1917-18)	Available Resources including seed (1909-10 to 1913-14)
	Thousands of quintals					
France (for 1915-16-17, not including invaded territory) . . .	8,281	10,491	+ 1,584	+ 1,320	9,865	11,811
United Kingdom.	12,578	14,226	+ 7,048	+10,374	19,626	24,600
Italy (for 1917 not including invaded territory). .	1,930	2,200	+ 389	+ 178	2,319	2,378
Denmark	5,088	5,431	+ 244	+ 28	5,332	5,459
Norway.	709	657	+ 442	+ 990	1,151	1,647
Netherlands . . .	605	706	+ 792	+ 2,409	1,397	3,115
Switzerland . . .	135	96	+ 185	+ 248	320	344
Japan.	20,282	21,308	+ 1	+ 3	20,283	21,311
Egypt.	2,961	2,587	+ 33	+ 151	2,994	2,738
Total . .	52,569	57,702	+10,728	+15,701	63,297	73,403
Spain.	17,410	16,262	— 246	— 24	17,164	16,238
Canada	10,599	9,306	— 1,450	— 1,190	9,149	8,116
United States . .	44,516	39,599	— 5,330	— 1,806	39,186	37,793
Tunis.	1,442	1,704	— 294	— 594	1,148	1,110
Total . .	73,967	66,871	— 7,320	— 3,614	66,647	63,257

22. Finally, we note, as regards oats, an increase in the harvest in the United Kingdom, followed, nevertheless, by a reduction in her resources due to a marked decrease in imports. In France, on the contrary, a reduction of resources has taken place as a result of recent harvests, while imports have increased. It will also be seen that harvests, exports and available resources have all increased in the chief producing countries outside Europe, mainly in the United States and in Canada.

OATS

Countries	Crops (1914 to 17)	Crops (1909 to 13)	Net Imports (+) Net Exports (—) (1914-15 to 1917-18)	Net Imports (+) Net Exports (—) (1909-10 to 1913-14)	Available Resources including seed (1914-15 to 1917-18)	Available Resources including seed (1909-10 to 1913-14)
	Thousands of quintals					
France (for 1915-16-17, not including invaded territory) . . .	38,039	51,569	+ 6,679	+ 4,332	44,718	55,901
United Kingdom.	31,976	29,986	+ 6,883	+ 9,631	38,859	39,617
Italy (for 1917, not including invaded territory) .	4,269	5,362	+ 2,627	+ 1,184	6,896	6,546
Denmark	6,854	7,764	+ 17	+ 662	6,871	8,426
Norway.	1,963	1,733	+ 25	+ 98	1,988	1,831
Netherlands . . .	3,165	2,821	+ 435	+ 1,175	3,600	3,996
Sweden	10,960	12,490	+ 115	+ 127	11,075	12,617
Switzerland . . .	803	694	+ 772	+ 1,809	1,575	2,503
Australia	1,979[1]	2,515[2]	+ 113[3]	+ 84[4]	2,092[3]	2,599[4]
New Zealand . .	1,301[1]	2,534[2]	+ 8[3]	— 210[4]	1,309[3]	2,324[4]
Total . .	101.309	117,468	+17,674	+18,892	118,983	136,360
Spain.	4,841	4,225	— 147	— 20	4,694	4,205
Canada	63,615	54,238	— 6,360	— 2,387	57,255	51,851
United States . .	200,838	164,190	—15,633	— 645	185,205	163,545
Japan.	889	728	— 52	— 5	837	723
Tunis.	432	573	— 347	— 443	85	130
Argentine	8,183[1]	7,875[2]	— 5,478[3]	— 6,029[4]	2,705[3]	1,846[4]
Total . .	278,798	231,829	—28,017	— 9,529	250,781	222,300

23. To sum up, the following conclusions may be drawn from the information at our disposal:—

(*a*) during the war the Allied countries in general suffered a reduction in their supplies of cereals, except as regards rice. This reduction was largely due to the smaller harvests or the decrease in imports, or to both these causes combined;

(*b*) decreases in imports became evident in spite of the increase in production and the partial increase in exports from certain extra-European countries; further, these latter countries were able to increase their available resources;

(*c*) the countries in question assumed a greater importance in the provision of supplies to Europe.

24. The considerable decreases, in general, in the cereal harvests of the Allied countries were a natural result of the upheaval caused by the war to their economic organisation. The call for men for the army, the great reduction in imports and in the production of manures, the decrease in the number of cattle, and the invasion of certain territory tended to produce a reduction either in the area under cultivation or in its yield.

It is true that in many countries exemptions were granted on agricultural grounds; recourse was had to a very large extent to woman and child labour; the

[1] 1914-15 to 1917-18.
[2] 1909-10 to 1913-14.
[3] 1915 to 18.
[4] 1910 to 14.

use of agricultural machinery was encouraged; further, the Governments requisitioned the harvests at official prices fixed in advance on rates which were generally remunerative and were higher than re-selling prices; the Governments also granted bonuses to farmers, etc. But the figures reproduced above show that in general these measures were only proper to lessen the harmful effects of the factors to which reference has been made. In spite of this, it was found possible in the United Kingdom to increase the harvest of certain cereals, and in Italy the rice harvest.

25. In view of the obstacles caused by the war, it is easy to understand the small effect produced on imports from extra-European countries by the abolition of import duties on cereals, which was already in force in certain European countries. Indeed, the provision of supplies was rendered considerably easier by a system of rationing, which reached its greatest development after the entry of the United States into the war, and which, together with the opening of large credits to those of the Allies who needed them, prevented the latter from feeling the effects of the considerable rise in export market prices, and in freightage and exchange. Although these measures could not prevent a large decrease in imports, they increased, as we know, the predominant share of imports from extra-European countries.

26. If we examine the Customs statistics of the European Allied countries, the following table, which refers only to the importation of wheat into the United Kingdom, clearly indicates the almost complete substitution during the war of extra-European sources of supply, although, in the case of the United Kingdom, consignments of wheat from European countries were very small.

IMPORTATION OF WHEAT

Thousands of quintals

Countries of Origin	1913	1914	1915	1916	1917	1918
United States . . .	17,306	17,383	21,157	32,788	27,537	12,576
Argentine	7,496	3,300	6,175	2,283	3,403	7,309
British India	9,533	5,440	7,089	2,850	1,394	315
Australia	5,144	6,153	91	1,879	4,695	1,023
Canada	11,068	15,980	10,020	10,947	9,351	8,112
Other countries . .	3,239	2,504	509	84	66	100
Total	53,786	50,760	45,041	50,831	46,446	29,435

The decrease in imports and the increase in the consignment of goods from extra-European countries were no less notable in the case of maize.

IMPORTATION OF MAIZE

Thousands of quintals.

Countries of Origin	1913	1914	1915	1916	1917	1918
United States . . .	3,494	118	861	3,551	5,420	4,023
Argentine	19,737	14,550	22,429	10,588	4,865	1,820
British South Africa.	17	664	1,103	1,265	1,360	1,240
Canada	107	—	75	1,104	831	65
Other countries . .	1,613	4,498	209	842	226	210
Total	24,968	19,830	24,677	17,350	12,702	7,358

A similar process took place in the case of barley, the importation of which, almost exclusively from North America, finally fell to one-fifth of its previous level; the same holds good as regards oats, the importation of which from North America and the Argentine fell to about one-half.

These considerable diminutions were compensated in part by the following means:—

(*a*) the importation of rice increased to about double its former extent; this was due solely to the increased export from India to the mother-country;

(*b*) increase in the importation of wheat flour, chiefly from North America;

(*c*) a large decrease in the re-export of cereals and in the export of prepared cereals.

27. The chief sources for the import into France of wheat were the United States and the Argentine, and for the import of maize and rye the United States.

IMPORTATION OF WHEAT

Countries of Origin	Thousands of quintals 1913	1918
United States . . .	1,336.8	4,658.6
Argentine	3,677.9	5,108.9
Australia	1,650.0	402.7
British India	1,101.1	330.8
Other countries . .	7,790.7	1,577.4
Total	15,556.5	12,078.4

28. Regarding Italy, as her imports from Russia had diminished to a negligible quantity, those of hard wheat fell considerably and her needs were supplied almost exclusively by the United States, the Argentine and British India.

IMPORTATION OF WHEAT

Countries of Origin	Thousands of quintals. 1913	1918
United States . . .	1,538.5	5,768.9
Argentine	2,973.2	5,642.3
Australia	825.4	275.7
British India	444.9	3,364.3
Other countries . .	13,325.3	367.9
Total	18,107.3	15,419.1

Her imports of maize diminished very considerably; they came almost exclusively from the United States, the Argentine and British India. On the other hand, her total imports of rye, barley and oats increased; the rye was imported from the United States, the barley from the United States and British India and the oats from the United States and the Argentine.

The great decrease in Italian exports of flour, food pastes and prepared rice should also be noted.

29. It may be stated in general, however, that the cereal resources of all countries were in reality greater than those shown in the above statistical tables, by reason of the almost complete consumption of the stocks existing on the eve of the war, and also of the greater yield of flour obtained as a result of the compulsory introduction, imposed by the States, of a greater degree of flour dressing[1].

It may be added, moreover, that the resources allocated for human consumption probably increased, as a result of the reduction in the quantities set aside to feed certain kinds of animals.

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[1] See INTERALLIED SCIENTIFIC FOOD COMMISSION. *General Report. Food Requirements and Resources of Allied Countries.* Paris, 1918.

The prohibitions on distillation, the use of flour for pastry, etc., also had the effect of bringing about a better use of these resources. Moreover, account must be taken of destruction, damage and waste of various kinds, resulting from the war.

Unfortunately, owing to the insurmountable difficulties which prevent an even approximate estimate of these various factors, it is not possible to arrive at an exact estimate of the resources of the various countries during the war.

III.

SITUATION AFTER THE WAR.

30. In comparison with the averages obtained during the war, the harvest of 1918 (or 1918-1919) had been particularly plentiful throughout the world as regards wheat, rye, barley and oats, thanks to the cultivation of larger areas during the last year of the war. As regards maize and rice it had, however, been deficient.

In the case of wheat this applies not only to the neutral countries and to the principal non-European producing countries, but even to the Allied countries: the wheat harvest in that agricultural year showed a considerable increase in Italy, France and the United Kingdom. The cultivated area increased in the last-named country in comparison with the average during the war, as well as before the war; and it must be noted that in Italy and in France this increase was only in comparison with the year 1917 and not with the average of the preceding years, mainly on account of the occupation of certain territories.

This does not apply to the poor rye harvest in France and in Italy. As regards barley and oats, however, both the areas cultivated and the harvests showed an increase, particularly in Italy and in the United Kingdom.

31. It would seem that with the cessation of hostilities, and the elimination of the factors, previously referred to, which tend to lower the output, the production of cereals should have shown a rapid increase, if not in the United Kingdom, where the war had brought about an increased agricultural activity, then in other countries where this activity had been considerably lowered. The effects of the war, the blockade, which was still in force, the delays in demobilisation, the many difficulties attending upon the reconstruction of the devastated areas, the fixed prices maintained in certain countries even after they had ceased to be remunerative, all these factors stood, however, in the way of a rapid recovery.

Of the Allies, France had in 1919 increased her wheat area in consequence of her territorial expansion, while Italy and Roumania, in spite of their territorial gains, had considerably reduced theirs.

The same decrease occurred in Japan, in several neutral countries, and in British India, the Argentine and Australia (only Canada and the United States have increased their cultivated areas and their harvest), and the general wheat-supply suffered in consequence. As regards rye, the increase in the general supply in 1919 is due entirely to the increase in the cultivation of this crop in Northern America, especially in the United States.

On the other hand, the decrease in the cultivation of barley in the United States and in Canada and the unsatisfactory oats harvest in those two countries reacted unfavourably on the cultivation of these cereals in Europe.

The liberation of the invaded territories resulted in an increase in the area of maize under cultivation in Italy during 1919, but it is still below the pre-war average; whilst in Roumania it is still very far from attaining the area cultivated before the war. When one considers, moreover, that in the United States the

area under cultivation fell below the pre-war level, the reasons for the shortage in the maize harvest during that year will be readily understood.

The area of rice under cultivation remained low in Italy, increased slightly in Spain, Japan and British India, and decreased slightly in the United States, but on the whole the harvest showed an increase, thanks especially to the heavy production in British India.

32. With regard to the 1920 harvest, we have fortunately the basis of a comparison with the figures of the preceding year, the area under cultivation having remained unaltered in several countries.

An examination of the provisional figures, quoted below, relating to wheat reveals an increase of the cultivated area in France, Italy, Germany, the Serb-Croat-Slovene State and certain neutral countries in Europe. Great Britain has further reduced the area cultivated. Russia no longer has a place amongst what were formerly the exporting countries; the deplorable conditions in which that country is struggling are, moreover, well known. Bulgaria has succeeded in slightly increasing the area under cultivation, whereas within the boundaries of the ancient Kingdom of Roumania it is considerably reduced. Similar reductions may be noted in the case of Canada and the United States (where, however, the area under cultivation is greater than before the war) and in the Argentine; they are only partially balanced by the increase shown in British India and Australia.

WHEAT

Countries	Area Thousand hectares		Crops Thousand quintals	
	1920	1919	1920	1919
Germany	1,387	1,279.4	21,480	21,691.4
Belgium	114	133	2,163.3	2,692.9
Denmark	66.6	50.4	1,890	1,612
Spain	4,067	4,199.9	36,593.1	35,176.5
Serb-Croat-Slov. State	1,599.2	1,367.8	17,611.8	13,868
Finland	7.8	7.8	74	83.2
Norway	16.6	16.6	281.6	291.5
Netherlands	63.1	68	1,817.3	1,568.5
Sweden	145.7	140.9	3,030	2,587.9
Switzerland	48	52.7	976	959
France	4,854.3	4,603.7	62,706.3	49,653.7
Great Britain	780.6	931.1	15,103.5	18,199.6
Italy	4,570	4,286.6	38,466	46,204
Roumania (Old Kingdom)	838.5	1,199.8	6,531.9	13,197.4
Bessarabia	547.5	515.1	4,848.5	4,623.5
Bulgaria	871.7	841.7	11,210	9,261.1
Canada	7,378.1	7,739.9	79,841.1	52,597.7
United States	21,712.4	29,640.8	204,296.4	256,099.1
British India	12,130.7	9,630.6	102,539.5	76,284.8
Argentine	5,995 [1]	6,053 [2]	50,142 [1]	58,280 [2]
Australia	3,844 [1]	3,000 [2]	39,728 [1]	11,975 [2]

As to rye, the area cultivated has diminished slightly in Germany, in the United States and in Canada, but has increased in Italy, France, and the Serb-Croat-Slovene State. Maize, on the contrary, shows an increase of area in the United States, Canada and France. The area has remained unchanged in Italy, and has decreased in Roumania.

[1] 1920-1921. [2] 1919-1920.

The area of barley under cultivation has increased in Germany, France, the United Kingdom, Italy and Roumania, and has remained more or less stationary in North America. The same may be said of the area under oats, except in the United Kingdom, where the area has decreased. Finally, as to rice, the cultivated area has slightly increased in Spain, has decreased in Italy to an area even less than qefore the war, but has not shown any appreciable variation in British India.

33. To sum up, one cannot deny the existence of certain indications of a revival in the cultivation of cereals in Europe.

It is quite obvious that the increase in the areas under cultivation has not always had a corresponding effect on the harvests, which, apart from the influence of climate and other circumstances, have suffered, particularly in certain European countries, from the scarcity of manure, agricultural machinery, etc.

This has resulted in a persistent shortage of cereals, and it has therefore been necessary to import them from non-European countries in amounts far greater than might have been indispensable.

34. It is only natural, therefore, that several countries in Europe, so far from forbidding it, have actually sought to facilitate the import of cereals from non-European countries.

It appears from the data relating to the international trade of certain of the principal countries of Europe that the imports of non-European origin still far exceed those of European origin, even in the case of those cereals which, in the years before the war, were exported chiefly by the Austro-German and Balkan countries.

For reasons well known to those who are familiar with commercial statistics, a detailed examination of the figures of international commerce based upon the last two harvests which we have been considering would still be premature, but the facts already in our possession show that this considerable excess of imports from non-European countries is beyond all doubt. It is modified, and that in a very small degree, by a small export of wheat from Roumania.

35. In these circumstances, certain exporting countries have not hesitated to place heavy burdens upon the sale of cereals, such as enforcing cash payments or credits on very onerous terms, while other countries have introduced an export tax in addition.

In view of the importance of these exports, we should note particularly the case of the Argentine, which since January 1918, and up to the end of 1920, placed a compensatory tariff upon wheat [1]. This tariff, varying from month to month, and in accordance with the price, amounts to a veritable tribute imposed on those countries which were in need of wheat, and has certainly lessened their capacity for acquiring this most essential article.

One of the causes which have led to the low price of wheat since 1920 is in general attributed to the difficulty which certain importing countries of Europe have experienced in their attempts to acquire non-European wheat, in spite of the large stocks of the non-European exporting countries.

It appears that for the current season certain increases on the area allotted to the culture of cereals and on the crops have been achieved in several countries of Europe [2]; it does not appear, however, that the dependent position of these countries, as indicated above, has thereby been strongly improved.

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[1] International Chamber of Commerce, 1st Congress, London, 1921. Pamphlet No. 7, *Raw Materials*.

[2] The large reduction of the area in Roumania has been followed in 1921 by a considerable increase.

IV.

SUMMARY AND CONCLUSIONS

I.

In Europe before the war only Russia, Hungary and Bulgaria exported wheat. The supplies of the other countries in Europe depended, to a large extent, on these states, but even more on the exports from the United States, Canada, the Argentine, British India and Australia. The world's wheat-trade was, above all, determined by Europe's need of supply. The United Kingdom imported more wheat from the United States, Canada and other countries than from its possessions.

II.

After wheat, rice was the staple food of the world's population. It was chiefly produced and consumed in Asia and was very largely exported to Europe and the two Americas. The production of the United States, Spain and Italy was considerable.

III.

Rye was also consumed in large quantities in Northern and Central Europe. The chief producing centres were situated in Russia, Germany, Austria and to a less extent in the United States. Trade in rye was mainly conducted between the various European countries and was of no great importance.

IV.

Maize was employed as cattle food, but in South America considerable quantities were used for human consumption. This was also the case in Africa and in Southern Europe. The United States was responsible for a good half of the production. Hungary, Italy, Roumania and Russia also produced rye. The European countries and in particular the United Kingdom and Germany were the chief importers of maize. Italy, although producing maize, imported a considerable quantity.

V.

The better qualities of barley were used for distilling purposes. It was used for human consumption in North Africa and in some parts of Asia; and was also used as food for animals. The cultivation of barley was widespread in Europe; the production of the United States and China was also considerable. Russia was the chief exporting country. Germany and the United Kingdom, while producing a large quantity of barley, also imported a great deal.

VI.

Oats, which were used almost entirely for animal food, were cultivated mainly in Europe and in North America. The Argentine, however, exported large quantities. In Europe the chief importing countries were the United Kingdom and France.

VII.

The re-export trade and the milling industries of Belgium and Germany must be particularly noticed.

VIII.

The production of cereals in most European countries was subject to a protective tariff; the import tariffs were particularly interesting in France, Italy and Germany.

IX.

On the outbreak of the world war the Allied countries, in general, were faced with a reduction of their resources in cereals, except in rice, owing to the decrease in the crops harvested or the diminution of imports, or to both causes simultaneously. The reduction of imports took place in spite of the increase of production and of the partial increase of exports in some non-European countries which, for their part, were able to increase their own resources.

X.

The non-European countries played a great part in supplying Europe.

XI.

The production and consumption of cereals in the belligerent countries and in some neutral countries have, during the war, been subject to special regulations. In certain countries, even among belligerents like the United Kingdom, these regulations led to a considerable increase in the cultivation of certain crops. Supply was largely assisted by a system of rationing among the Allies. The abolition of import duties had little effect. As a result of the difficulty of obtaining figures with regard to the stocks and of estimating the effects of the increase of the yield of cereals in the shape of flour, the variations in the quantities of cereals used for feeding animals, the prohibition of distilling and of waste, etc., it is impossible to estimate the exact cereal resources of the various countries during the war.

XII.

The harvests of 1918 (or 1918-19) at the end of the war were better than the preceding, except in the case of maize and rice; this was especially due to the increase in the area cultivated.

XIII.

The effects of the war, the difficulties of the work of reconstruction, etc., have prevented the rapid revival of production in the year following the war, if not in the United Kingdom, where agricultural production has increased, at least in other countries, where this activity has decreased to a marked extent.

XIV.

The harvests of 1920 (or 1920-21) have shown a revival in the cultivation of cereals in several European countries, but it does not seem that the increase in the area cultivated has had any great effect on the harvests; several European countries have suffered from bad climatic conditions and others from a lack of manure and agricultural machinery. This has caused a persistent diminution in European resources. The supplies of Europe still depend, to a very large extent, on imports from non-European countries, although this dependence is relieved by the exports from certain countries, such as Roumania, and by the increase on the area and crops of 1921 in several European countries.

XV.

On the other hand, some exporting countries have not hesitated to impose difficult selling conditions. The Argentine added a duty on the export of wheat, which has only recently been raised.

II. STATEMENT OF THE POSITION CONCERNING

WOOL

PREPARED BY PROFESSOR VINCI

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WOOL

I.

POSITION BEFORE THE WAR

1. The situation of the wool industry in the various countries of the world on the eve of the war was the result of the profound changes in the sources of the supply in the course of the last century.

European herds were continually decreasing in number; this was particularly noticeable in France, Germany, Austria, Hungary, Spain, Switzerland, Belgium, Denmark and Sweden and was less noticeable in the United Kingdom, European Russia, Netherlands and Norway. It was also slightly compensated for by an increase in Italy and certain other countries. This decrease rendered the wool industry in Europe ever more dependent on the production of raw materials in other continents. As a result there was a great increase in the number of herds in Australia, New Zealand, Argentine and Uruguay and certain South African countries.

It was only in the last few years before the war that in the case of some of the countries mentioned above this increase ceased and even became a decrease, due to the favourable conditions offered for other kinds of cattle, to the extension of agriculture and also to climatic conditions.

Moreover, the more extensive requirements resulting from the general increase in the world population and the improvement in conditions of life compelled certain non-European countries to have recourse to the same markets. This was notably the case with the United States, although the number of sheep there had considerably increased.

2. It is not easy to estimate the total available amount of wool in the world. In many countries there only exist private statistics, the information of which is contradictory. In other countries only export figures are available, and in others only conjectures are possible. *The National Association of Wool Manufacturers, U.S.A.*, publishes periodically a statistical table which in many respects cannot be considered as reliable[1].

But it suffices, in fact, to compare the data bearing on the number of sheep (and such data were available for many countries) with those of the wool production for each country as shown in the same table; this will show the exaggerations and, still more often, the omissions in these estimates. An attempt has been made in the following table to establish a more certain estimate of the world production of raw sheep's wool about 1912, based upon the number of sheep and certain other available information, such as the amount of wool used in commerce, manufactured wool, etc.

[1] See *The Wool Year-Book*, 1921, printed and published by *The Textile Mercury*, Manchester.

Countries	Number of sheep about 1912	Raw sheep wool clip about 1912
	Thousands of	metric tons
Europe:—		
Russia in Europe . . .	42,736[1]	77.5[2]
United Kingdom	28,887	68.0
France	16,468	37.3
Spain	15,830	28.7
Austria-Hungary	12,946	23.5
Italy	11,163	20.3
Germany	5,803	13.2
Portugal	3,073	5.6
Norway	1,398	3.2
Sweden	946	2.1
Netherlands	889	2.0
Denmark.	727	1.6
Belgium	185	0.4
Switzerland	161	0.4
Balkan States	22,267	40.4
Other countries	?	2.3
Total . . .	?	326.5
Asia:—		
China and Thibet . . .	?	90.7
India and Afghanistan .	?	68.0
Turkey in Asia	?	40.8
Persia	?	27.2
Russia, Asiatic	?	90.7
Other countries	?	0.5
Total . . .	?	317.9
Africa:—		
British South Africa . .	30,657	73.5
British East Africa and Uganda	7,500	20.4
German East Africa . .	6,000	13.6
German West Africa . .	500	1.1
Algeria	8,529	15.5
Tunisia	767	1.4
Morocco	?	6.8
Other countries	?	6.8
Total . . .	?	139.1
America:—		
North:—		
U. S. A.	52,362	137.9
Canada	2,174	4.9
Other countries	?	5.4
South:—		
Argentine	83,545	153.2
Uruguay	26,286	59.6
Chile	4,169	9.4
Brazil	10,550	15.9
Peru.	2,000	3.6
Falkland Isles	711	2.1
Other countries	?	1.8
Total . . .	?	393.8

[1] Including a negligible number of goats.
[2] Including a negligible quantity of goat-skins.

Countries	Number of sheep about 1912	Raw sheep wool clip about 1912
		Thousands of metric tons
Oceania:—		
Australia	83,264	332.9
New Zealand	23,750	93.4
Other countries	?	0.1
Total . . .	?	426.4
Summary:—		
Europe	?	326.5
Asia	?	317.9
Africa	?	139.1
America	?	393.8
Oceania	?	426.4
Grand total	?	1,603.7

This table does not take into account wool-bearing animals other than sheep, and consequently does not include wool from goats, etc. It is certain, however, that the amount of wool thus omitted forms only a small fraction of the total, and it may be stated that the latter did not reach the figure of 1,800,000 tons. This figure considerably exceeds that of 1,597,000 tons which was calculated by the *Bulletin of the Imperial Institute* for all kinds of wool produced in 1912[1]. This difference is largely due to the higher valuation which we placed on the sheep's wool produced in various countries, taking as our basis the more exact statistics regarding their flocks as supplied by the *International Agricultural Institute*[2], or derived from more recent official estimates.

Moreover, it should not be forgotten that the figures given refer to raw sheep's wool. The reduction in the weight of washed wool amounts to 50 % for Australian wool, and a little less for the wool of other countries. It should be remembered that in general the weight of washed wool is that of raw wool in a ratio of 3 to 5; the production of washed sheep wool about 1912 may therefore be estimated at 960,000 tons.

No comparison can be drawn here between the figures given in the table and those of population, as in the case of many countries the estimates of the population in the considered period are not available, or do not exist at all in other countries.

Moreover, this information would not give any idea of the requirements of the various countries as regards raw materials, dependent as these requirements are on their industrial development, the state of their civilisation, etc.

It should, however, be noted that, amongst the various countries of Europe, the United Kingdom accounted for 4.2 % of the total wool clip, but, in the other countries of the Empire, disposed of 37.1 %; Russia only accounted for 10.5 %, France 3.3 %, Germany 1.7 %, Italy 1.2 % and, amongst the countries of America, the U. S. A. possessed only 6.8 % and the countries of South America (except the Falkland Isles) 15.1 %; finally, the countries of Asia, China, including Thibet, produced only 5.6 % and Turkey in Asia, with Persia, only 4.2 %. The remainder, 8.5 %, was distributed amongst the small countries of Europe and the rest of the world.

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[1] See "The Empire's Trade in Wool in its relations to the Wool Trade of the World", in *Bulletin of the Imperial Institute*, October-December 1918, London.

[2] See *International Year-Book of Agricultural Statistics*, Vols. for 1912-1918, published by International Agricultural Institute, Rome.

Finally, during the period under review, the distribution of wool in the form of merino, cross-bred and inferior wool (the latter exclusively employed in the manufacture of carpets, blankets, etc.) must be approximately the following, calculated on the basis of the figures for 1915 [1].

Countries	Total Production	Merino	Cross-bred	Inferior
United Kingdom	100	—	100	—
Australia	100	85	15	—
New Zealand	100	4	96	—
British South Africa	100	100	—	—
Falkland Islands	100	—	100	—
Canada	100	50	50	—
British India	100	—	—	100
Total for the British Empire	100	60	35	5
Total for South America	100	18	82	—
Total for North America	100	57	43	—
France	100	20	80	—
Russia	100	20	—	80
Italy	100	75	25	—
Germany	100	20	80	—
Austria-Hungary	100	19	81	—
Spain and Portugal	100	50	50	—
Other countries	100	—	—	100
Total of universal production	100	38	36	26

It must be observed that, although the universal production of merino wool was about equal to the production of cross-bred wool, the greater portion of the production of the British Empire (60 %) consisted of merino wool, and the greater portion of the South American wool output (82 %) was cross-bred wool.

The British Empire, however, disposed of 63 % of the universal production of merino wool and 40 % of the universal production of cross-bred wool.

Countries	Merino	Cross-bred	Inferior
British Empire	63	40	9
France, Russia and Italy	10	7	40 (Russia)
North America	16	12	—
South America	7	32	—
Other countries	4	9	51
Total	100	100	100

3. Almost the whole of the wool produced in the possessions of the British Empire (37.1 %) and in South America (15.1 %) was intended for other countries, principally for European countries and the United States; thus these countries obtained their full supply of wool.

Spain occupied a special position; indeed, although the Spanish supplies of wool were reduced, Spain could still dispense with imported wool and was even in a position to export part of her clip.

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[1] See *Report of the Departmental Committee of the Textile Trades*, Cd. 9070, London, 1918.

Exports into Europe were largely to intermediary countries (United Kingdom, Germany, Russia, France, Belgium, Italy and other less important countries), which then re-exported the wool to a greater or less extent to other European countries in the form of washed, cleaned, carded, threaded, woven or prepared wool. Side by side with this imported raw wool from extra-European countries there also existed a considerable trade in native raw wool between the various European countries, according to their economic requirements [1].

The following are the figures for exports from the chief extra-European wool-producing countries.

Total Exports of Raw Wool (or Washed Wool reduced and reckoned as Raw Wool) in 1912

	Thousands of metric tons
Australia	305.9
New Zealand	85.5
British South Africa	80.3
Argentine	169.7
Uruguay	80.8
Chile	12.1
Peru	3.8
Brazil	1.9
Falkland Isles	2.1
Total	742.1

To these figures must be added 24.2 thousand tons of exports coming from British India by sea (up to March 31st, 1913), 22.7 from Turkey in Asia, 9.1 from Algeria, 2.04 from Egypt (largely in transit), and other unimportant exports from other non-European countries.

The export of raw sheep wool from these countries in 1912 may be estimated, as a whole, at about 800,000 tons, and the export of all other kinds of wool can be estimated at a slightly higher figure.

Australia [2] exported merino wool in the proportion of 85 %, South Africa and Uruguay in the proportion of 100 % and 80 %. The Falkland Islands, New Zealand and the Argentine, on the other hand, exported exclusively, or almost exclusively (100 %, 97 %, and 90 %) cross-bred wool. The same may be said of the other South American countries, while Asia exported inferior wools.

Sheep-wool exported in the British Empire represented about 60 % of these exports; when we take into consideration the relatively limited amount of merino wool furnished by Uruguay, we may conclude that the merino wool exported from the various parts of the British Empire formed a still greater proportion (nearly 90 %) of the total export of this kind of wool.

Sheepskins are included in the exportation of sheep wool, but not other kinds of wools and skins.

It should be noted the mohair, which is chiefly exported from Turkey and South America.

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[1] See the official statistics of the international commerce of the various countries; *The Wool Year-Book*; *The Bulletin of the Imperial Institute*, 1918; *The Report of the Departmental Committee on the Textile Trades*, and the statistical Year-Books of the various countries.

[2] See *Official Year-Book of the Commonwealth of Australia*, Melbourne, 1913.

4. Australian wool was chiefly sent to the United Kingdom, France, Germany, Belgium, the United States, Japan, Italy and Austria-Hungary:—

	Raw Wool	Washed Wool
	Exported from Australia in 1912. Thousands of metric tons	
United Kingdom	95.9	12.8
France	68.8	6.8
Germany	48.8	4.8
Belgium	24.8	2.6
United States	3.9	0.02
Japan	4.2	1.3
Italy	2.2	0.2
Austria-Hungary	3.5	0.04
Other countries	0.8	0.2
Total	252.9	28.76

On the other hand, wools exported from New Zealand[1], British India (by sea), and the Falkland Isles were nearly all exported to the United Kingdom, and also some 70 % of South African wool.

Germany and France were the chief importers of Argentine wool, and took respectively 37 % and 24 %; but the United Kingdom, Belgium and the United States were also importers to an appreciable extent.

On the other hand, Uruguayan wool was chiefly exported to France, Belgium and Germany: wool from Chile was exported chiefly to the United Kindgom.

Beyond a small quantity of skins and raw wool, imports into the United Kingdom in 1912 reached about 335.55 thousand tons of sheep wool, nearly all raw, and these were allocated as follows:—

	Thousands of metric tons
The Cape and Natal	54.7
British India	25.1
Australia	129.3
New Zealand	83.5
Canada	0.22
Falkland Isles	2.0
Other British Possessions	0.13
Total	294.95
Peru	1.4
Chile	9.4
Uruguay	4.3
Argentine	25.5
General Total	335.55

The United Kingdom therefore imported about 42 % of the raw wool exported from non-European countries. Rather more than half of this enormous stock remained in the United Kingdom, which re-exported the remainder (153,000 tons), to which must be added 21.4 thousand tons of wool produced at home.

Although the Customs statistics do not distinguish between raw wool and washed wool, it may be assumed that a large part of the exported British home-produced wool and colonial wool consisted of raw wool[2].

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[1] See *New Zealand Year-Book*, 1914. The data regarding the other countries were taken from the Customs statistics, and for the South American countries from the *Wool Year-Book*.

[2] See *Annual Statement of the trade of the United Kingdom with foreign countries and British possessions*, 1914. The considerable proportion of raw wool in the British wool exports has been confirmed by the reply from the *Board of Trade* to the first statistical questionnaire sent by the League of Nations regarding raw materials. As to the re-export of colonial wool, the information which we have received from the *Board of Trade*, through our London correspondent, Miss Hook, has confirmed our opinion.

These exports were sent to nearly all European countries as well as to the U. S. A. and Canada, as the following table for 1912 will show:—

	Re-export of Colonial sheep wool	Export of home-produced sheep wool
	Thousands of metric tons	
Russia	0.045	2.3
Sweden	0.13	0.4
Germany	45.9	3.2
Netherlands	3.9	0.8
Belgium	29.6	0.02
France	34.9	0.6
Switzerland	0.013	—
Italy	0.09	0.8
Austria-Hungary . . .	0.02	—
U. S. A.	37.0	11.5
Mexico.	0.045	—
Other countries. . . .	0.045	0.5
Total	151.688	20.12
Canada	1.2	1.2
Other British Possessions	0.03	0.09
General total . .	152.918	21.41

5. The United Kingdom, which formerly enjoyed a world monopoly of woollen goods, witnessed the rise, during the last fifty years of peace, of the woollen manufacturing industry in the U.S.A. and in the principal countries of Europe, an industry which covers all stages from washing to the final finishing processes.

Some countries also easily succeeded in exporting washed wool. In fact, in 1912, Germany exported 6.5 thousand tons of washed merino and 5.2 thousand tons of washed cross-bred wool, while France exported 39.78 thousand tons of raw wool, of which the greater part consisted of washed wool. The same may also be said of the 113.4 thousand tons of cross-bred wool exported by Belgium[1].

As regards yarns and fabrics (piece goods) this is only the case with regard to certain qualities (for the greater part inferior), a state of affairs which is said to be due to the protectionist policy pursued by certain States.

As regards France, special mention must be made of the fancy materials for women, manufactured at Lille and at Roubaix, a trade which profited by the privileged position of France with regard to feminine fashions[2].

This has brought about a new orientation in the international wool trade of the United Kingdom and has led in particular to the importation into the United Kingdom of a very considerable quantity of certain woollen products of European manufacture, as well as a marked increase in the exportation from the United Kingdom of semi-manufactured products.

Indeed, in 1912 the United Kingdom imported about 1.36 thousand tons of *waste (déchets de laine)*, of which 0.63 came from France, 0.23 from Belgium, 0.14 from Germany, 0.13 from the U. S. A. and 0.13 from Italy; and almost as many tons of *woollen rags* (not used for manures), of which 0.4 was derived from Germany, 0.4 from France, 0.04 from the U.S. A. and the rest from Russia, Turkey, Denmark, Norway, Sweden, Portugal, Netherlands, etc.; 13.88 thousands of tons of *woollen and worsted yarns (fils de laine)*, of which 7.30 were imported from Belgium, 4.39 from France, and 1.50 from Germany; about 70 million yards[3] of *cloths, stuffs, ect., (tissus de laine)* from Germany, France, Switzerland, the Netherlands, Belgium, Austria, Hungary and other countries of lesser importance; 1.9 million square yards of *carpets and rugs* from Belgium, Turkey, Germany, France and Persia.

Further, we may obtain some idea of the importance of the exportation of semi-manufactured products from the United Kingdom when we realise that that

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[1] See *The Wool Year-Book; The Bulletin of the Imperial Institute*, 1918, and *The Report of the Departmental Committee on the Textile Trades*.

[2] See Ministère du Commerce, Rapport général sur l'industrie française, Paris 1919.

[3] 1 yard = 0.914 metres.

country exports 8.9 thousand tons of *noils and carded or carbonised wool;* 20.3 thousand tons of *tops* and 6.1 thousand tons of *woollen rags*, exported chiefly to Germany, Japan, Russia, etc., and also 40 thousand tons of *yarns.*

As regards the *fabrics*, the following table will show their distribution:—

FABRICS

	"Woollen"	"Worsted"
	Millions of yards	
Russia	0.7	0.1
Sweden	0.2	0.3
Norway	0.2	0.2
Denmark (incl. Faroe Isles)	0.8	0.3
Germany	6.7	1.4
Netherlands	4.2	0.7
France	5.5	1.4
Belgium	3.8	1.1
Switzerland	0.8	0.6
Portugal	0.1	0.1
Spain	0.3	0.2
Italy	1.3	1.8
Austria-Hungary	1.8	?
Greece	1.0	0.2
Bulgaria	0.1	?
Roumania	1.0	0.3
Turkey: in Europe	2.0	1.8
in Asia	1.1	1.0
Egypt	0.5	0.7
China (except Hong-Kong)	5.4	3.6
Japan	5.0	3.2
U. S. A.	2.1	10.0
Cuba	0.4	0.4
Mexico	0.4	0.4
Colombia	0.3	0.1
Venezuela	0.2	?
Ecuador	0.2	?
Peru	1.1	0.3
Chile	2.8	1.8
Brazil	2.0	1.0
Uruguay	1.0	0.7
Argentine	6.0	3.6
Other countries	2.2	1.7
Total	61.2	39.0
Malta and Gozo	0.1	0.1
Cape of Good Hope	1.0	1.2
Natal	0.3	0.2
Transvaal	0.6	0.4
British India	7.4	3.8
Straits Settlements and Depend.	0.3	0.3
Ceylon and Dependencies	0.1	?
Hong-Kong	2.8	2.8
Australia	11.0	5.7
New Zealand	2.5	1.2
Canada	11.9	15.9
Newfoundland and Labrador	0.1	?
British Antilles	0.5	0.4
Other possessions	0.7	1.2
Total	39.3	33.2
General total	100.5	72.2

Besides woollen fabrics (of which a small part is mixed with other textile fabrics), we may note 0.1 million yards of *damask*, etc., exported mainly to Australia, Canada, Japan, Germany and the U.S.A.; 0.4 million yards of *mohair* and *woollen plush* to Canada, France, the U.S.A. and Italy; 7.6 million yards of *flannels* and *delaines*, exported chiefly to the possessions, as well as to the U.S.A., Japan, Argentine, Germany, China and France; 8.8 million square yards of *carpets* to the possessions and the chief European countries, China, Japan, the U.S.A. and the South American countries, and also other products of minor importance.

The principal imports of the United Kingdom in 1912 were therefore a small quantity of *waste* and *woollen rag* (2.7 thousand tons), 13.9 thousand tons of *yarns* and 70 million yards of *fabrics*; the U.K. exported 20.3 thousand tons of *tops*, 6.1 thousand tons of *rags*, 8.9 of *noils* and *carded or carbonised wool*; 40 thousand tons of *yarns* and nearly 200 million yards of *fabrics*.

With regard to yarns, in particular, we note that only two countries show an excess of exports over imports, namely: France and Belgium, while Germany, Austria-Hungary, Italy and Switzerland show a marked excess in imports.

The remaining countries exported only to a limited extent, although the imports of Russia, Japan, the Netherlands, Canada, Sweden, Norway, the Balkan States and Turkey were of fairly large dimensions.

As regards fabrics it may be said, in a general way, that value of exports were in excess of value of imports in the United Kingdom, Germany, France, Austria-Hungary, the Netherlands and Persia; and were less than imports in Italy, Switzerland, Belgium, Denmark, Spain, Bulgaria, Turkey, United States and British India; and, finally, that the remaining British possessions, South America, Russia, Sweden, Norway, Portugal, Roumania, Serbia, Greece, Japan and China hardly exported at all [1].

It is very interesting to observe that Germany succeeded in importing a quantity of fabrics from the United Kingdom with a view to dyeing them; this was due to the fact that the dyeing could be carried out in Germany more cheaply and by more effective processes [2].

Speaking generally, it may therefore be said that:

(1) The United Kingdom had maintained its position as the chief source of the world's supply of yarns and fabrics, its exports amounting to 40,000 tons of yarn and to 26.1 millions sterling worth of fabrics.

(2) Next in order came: Germany, France, Austria-Hungary, Belgium, Switzerland, Italy.

(3) The remaining countries of the world did not export yarns and fabrics at all, or only in insignificant quantities. Moreover, they were in a more or less degree dependent on imports from the countries mentioned in the preceding paragraphs. This was particularly noticeable, as regards yarns, in the case of Russia and Japan; the United States, on the other hand, were almost independent in respect of yarns; though, as regards fabrics, their dependence on imports was very marked.

6. The figures, together with the comments set forth above, which refer to international commerce, afford a preliminary idea of the extent to which the various countries of the world were contributing, before the war, to the production of manufactured woollen goods.

A still better idea may be obtained if we examine the statistics of production in these countries [3].

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[1] See the *Bulletin of the Imperial Institute*, 1918.

[2] See *Report of the Departmental Committee on the Textile Trades*; and the *Bulletin* referred to above.

[3] See: *The Wool Year-Book*, and the Statistical Year-Books of the various countries under review. It must be noted that the figures for production are always more reliable than the figures for the spindles and looms on account of the varying returns of the latter in the countries under review.

The most recent statistics for United Kingdom, *i.e.* for the period before the war, showed a production of *tops* amounting to about 108.9 thousand tons, and of *noils*, amounting to 13.6 thousand tons, and are evidence of the existence of rather more than 6 million spindles and of 100,000 mechanical looms, producing 118,000 tons of woollen yarns, 170 million yards of woollen fabrics and 180 million yards of worsted fabrics and in addition some million yards of less valuable fabrics. These data are, in part, obtained from estimates, and cannot be very closely compared with the exports statistics given in the tables above; nevertheless, they serve to bring out, in a general way, the large consumption of woollen articles in the United Kingdom and the large exports of yarns and fabrics from that country.

On the other hand, some statistics which will be given are evidence of the effectiveness of Germany's competition with the United Kingdom during the last few years before the war.

Germany was, in fact, manufacturing some 60,000 tons of *tops*, she possessed some 5 million spindles and more than 100,000 looms, and she was producing more than 90.7 thousand tons of *woollen yarns*, and about 250 million yards of *fabrics (woollen and worsted)*.

Although Germany continued to be a large importer of tops and yarns from the United Kingdom, she had nevertheless succeeded in appreciably reducing her dependence upon that country and even in competing effectively with British manufactures in foreign markets — chiefly as regards ordinary products.

It should also be observed that in British India the percentage of imports (57.7) of woollen products from the United Kingdom was less, just before the war, than it had been 30 years previously (91.9). This change had taken place to a great extent in favour of Germany, who had contrived to increase her exports to this British possession from 3.6 % to 27.8 %.

Other British possessions, South America and many European countries, were importing German woollen articles; among these countries were Russia, Scandinavia, Roumania, Austria, the Netherlands, Switzerland, Italy and even the United Kingdom itself.

The 3,000,000 spindles and the 60,000 looms which France possessed immediately before the war, were producing rather more than 36.3 thousand tons of woollen yarns and 49.8 thousand tons of worsted yarns, and nearly 60 thousand tons of fabrics.

Belgium and Germany were the chief importers of French combed and carded wool, while the United Kingdom was the chief importer of French yarns. As regards Belgium, it is well known that Antwerp was one of the principal wool markets of Europe, particularly for South American and Australian wool.

It is also generally known that a great quantity of wool was retained in Belgium, where it was washed, combed and carded and subsequently re-exported, but in this country also we note that there was a production of yarns and fabrics representing more than 500,000 spindles and 4,000 looms.

Austria was to a great extent dependent on Germany for combed and carded wool, and on Great Britain for yarns; she exported her products chiefly to the Balkan countries and Turkey.

Switzerland imported a considerable quantity of washed wool, worsted yarns and fabrics obtained, for the most part, from Germany, France and the United Kingdom. She exported yarns, fabrics, and various woollen articles, chiefly to European and South American countries.

Italy possessed about 800,000 spindles and over 16,000 mechanical looms, besides more than 20,000 hand looms; she imported washed wool and tops chiefly from France, Belgium and the United Kingdom, and also a considerable quantity of yarns.

Her annual production of textiles amounted to 30,000 tons, to which should be added a certain quantity of imported products, of superior quality, obtained from abroad.

She exported a small quantity of fabrics to Argentine, Turkey, British India and British South Africa, and a few other countries.

In spite of the small extent of their commerce with foreign countries, the United States possessed immediately before the war a highly developed woollen industry which was almost entirely devoted to supplying their own internal requirements: this industry was represented by 4.7 million spindles and 75 thousand looms, producing about 272.2 thousand tons of yarns and 400 million yards of fabrics, besides a considerable quantity of second-grade products (carpets, blankets, etc.).

Russia in a similar way possessed a highly developed woollen industry, which was nevertheless inadequate to maintain regular exports and to satisfy completely the requirements of the home market.

II.

POSITION DURING THE WAR

7. We do not propose to give a detailed account of the industrial position with regard to wool during the world war. We will confine ourselves to such matters as will enable us to arrive at the conclusions with which we are concerned.

The considerable reduction in the European flocks of sheep during the war should be noted at the outset[1].

This reduction was of negligible dimensions in Germany, slight in the United Kingdom, but very extensive in France as a result of the invasion by the enemy (the number of sheep has decreased from 16.5 million head to 9.1), in Russia, and in certain Balkan countries.

In view of the fact that there was a general difficulty in obtaining food in the neutral countries, there was a marked decrease in the number of sheep in Denmark (from 0.51 to 0.45 million head), in Norway (from 1.33 to 1.18), in the Netherlands (from 0.8 to 0.6), etc.

Although certain countries were able to avoid this decrease, and even to increase somewhat the numbers of their flocks, there can be no doubt that the war has very considerably reduced the total number of sheep in Europe, a total which was already insufficient.

In North America, a slight reduction of 1 ½ million head is noted in the U.S.A., and is only slightly compensated for by an increase in Canada; but there had been a marked decrease in South America already on the eve of war, particularly in Argentine, Brazil and Uruguay, mainly owing to unfavourable climatic conditions.

It does not appear, from the scanty information available, that there has been any marked changes in the total stock of sheep in India and the South African Union during the war; the same applies to the total of sheep in Australia and New Zealand, if we disregard the slight and transient decrease which occurred during the first years of the war.

8. But the European wool industry was even more severely hit:

(1) By the economic isolation of the Central Powers, which included the Belgian factories and the occupied French Departments; the latter, as is known, were the chief centres of the French wool industry (81 % of the spinning mills)[2].

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[1] See *International Agricultural Year-Book*, 1917-18, and the other statistical publications of the *International Agricultural Institute*.

[2] See *Economic Survey of certain Countries specially affected by the War at the close of the Year 1919*. London 1920. Published by His Majesty's Stationery Office.

The Central Powers were almost entirely cut off from their wool supplies and had to content themselves with exhausting their existing stocks and resorting to substitutes;

(2) By the difficulties of maritime transport, which impeded the import of overseas wool.

Under these conditions the export of South American wool was more and more directed towards the U.S.A.; the export of South African wool decreased to a marked extent: it practically ceased to be directed chiefly to the United Kingdom and was largely diverted to the United States and Japan, while the export from Australia and New Zealand, now much reduced, went more and more to the factories of the United Kingdom [1].

The changes in the totals and destinations of the wool exported from the *Rio de la Plata* from October 1st, 1913, to September 30th, 1918, are shown by the following table:—

Exports to	1913-14	1915-16	1916-17	1917-18
	Thousands of metric tons			
France	46.5	14.2	16.4	12.4
Belgium	22.7	—	—	—
United Kingdom	19.3	13.8	15	2.6
United States of America	19	67.8	113.9	95.1
Italy	3.8	26.5	17.4	17.4
Spain	0.013	2.9	1.5	3.8
Netherlands	1.1	4.8	3.1	0.06
Germany and Austria	53.7	—	—	—
Other countries	4.3	13.1	5.1	15.5
Totals	170.413	143.1	172.4	146.86

Attention is drawn to the depression from October 1915 to September 1916, due to the European War, and to the depression of 1917-1918, which coincided with the period of the submarine war. The U. S. A., which imported 11 % of this wool, succeeded in concentrating 64 % of it in their hands.

On the other hand, the total exports from the South African Unions during the war, show a continuous and considerable reduction, with the exception of the year 1915:—

Raw wool including scoured wool not reduced in terms of raw wool.

	1914	1915	1916	1917	1918
Thousands of metric tons	60.8	77	61.9	53.4	52.4

On the other hand, whereas the United Kingdom imported about 70 % of this wool before the war, it hardly imported 20 % during 1917 and 1918; the benefit of this reduction was reaped by the United States and Japan.

	Scoured wool		Raw wool	
	Thousands of metric tons			
	1917	1918	1917	1918
United Kingdom	0.42	0.22	9.33	15.61
Canada	0.07	0.62	0.08	0.10
France	—	—	0.03	0.12
Italy	—	0.045	—	0.56
Japan	0.47	0.35	16.48	13.00
U. S. A.	4.44	5.66	22.00	16.00
Argentine	—	—	—	0.15
Totals	5.40	6.89	47.94	45.54

[1] See the *Wool Year-Book* and the Customs statistics of the various countries.

The reduction of *Australian* export was even more marked; but the United Kingdom was able to increase the real quantity of her own purchases, with the exception of the raw wool imported in 1917-18, always considerable.

RAW WOOL

Thousands of metric tons

	1913		1914-15	1915-16	1916-17	1917-18
United Kingdom . .	84.1		145.0	91.8	128.5	63.1
France	72.5		5.8	6.2	5.6	2.6
Germany	42.7		1.4	—	—	—
Belgium	23.5		1.4	—	—	—
U. S. A.	6.7		28.0	52.2	0.01	26.0
Japan	3.3		10.3	15.7	7.64	1.3
Italy	2.6		8.3	19.6	11.6	8.0
Austria-Hungary . .	5.3		0.4	—	—	—
		Canada	0.43	0.2	0.33	2.14
		Egypt	—	—	—	7.04
Other countries . .	0.4	India	0.2	0.09	0.14	0.35
		New Zealand	0.25	0.004	—	—
		Other countr.	0.8	0.66	0.01	—
Total . . .	241.1		202.28	186.454	153.83	110.53

SCOURED AND WASHED WOOL

Thousands of metric tons

	1913		1914-15	1915-16	1916-17	1917-18
United Kingdom . .	11.9		21.9	17.1	21.3	26.9
France	8.5		0.9	0.5	0.5	0.03
Germany	4.6		0.08	—	0.7	—
Belgium	2.4		0.42	—	—	—
U. S. A.	0.05		2.07	12.7	—	0.66
Japan	1.62		2.8	3.4	2.3	2.1
Italy	0.08		0.3	2.2	1.2	0.22
Austria-Hungary . .	0.03		0.7	—	—	—
		Egypt	—	—	—	0.46
Other countries . .	0.05	India	0.06	0.11	0.1	0.002
		New Zealand	0.001	0.04	—	—
		Other countr.	0.14	0.19	0.26	0.14
Total	29.23		30.091	36.24	26.36	30.512

These are the figures for *New Zealand*:—

Export of wool (raw and scoured) not reduced to terms of raw wool . . . . . Thousands of metric tons

	1913	1914	1915	1916	1917	1918
Exports to United Kingdom	84.6	100.0	89.2	84.1	80.9	49.3
	76.3	88.7	83.0	73.7	76.2	40.5

There is no detailed information available with regard to the resources in wool of the exporting countries mentioned above; but if we take into account, on the one hand, that the quantity of sheep in Australia, New Zealand and in the Cape has not as a whole undergone any reduction during the war[1], and if we recall, on the other hand, the considerable reduction suffered during the same period by the export trade of those countries, we may assume that a large stock of wool must have accumulated in those countries during the war.

[1] The change in the composition of the flocks of sheep as regards quality, due to the development of the frozen meat trade, must, however, be noted. This trade had begun to develop before the war, but has been considerably extended since 1915.

A study of the statistics of the chief importing countries enables us to arrive at further conclusions with regard to the international traffic in wool during the war and to arrive at a better estimate of the resources of these countries, in view of the fact that the divergencies between the customs statistics of the exporting and of the importing countries — which are considerable even in normal times — increased in consequence of transport difficulties, submarine warfare, etc.

It must be observed, first of all, that the total supply of wool in the United Kingdom suffered a considerable decrease:—

	1913	1914	1915	1916	1917	1918
	Thousands of metric tons					
Total imports of Wool in the United Kingdom . .	363.1	318.7	420.2	280.7	282.7	187.6
From:						
Russia	3.2	1.8	—	0.09	—	—
Germany	2.1	1.04	—	—	—	—
Belgium	1.4	1.2	—	—	—	—
France	11.1	8.6	0.09	1.7	0.09	—
Turkey in Asia	3.4	1.7	0.41	1.2	1.4	2.8
Egypt	1.9[1]	1.9	2.9	2.5	1.3	1.0
Persia	0.9	0.5	0.59	0.7	0.0004	—
China (excluding Hong-Kong)	1.0	0.6	0.54	0.18	0.1	0.1
U. S. A.	1.2	2.1	1.09	0.13	0.1	0.004
Peru.	2.4	1.3	1.4	1.2	0.54	0.8
Chile	1.0	8.2	6.9	3.7	2.5	0.6
Uruguay	4.4	0.8	0.5	0.4	0.86	0.2
Argentine	25.2	20.8	27.7	14.4	14.5	2.8
Cape of Good Hope. . . .	42.1	37.1	43.0	28.5	13.7	12.9
Natal	18.3	18.05	19.0	12.4	5.5	1.2
British India	24.9	21.3	29.7	29.4	21.9	28.1
Australia	120.2	108.5	193.3	109.6	153.4	92.9
New Zealand	82.2	83.7	90.7	71.6	64.5	40.5
Falkland Islands	2.8	2.0	1.4	1.2	0.8	2.6

This general decrease resulted not only in the complete stoppage, or the reduction to negligible quantities, of the imports from other European countries (imports which consisted, for the most part, of washed wool) but also in the diminution in the imports of raw wool for South America, without this diminution being compensated for by imports from the British possessions. On the other hand, the imports of yarns and fabrics in the United Kingdom — which were already small — were reduced to an absolutely negligible figure.

It might seem a paradox that the United Kingdom was able during the same period, to retain at home a quantity of wool considerably larger than it had done before the war and to accumulate large stocks; but the following points must be kept in mind:—

(1) The great decrease in the export of British wool, which fell gradually from 21.4 thousands of tons in 1912 to 1.04 in 1918.

(2) The decrease also in the export of *waste*, which fell from 5.8 thousands of tons to 1.45; *noils* from 8.9 to 2.3 thousands of tons; *tops* from 20.3 to 6.8; *woollen rags* from 6.1 to 0.04; *yarns* from 39.9 to 7.4; and finally, *woollen fabrics* from 100.5 to 67.4 millions of yards and *worsted fabrics* from 72.2 to 32.1; to these must be added the decreases noted in all other woollen articles, with the exception of woollen *blankets* (which increased from 1.1 million pairs in 1912 to 3.1 in 1918, mainly exported to France and Italy) and also with the exception of *flannels* and *delaines*.

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[1] Including the Anglo-Egyptian Sudan. See *Annual Statement of the trade of the United Kingdom*, 1919, and, for the following figures, the Customs statistics of the various countries.

(3) Finally, the enormous reduction in the re-export of wool, which fell from 153 thousands of tons in 1912 to 9.072 thousands of tons in 1918 (almost entirely exported to France and Italy).

It should also be noted, moreover, that the imports of *alpaca*, *vicuna* wool, and *lama* into the United Kingdom suffered no marked decrease; this was not the case in respect of *camel skins*, which fell from 3.81 thousands of tons in 1912 to 1.14 in 1918, and of *mohair*, which fell from 17.10 to 2.54. The re-export of these articles ceased almost entirely; in the case of alpaca, vicuna, and lama wool the re-exports were negligible (about 0.14 thousands of tons), but were considerable in the case of camel skins and mohair[1].

France, which formerly imported rather more than 250 thousands of tons of *wool* and *waste* (principally from Australia — average for 1911-1913: 91.3; from Argentine 80.2; from the United Kingdom 35.6; from Uruguay 19.8) reduced its consumption to a point where, in 1918, it disposed of only 44,753 tons, distributed as follows:—

From:	Metric tons
United Kingdom	7,644.5
Australia	4,423.3
Uruguay	3,774.7
Argentine	15,968.3
Algeria	3,936.8
Other countries	9,005.4
Total . . .	44,753.0

She was able, however, to import from the United Kingdom a quantity of *tops*, *yarns* and *fabrics* far superior to the pre-war quantities.

The facts were not the same in regard to Italy, but this country was able to increase its imports of raw wool from 10,000 tons to 34,000 tons in 1918, and was thus able to meet a marked reduction in the import of yarns and fabrics coming from the United Kingdom and other countries:—

	Metric tons
United Kingdom	5,757.6
Spain	1,374.4
British Indies and Ceylon .	1,715.6
Australia	7,481.2
Egypt	1,741.9
Argentine	11,474.9
United States of America . .	435.7
Uruguay	3,902.5
Other countries	475.3
Total . . .	34,359.1

The few thousands of tons of washed wool, which also constituted one of Italy's imports, were not appreciably affected.

The following table shows the increase of imports to the United States from 1914 to 1918 (year ending on June 30th) and the fluctuations which took place in the imports from the various countries[2]:—

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[1] In spite of the large stocks of wool in the United Kingdom, the difficulties arising in its manufacture by reason of the lack of German dyes must not be forgotten. This was not the case as regards the machinery, which was almost entirely supplied by home factories. See *Report of the Departmental Committee on the Textile Trades.*

[2] See *Foreign Commerce and Navigation of the United States*, Washington, 1918. This publication gives these statistics for the financial year.

Sheep Wool, Camel Skins, etc.

	1914	1915	1916	1917	1918
	Thousands of metric tons.				
Total imports.	53.5	100.7	182.0	126.8	137.8
From:					
France	2.4	0.45	0.03	—	0.04
Spain	0.0004	0.013	0.03	0.23	0.4
United Kingdom	17.7	17.64	13.6	0.68	0.9
Canada	0.13	1.04	0.73	0.45	0.72
Mexico.	0.36	0.54	0.59	0.54	0.14
Argentine	13.9	29.66	49.9	84.9	73.5
Chile	0.04	1.09	4.3	5.5	5.5
Ecuador	—	—	—	0.18	0.45
Peru.	—	0.36	1.09	0.1	2.09
Uruguay	3.6	6.62	4.0	15.1	8.07
China	0.04	0.27	1.09	6.2	6.0
Australia	10.7	22.94	71.4	0.45	13.6
New Zealand	1.2	0.18	7.6	0.14	1.9
British South Africa . .	0.23	10.75	28.1	10.7	25.3

To these figures should be added some thousands of tons of combed wool (an amount which has not varied much during four years: Canada was able to increase the export of its own combed wool, while exports from the Argentina replaced, in part, the British exports which had practically ceased); in addition there were some tens of thousands of tons of carpet, which was considerably reduced owing to the interruption of imports coming from other European countries. These imports were only partly compensated for by the increased exports from Central America, South America and South Africa.

Japan herself was able greatly to increase her imports of wool during the war. Her sources of supply in 1918 were as follows:—

	Millions de kin[1]
China	2.4
Kwantung	0.09
Great Britain	0.8
South America	4.3
African countries	20.5
Australia	10.5
Other countries	0.3
Total . . .	38.8

These imports enabled the imports of yarns to be reduced from 8.3 millions, yen in 1912 to 0.2 in 1918, and were the foundation of an export trade in manufactured goods to the countries of the East.

The reduction in the export of raw wool and finished wool for European countries was also due to the prohibition of export issued by the various Governments; it would be useless to give these prohibitions in detail, as they are all alike.

We have referred above to an increase in the export of combed wool from the Argentine to the U. S. A. The development of the wool industry, which took place during the war, in South America (Argentine, South Brazil, Montevideo, Chile), is indeed very striking. A similar development may be noticed in Australia. Even before the war this British possession was exporting a considerable amount of scoured, washed and combed wool, and was also working up wool for local consumption. The export of tops was encouraged by special bounties provided by the Bounties Act of 1907, the amount of which varied from year to year.

During the war the export of tops increased from a total of 1.86 thousands of tons in 1914-1915, to 2.09 thousand in 1914-1918, while the home consumption of wool, in spite of fluctuations, rose from 4.76 to 7.17 thousands of tons[2].

[1] 1 kin = 600 grammes. See *Japanese Financial and Economic Year-Book*, 1918-19, and *Monthly Return of the Foreign Trade of the Empire of Japan.*

[2] See *Official Year-Book of the Commonwealth of Australia.* 1920.

9. The considerable export of wool from Australia and New Zealand to the United Kingdom during the war was favoured by an agreement with regard to the purchase of wool between the United Kingdom and the Dominions in this part of the world; this agreement had the effect of creating, alongside the free market, a wool market monopolised by the United Kingdom.

Encouraged, on the one hand, by the success of the requisitioning at a price higher by 35 % than that of July 1914 of the whole British wool production in 1916, and influenced, on the other hand, by the ever-increasing requirements of the war, the British Government concluded a contract with the Governments of Australia and New Zealand for the purchase of the whole of the wool produced in these Dominions. In October 1916, it began to buy, in these Dominions, the wool production for that year which had not yet been sold to private purchasers.

The minimum price was fixed at a price exceeding by 55 % the average market price in 1913-1914, *i.e.*, for Australia at 15 ½d. per lb. of raw wool, delivered at the wharf; the Governments of Australia and New Zealand were left free to pay the producers different prices according to the various qualities of wool. This minimum price only held good for wool used by the State; on the other hand, it was understood that the British Government, if it should make a profit in re-selling this wool, should share it equally with the Governments of Australia and New Zealand, which in their turn would distribute a bonus to the producers over and above the minimum price.

The control over the execution of this agreement was entrusted to the *Central Wool Committee*, assisted in each State by a Committee composed of producers, sellers and persons engaged in industry, etc., the President being appointed by the Government.

This system was renewed, from time to time, throughout the war and for a year after hostilities had ceased.

Thus, all wool imported from Australia from 1916-17 to 1919 in the various countries was bought through the agency of the United Kingdom.

At the same time, another system of sale[1] was established for wool from India; but for South African wool it was only partially established during 1917-1918. In the official report quoted in the footnote onthe profits derived from the wool trade and industry in United Kingdom during the war, we note that, in spite of the considerable profits derived by the British Government from this trade in wool, the prices obtained at sales of Colonial wool were lower than those of South American wool, sold in the free market.

AVERAGE PRICES IN LONDON OF MERINOS AND CROSSBREDS IN PENCE PER LB., CALCULATED ON A BASIS OF CLEAN-SCOURED WOOL

Quality	July 1914	Government Sale Price (April 1 — Nov. 30, 1919)
	d.	*d.*
70's	30 ½	63 — 67 ½
64's	28 ½	62 — 66
60's	28	59 — 65
58's	26	52 ½ — 55 ½
56's	24	46 — 49
50's	20 ½	41 ½ — 44 ½
48's	16	37 ½ — 39 ½
46's	15 ½	33 — 35
44's	15	31 ½ — 33 ½
40's	14 ½	28 ½ — 30 ½

[1] *Profiteering Act*, 1919. *Findings by the Committee appointed to investigate the Cost of Production and Distribution of Wool, Tops and Yarns at all stages and the Profits arising therefrom* (Cm. 353, London 1920). The Indian wool was sent to the United Kingdom and distributed under the control of the British Government at a price fixed by agreement between the Indian Government and the War Office.

Average Prices of South American Wool, c.i.f. Liverpool, in Pence per lb, calculated on a basis of clean-scoured wool

Quality	Commercial year 1914	Commercial year 1919
	d.	*d.*
64's	24	99
60's	22 ½	84
58's	21	79
56's	19 ½	72
50's	18	63
48's	16 ¾	38
46's	15 ¾	34
44's	14 ½	32
40's	14	30

This report does not deal with the comparison of the average price of merino and cross-bred wool in London with the average price of South American wool: but it must, at any rate, be considered that the export duty of 4 % of the value of raw and washed wool — a duty established by Uruguay on November 9th, 1917 — exercised some influence on the considerable rise in the price of American wool; the same is true of the export duty of 12.6 cents gold per kilogram of washed wool (and also a variable and larger sum per kilogram of unwashed wool) which was established by Argentine in March 1918[1].

10. The profound changes in the international wool traffic, which we have already noticed (without taking into account the various changes which took place in other neutral countries which, on account of the small importance of their wool production, are not of great interest) gave rise to:—

(1) An enormous development in the manufactures of the United States and the United Kingdom, as a result of which these countries were enabled to meet their enormous war needs, and, in the case of the United States, were also able up to 1916 to support a large export trade in manufactured articles.

(2) A considerable development in *Italian* manufactures, which were thus able to supply a large part of their country's war requirements; also of *Japanese* products, which both supplied the needs of home consumption and also partly replaced Germany in supplying Oriental countries[2].

France endeavoured to make up in part for the loss of her best wool centres by developing production in other centres in the South; but the results obtained, although considerable, were naturally inferior to those in the countries which have just been mentioned. The figures for the United Kingdom — 6 million spindles and 100,000 looms — increased in 1918 to rather more than 8 million spindles and 120,000 looms; while those of the United States increased from 4.7 million spindles and 75,000 looms to 6 million spindles and 80,000 looms. Moreover, up to the end of June 1916, the latter country supported an export trade in manufactured articles which increased more quickly than the rise in prices, and which was chiefly exported to Europe and consigned to the Entente countries.

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[1] See the *Wool Year-Book*. It is held that the countries which purchased wool from Australia and New Zealand through the intermediary of the United Kingdom paid a lower price than they would have paid if the United Kingdom had not monopolised this wool. But it must be considered that the high price of the South American wool was undoubtedly influenced by the British monopoly of the Colonial wool and that, on the other hand, the science of economics is not yet sufficiently advanced to allow us to determine the extent of variation of an economic factor by means of the hypothetical variations of one of its conditions.

[2] For the data relating to this paragraph, see the sources already quoted.

Exports of wearing apparel

Millions of dollars

	1914	1915	1916	1917	1918
Europe	0.154	7.116	14.002	0.679	—
North America	1.771	1.541	2.509	3.296	—
South America	0.105	0.053	0.129	0.188	—
Asia	0.060	0.281	2.628	0.059	—
Oceania	0.050	0.107	0.076	0.189	—
Africa	0.011	0.011	0.024	0.041	—
Total	2.148	9.109	19.368	4.452	—

Exports of other Products (except Wool Rags)

Millions of dollars

	1914	1915	1916	1917	1918
Europe	0.868	10.944	20.328	2.371	0.320
North America	0.647	5.651	6.138	6.267	2.340
South America	0.046	0.078	1.653	2.292	0.354
Asia	0.040	0.118	5.023	1.148	0.877
Oceania	0.064	0.029	0.169	0.253	0.077
Africa	0.003	0.009	0.021	0.011	0.014
Total	1.668	16.829	33.332	12.342	3.982

As regards Italy, the production of tops was increased threefold; the number of spindles exceeded 1 million, and mechanical looms numbered 20,000.

During the years 1912-1918 the importation into Japan of wool yarns decreased from 8.3 to 0.3 million yen. The value of the production of manufactured woollen products (flannels, blankets, clothes, etc.) increased from 18.3 to 85.9 million yen, and in 1918 the exportation of tissues amounted to 11.7 million yen, divided as follows.—

	Millions of yen
China	2.1
Kwantung	1.1
British India	0.8
Asiatic Russia	2.1
Great Britain	1.0
France	2.8
African countries	0.7
Other countries	1.1
Total	11.7

III.

POSITION AFTER THE WAR

11. The two years which followed the conclusion of the armistice with Germany were marked by two very different phases in the condition of the world's wool industry.

In fact, after a short period of hesitation at the outset, the year 1919 was notable for a resumption of commercial activity in the various countries, due to the disappearance of the dangers which beset maritime transports, the sudden opening of huge commercial markets and the removal of export prohibitions (except to Bolshevik Russia). The United Kingdom imported a quantity of sheeps' wool very much in excess of that imported in 1918, a double amount of camel skins and a

quadruple amount of mohair; moreover, 1.36 thousands of tons of yarns were imported as against the 7 tons in 1918, three times the amount of manufactured wool, etc.

On the other hand, the United Kingdom exported 8.39 thousands of tons of home-produced wool as against 1.04 in 1918, double the amount of waste and almost three times the amount of noils and carded or carbonised wool, but about the same amount of tops as in 1918 (6.80 thousands of tons); finally, the U. K. was able to export 14.6 thousands of tons of yarns as against 7.44 in 1918, 131.1 millions of yards of woollen fabrics as against 67.4; 33.2 millions of yards of worsted fabrics as against 31.1 in 1918, and a greater quantity of woollen articles, with the exception of blankets; the export in these was reduced by a third.

In the same way the re-export of wool from the U. K. increased considerably, in particular as regards sheeps' wool, which increased in a proportion of 1 to 8.

This, however, did not prevent the U. K. retaining in the country an amount almost double that which it kept in 1912 and in 1913[1]. This was the time when the factories were overwhelmed with orders, especially for the better qualities, which they were not wholly in a position to meet; meanwhile, prices rose to fantastic heights, especially in connection with these better-quality wools (merinos).

It is to be noted that, while the price of 70-grade wool increased from 30½d. to 163d. in the period July 1914 to March 1920 per lb. of washed wool (409%) the 44-grade wool increased, during the same period, from 15d. to 32d. *i.e.* nearly 100%. The same applied to tops and yarns[2].

In the U.S.A. the import of combed wool chiefly derived from Argentine was nearly doubled during 1919 (from 1.95 thousands of tons in 1918 to 3.49 in 1919) and carpet wool increased from 31.4 to 43.9; the import of tops remained more or less stable.

On the other hand, the export of all kinds of wool has increased to a very large extent; that of manufactured articles in particular has doubled.

In France, the import of wool and woollen waste has risen from 44.7 to 160 thousands of tons, coming chiefly from the United Kingdom, Argentine and Uruguay; similarly, the imports of the various qualities of yarns and fabrics have greatly increased.

The export of wool in bulk has increased from 4.14 to 5.93, especially to Switzerland and Belgium; and the same applies — and in a very great proportion — to the various kinds of yarns and fabrics exported. The values of 1918 were quadrupled for fabrics exported to Belgium, Switzerland, the United Kingdom and other non-European countries[3].

The impetus given to the wool industry in Belgium is worth nothing; Belgium, in fact imported 46 thousands tons of wool, chiefly from U. K., Argentine and Uruguay, and exported 13.5, mostly washed wool; she imported, moreover, considerable quantities of worsted yarns and fabrics, chiefly from the United Kingdom, France and the Netherlands, and exported woollen yarns to an amount nearly twenty times in excess of the amount imported, principally to the same countries and, to a small extent, to Germany.

Japan also increased her wool imports from 38.8 to 41.8 millions of *kin*. This was also the case in nearly all other countries, with the exception of the conquered countries and Russia, which were still struggling in the meshes of the blockade, which had not yet been raised.

In consequence, the exports of wool from the wool-producing countries increased, and with a return to former conditions a readaptation of these countries to the improved conditions of transport became apparent.

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[1] See *The Annual Trade Returns of the United Kingdom*, 1919, and the *Wool Year-Book*. For the other countries under review, see the sources already quoted.

[2] See *The Wool Year-Book*.

[3] It must be noted that, although the inclusion of Alsace has increased France's spindles by almost 600,000, and her looms by 10,000, the latter has not been able to use the far greater number of spindles and looms which were destroyed.

The figures of wool exported from *Argentine* for the following years up to the end of September are given herewith[1]:

	1917-1918	1918-1919
	Thousands of metric tons.	
France	12.4	35.6
Belgium	—	5.7
United Kingdom	2.6	10.9
U.S.A.	95.1	81.7
Italy	17.4	9.1
Spain	3.8	—
Netherlands	0.06	—
Germany and Austria	—	—
Other countries	15.5	23.3
Total.	146.86	166.3

The exports of wool from the *Union of South Africa* increased from 52.43 thousands of tons in 1918 to 83.9 in 1919[2].

Australia nearly doubled her exports, almost exclusively to the United Kingdom (in accordance with the system under the above-mentioned agreement which was still in force), and to the U.S.A.

	Thousands of metric tons			
	Raw Wool		Cleaned and Washed Wool	
	1917-18	1918-19	1917-18	1918-19
United Kingdom	63.10	159.80	26.85	46.85
U.S.A.	26.00	32.56	0.63	0.68
Italy.	8.00	4.53	0.22	—
Japan	1.30	2.40	2.17	1.54
France.	2.60	1.67	0.02	0.01
Egypt	7.04	4.98	0.49	0.01
Canada.	2.14	1.45	—	—
Germany.	—	—	—	—
Belgium	—	—	—	—
India.	0.35	0.36	0.02	0.09
Austria-Hungary	—	—	—	—
New Zealand	—	—	—	—
Other countries.	—	—	0.13	0.31
Totals	110.53	207.75	30.53	49.49

The export of wool from *New Zealand* was almost three times as much, increasing from 49.3 thousands of tons in 1918 to 124.4 in 1919, divided as follows:

	Thousands of metric tons				
	Raw	Scoured	Sliped	Washed	Total
United Kingdom.	82.14	17.19	17.69	0.18	117.21
India.	0.45	0.13	—	—	0.46
France	0.68	—	—	—	0.68
U.S.A.	6.03	—	—	—	6.03
Canada	—	0.02	—	—	0.02
Totals.	89.30	17.34	17.69	0.18	124.40

[1] See the *Wool Year-Book*.

[2] See *Annual Trade and Shipping Returns of the Union of South Africa*, 1919, and the *Trade of the Union of South Africa (Monthly)*.

12. But already by the end of 1919 and especially in the U.S.A. there were signs of an unfavourable change ahead.

On December 31st, 1919, it was estimated that about 4 million bales of 500 lbs each of wool were in the possession of the British Government, and the excess stocks of Australia and New Zealand amounted to 2 million bales. We have already seen how the South African and South American stocks increased to an abnormal extent[1]. Furthermore, while the restrictions on transport were largely removed by the opening of frontiers and the increase in tonnage, the difficulties caused by Europe's economic situation made the absorption of the wool available still more difficult: either in raw wool (due to the disorganisation of the factories in Central Europe) or, as regards finished wool (on account of reduction of Inter-Allied credits, the rise in the exchanges, and the necessity for economy).

This situation produced some very remarkable results:—

(1.) Despite an undoubted decrease in the annual production of raw wool in Europe, owing to a reduction in the number of flocks, the world's stock of wool had accumulated nevertheless to an excessive extent.

(2.) In spite of the existence of these very considerable stocks and the increasing amount of tonnage available, the enormous needs of Europe's civil population were met to an ever-decreasing extent, owing to the scarcity of money which was strangling Europe, — who had not yet put off her "shining armour."

This phenomenon was merely one aspect of the grave economic crisis which, in the spring of 1920, involved the whole world, due partly to general circumstances and partly to circumstances peculiar to the industry under consideration. Factories had an enormous number of cancelled orders, prices fell and industrial activity was decreasing. The lack of coal, owing to the decrease in production caused by strikes, undoubtedly reacted on the wool industry, but does not appear to have been a decisive factor.

The commercial and industrial statistics of our principal countries, which we will not quote (they are partly incomplete and partly merely provisional) show — apart from exceptions — evident signs of depression. One knows of the reduction of working hours to eight, which took effect in the early months of 1919, and there has since been a further decrease, owing to the lack of orders.

The following are the average monthly prices, calculated on a basis of the wholesale price in the U.S.A., as quoted on the markets of wool-producing countries[2]:

Non-Manufactured Wool.

	Dollars per pound			
	Clothing	Combing	Angora-Alpaca	Carpet
1919 December	0.553	0.735	0.648	0.308
1920 January	0.446	0.738	0.492	0.357
February	0.611	0.594	0.613	0.317
March	0.663	0.518	0.593	0.377
April	0.502	0.616	0.499	0.442
May	0.604	0.700	0.526	0.340
June	0.659	0.777	0.615	0.321
July	0.605	0.570	0.497	0.285
August	0.496	0.669	0.540	0.237
September	0.437	0.669	0.414	0.336
October	0.398	0.433	0.639	0.188
November	0.274	0.668	0.501	0.237
December	0.241	0.229	0.681	0.232

[1] See the *Wool Year-Book*.
[2] See the *Monthly Summary of Foreign Commerce of the United States* for December 1920.

13. Although the world's stocks were becoming exhausted, the British Government decided to come to an agreement with the Australian wool growers with a view to avoiding the detrimental effect on the wool market which was being caused by the existence of large Australian and British stocks.

After a few unsuccessful attempts, the *British-Australian Wool Realisation Association* was created. This organisation was entrusted with the duty of disposing of the British and Australian stocks, the work of realisation being based upon a financial scheme which, though showing every consideration for the interests of both parties, would diminish the evil effects of the fall in prices and the excessive quantities of raw wool [1].

14. In the meanwhile, however, the economic crisis had become aggravated. The price of wool had fallen to such a point that in some of the exporting countries sheep were sometimes slaughtered without being shorn, because the price of the wool would not have paid for the expenses of shearing.

Factories were working only a few hours a day (three or four hours); the trade was falling into decay and the amount of business done was negligible.

Nevertheless, it appears to be beyond dispute that the gradual absorption of the world stocks of wool was everywhere causing a falling off in production, which cannot as yet be estimated as a whole.

When we consider not only the existing situation and that of the immediate future, but the developments which were to take place at a more distant date, one is inevitably confronted by the following problem: what conditions will, in all probability, be produced, as regards the wool industry of the whole world, by the development of certain tendencies of a less transitory character which have recently become apparent ?

Seen from this point of view, the future prospects of this industry appear much less favourable in the case of certain countries than they appear for the world as a whole. In fact, when the period of very acute depression through which we are now passing has been successfully surmounted, and if the increase in the demand for raw wool is more rapid than the increase of live-stock, it is not unlikely that we may witness:

(1) A deficiency of raw wool which may, however, be counteracted by the existence of a part of the present world stock, which is valued at a very high figure;

(2) The development of acute rivalry in connection with the supplying of wool from countries outside Europe, even as regards the Central European countries and Russia, whose flocks of sheep have been so terribly reduced [2];

(3) The predominance as competitors of those countries which before the war disposed of a considerable part of the world's exports of raw wool, and which have already conformed to a régime of agreements in regard to the export of wool.

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[1] According to a letter of July 19th, 1921, sent by Mr. West, Secretary of this Association, to Miss Hook, our London correspondent, "this Association was formed for the purpose of carrying out the realisation of that portion of the Imperial purchase of Australian wool half of which belonged to the Australian growers and half to the British Government. The Australian half of the wool was capitalised and the necessary scrip will be issued accordingly. The British Government has agreed to consign its half of the Australian wool to the Association for disposal on a commission basis. In addition, the British Government has consigned to the Association for disposal the whole of the carry-over New Zealand wool amounting to 770,000 bales at the 31st of December. The method of disposal is in accordance with trade custom and in accordance with the method adopted by the Ministry of Munitions: namely, sale by auction through the London Wool Brokers."

[2] As regards France, the *Report* submitted by the French Delegates to the first Congress of the *International Chamber of Commerce* (London, June to July 1921), puts forward the opinion that, in spite of the future reconstitution of the French flocks, "a reduction in French wools, both in quality and quantity, may be expected by reason of the division of property, the reduction of free pasture-lands and the rearing of sheep for slaughter."

IV.

SUMMARY AND CONCLUSIONS

I.

Before the World War, Europe was dependent for its supplies of raw wool on Australia, New Zealand and certain parts of South Africa and South America. The United States, for their part, were also obliged to draw a large portion of their supplies from these countries.

II.

The British Empire disposed of 41.3 % of the total production of all qualities of wool and of about 60 % of the total exports of non-European countries. On the other hand, it disposed of 63 % of the total production of merino wool and of almost 90 % of the non-European exports of this quality of wool.

III.

The United Kingdom imported the greater part of the wool produced by Australia and South Africa, and nearly all the wool produced by New Zealand, British India and the Falkland Islands. A considerable part of the Chilian wool was also shipped to the United Kingdom. Germany and France were the chief importers of wool from Argentine and Uruguay. The United States accounted for a considerable share of the exports of wool from Argentina.

IV.

Speaking generally, about 42 % of the raw wool exported from all countries outside Europe was despatched to the United Kingdom, who re-exported at least half of her imports, largely in the form of raw wool, together with a considerable quantity of home-grown wool.

V.

During the last fifty years of peace the European wool industry had become capable of competing effectively with the United Kingdom for the supremacy in the manufacture of woollen articles, particularly as regards certain qualities which are, for the most part, inferior. Germany was an active competitor with the United Kingdom, as regards these products, but the latter had been able to increase her exports of half-manufactured goods to European countries and continued to be the chief purveyor of the world, as regards yarns and fabrics.

After the United Kingdom, the chief European manufacturing countries were: Germany, France, Russia, Austria-Hungary, Belgium, Switzerland and Italy.

The remaining countries of the world were, with the exception of Russia, more or less dependent on the above-mentioned countries. This applies especially to Japan as regards yarns, and to the United States as regards fabrics, though both these countries possessed well-developed wool industries.

VI.

Immediately before the war, a very appreciable reduction had taken place, in the flocks of sheep of certain exporting countries; this was followed, during the years of the war, by a considerable reduction in the numbers of European sheep.

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[1] Seethe *Wool Year-Book*.

The United States and many of the neutral countries suffered corresponding losses, but it does not appear on the whole that the numbers of sheep in the chief wool-growing countries underwent any variations of any extensive and continued character.

VII.

The effect of the war has been to disorganise the wool industry of Europe, as a result of the economic isolation of the Central Powers and of Russia, and owing to the losses suffered by the French and Belgian wool districts, and to the difficulties of maritime transport.

South America has, generally speaking, reduced her exports, though she still despatches them to the United States. The latter have contrived by a rapid expansion of their manufactured output to become exporters of finished products. The export of South African wool has meanwhile decreased; it has to a large extent ceased to flow to the United Kingdom, and has been diverted towards the United States and Japan; the exports of Australasia have also been considerably reduced, and are directed in increasing quantities towards the United Kingdom; the latter country has been able to increase its stocks of wool and to develop its manufactures to a colossal extent, while at the same time suspending almost completely its exports of manufactured articles and of home-grown wool, and also its re-exports.

Italy has also been able, generally speaking, to increase her imports of raw wool and to develop her national wool industry to such a degree that she was able to cope, to a large extent, with her war requirements.

Japan had been able to commence exporting manufactured articles to the countries of the East; she had also been able to increase her production of woollen articles and to provide for her home requirements.

A system of export-prohibition, mitigated by the issue of export licences either for raw wool or for manufactured wool, has been introduced in European countries.

VIII.

The development of the wool industry in the chief wool-growing countries during the war, and the introduction in Argentine and Uruguay of export duties on raw wool and on washed wool are a phenomenon of exceptional importance. It is true that the Argentina has quite recently suspended this export duty; but this appears a measure taken for a definite period which does not change the legal position.

IX.

The increase in the exports of Australian wool to Great Britain during the war was facilitated by an agreement between the British and Australian Governments; by the terms of this agreement, Australia was to sell to the British Government, at a minimum price, the whole of her production dating from October, 1916, on condition that the British Government should divide with the Australian Government the profits on the wool which it sold again; the latter undertook for its part to divide among the wool-growers the amount by which the price obtained exceeded the minimum standard.

A similar system was also introduced for New Zealand; another system of sale was established for wool from India; but in the case of South African wool the agreement was only a partial success.

As a result, two wool markets existed: one free market and one market monopolised by the United Kingdom.

The British Government made considerable profits from the sale of the wool to the Allies and to neutrals during the war; but it is held that the actual prices were lower than the prices which would have been paid if the United Kingdom had not monopolised this wool!

X.

The two years which followed the conclusion of the Armistice represent two widely differing stages in the condition of the world's wool industry.

The year 1919 was marked by the resumption of economic activity in the different countries, owing to the disappearance of the dangers of maritime transport and to the sudden opening of immense commercial outlets, and also to the abolition of export prohibitions (except to Russia); imports of raw wool and the export of woollen articles to the principal wool-producing countries increased, particularly in the case of the United Kingdom and the United States; factories received orders on a scale which they were unable to cope with, especially for articles of the finer qualities, which rose in price more rapidly than the others.

XI.

But towards the end of 1919 unfavourable symptoms had again become apparent. The British Government had been left at the end of the war with a large stock of wool; the chief wool-growing countries, on the other hand, had accumulated immense stocks. Again, though the difficulties of transportation had diminished owing to the opening of the frontiers and to the increase of tonnage, the difficulties of Europe had increased at the same time, and its demands for wool had fallen. This was owing to the restriction of Anglo-American credit, to the high rate of exchange and the impoverishment of the national exchequers and economic systems. The results were the cancelling of orders, the lowering of prices, the reduction of hours of work in factories and all the other symptoms of economic depression.

XII.

Owing to these circumstances, the British Government concluded an agreement with the Australian wool-growers to prevent a fresh fall in prices being caused by the Australian and British stocks of wool; an Association was formed to dispose of the available stocks at advantageous prices.

XIII.

At the present moment prices are very low, and the demand is so insignificant that the production of wool has had to be considerably restricted; it cannot, however, be clear that the available stocks are being slowly absorbed.

XIV.

When the period of depression through which we are now passing has been successfully surmounted, it is not impossible that, if the increase in the demand for raw wool is more rapid than the increase in live-stock, we may witness the following results:—

(*a*) A deficit in raw wool which, nevertheless, may be compensated for by a part of the present world stock;

(*b*) Acute rivalries with regard to the wool supply;

(*c*) The predominance in these rivalries of countries which, before the war, disposed of the greater part of the total exports of raw wool, and which have already conformed to the system of agreements for the export of wool.

III. STATEMENT OF THE POSITION CONCERNING

COTTON

PREPARED BY PROFESSOR VINCI

CONTENTS

COTTON

I.

POSITION BEFORE THE WAR

1. A continual increase in the production of cotton, especially in the United States, in India and in Egypt, had led to an extraordinary development in the world's cotton industry in the half-century preceding the war.

At the outbreak of war the world's cotton crop had, in fact, reached a point never before attained: namely, 5.6 millions of metric tons (ginned cotton produced on an average in 1912-14) coming almost exclusively from the United States (3.18 million tons), China (about 0.95), British India (0.90) and Egypt (0.32).

The United States crop provided, in addition to the ordinary *American Upland*, the best *Sea Islands* cotton that the world produced. It formed, however, only a small part of the world's supply.

The Egyptian crop — apart from the *Afifi* and the *Ashmouni*, which competed with the best qualities of American Upland — consisted of the Sakel, the Jannovitch and the Abbassi, which hold the second place after the Sea Islands.

Indian and Chinese cotton were, as a rule, of inferior quality.

Among the other countries — which, taken together, produced a little more than 0.2 millions of tons — the most important were Peru (0.02), Brazil (0.09) which produced a superior quality of cotton, Mexico (0.04), Asiatic Russia (0.03), Turkey (0.003), Persia (0.02), Uganda (0.004), together with Japan and certain other countries of South America and Central Africa [1].

The following table gives a very clear idea of the proportion of the various quantities of cotton produced in the world.

It was prepared from the figures published by Mr. Tood [2] and it corresponds closely to the figures worked out by the *Board of Trade* in 1918:—

Qualities	Percentage of Production
I. Best Sea Islands:—	
Carolina Islands	0.04
West Indian	0.02
II. Florida and Georgia:—	
Sea Islands	0.27
Egyption Sakel, Jannovitch, Abbassi, etc.	1.64
II. Egyptian Afifi, etc.	3.80
Long staple American Upland	0.76
Peruvian	0.47
IV. East African	0.15
Brazilian	1.14
American Upland	57.03
Russian	3.80
West African	0.08
Asia Minor	0.38
V. Indian	15.21
Chinese	15.21
Total . . .	100.00

[1] See the *International Year-Book of Agricultural Statistics*, published by the International Agricultural Institute, Rome.

[2] J. A. Tood, *The World's Cotton Crops*, London, 1915.

The principal cotton-producing countries of the world were therefore the United States and the British Empire (including Egypt), which controlled respectively about 58 % and 21 % of the world's production.

2. Of the 3.18 million tons which they produce, the United States exported about 68 %, almost entirely to European countries. A considerable quantity, however, was sent to Japan.

The following are the figures for 1913-1914[1]:—

Export of Upland and other qualities in 1913–14

	Metric tons
Austria-Hungary	24,150
Belgium	51,600
Denmark	20
France	257,700
Germany	654,100
Greece	400
Italy	121,900
Netherlands	7,950
Norway	850
Portugal	1,470
European Russia	22,390
Spain	67,440
Sweden	11,720
England	795,890
Scotland	470
Ireland	13,630
Canada	34,040
Guatemala	260
Mexico	7,860
Newfoundland and Labrador	1.8
French West Indies	2.3
Venezuela	14.5
China	2,040
Hong-Kong	70
Japan	80,160
Oceania-Philippines	110
British South Africa	0
Total	2,156,244.6

To these figures must be added a few thousand tons of *Sea Islands* cotton exported chiefly to England (2280 tons), to France (750 tons), to Canada (200 tons), to European Russia (70 tons), to Germany (50 tons), and to Japan (3 tons).

The best customers of the United States were therefore England and Germany, and after these, France, Italy, Japan, Spain and Belgium. Canada, Austria-Hungary and Russia constituted a third class.

The following facts must be taken into consideration, however, that part of the cotton which was sent to Germany went to Austria-Hungary, Russia, etc.; that great quantities of cotton passed through Belgium; that Switzerland imported through the neighbouring countries, etc.

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[1] See *Foreign Commerce and Navigation of the United States*, Washington, 1918. This publication gives the statistics for the financial year. The other data in the following paragraph have been taken from the Customs statistics of the countries under review and from E. Goulding, *Cotton and other Vegetable Fibres, their Production and Utilisation*, London, 1919 (Imperial Institute Handbooks).

Moreover, of the exports from *India*, which form about half of the total crop produced, about 50 % were sent to Japan and about 16 % to Germany, 3.6 % to the United Kingdom, etc., as will appear from the following table:—

Raw Cotton Exports from India in 1913–14 (March 31st–April 30th)

	Thousands of metric tons
Japan	244.8
Germany	85.8
Belgium	57.6
Italy	43.1
Austria-Hungary	37.9
France	26.6
United Kingdom	19.5
Spain	8.5
Hong-Kong	5.6
China (except Hong-Kong and Macao)	4.3
Other countries	6.2
Total	539.9

Although *China* produced a considerable crop of cotton, the amount of her export was very small, particularly to the countries of Europe, as her crop was almost completely allotted to home requirements.

Egyptian cotton, on the other hand, was almost all exported. In 1913, 313.3 thousands of tons were exported from Egypt, chiefly to the United Kingdom (43 %), to Germany (9.5 %), the United States (10 %), Austria-Hungary (6 %), France (9.4 %), Italy (3.8 %), Russia (8.6 %), and Switzerland (4 %).

The total quantity of raw cotton exported from producing countries may be estimated at about 3,000,000 tons. The proportion exported from the United States and from the British Empire (including Egypt) were 72 % and 28 %, respectively.

3. The preceding information will furnish an adequate idea of the pre-war sources on which the countries which principally produced cotton articles could draw for their supplies.

It may be added that, whereas British India manufactured almost exclusively cotton produced in the country, the United States, in spite of the enormous flow of exports which she supported, had to import raw cotton of various qualities different from those which she herself produced.

In fact, during 1913-1914 the United States imported 56,000 tons of cotton, chiefly from Egypt, Mexico, China, Peru, British India and, indirectly, from England.

Imports of Raw Cotton into the United States during 1913-1914

	Thousands of metric tons
Egypt	28.9
Mexico	16.9
China	4.2
Peru	2.9
British India	1.4
England	1.1
Other countries	0.5
	55.9

It is also interesting to note the fact that, of the 986,000 tons imported in all into the United Kingdom in 1913, as much as 73 % originated from the United

States, and scarcely 20 % from Egypt and India, which — as we have seen — sent 57 % and 96,4 % respectively of the exported cotton to different markets from those of the United Kingdom.

Imports into the United Kingdom of Raw Cotton in 1913

	Thousands of metric tons
United States	718.9
Egypt, including Anglo-Egyptian Sudan	182.7
British India	23.3
Brazil	28.0
Peru.	17.4
British East Africa	5.1
British West Africa	2.8
British West India Islands .	1.4
Other countries	6.7
Total	986.3

Among imports from other countries, a considerable proportion were imports which came through certain other European States [1].

Re-exports from the United Kingdom were comparatively unimportant, consisting in the main of:

(1) 116,000 tons of raw cotton, of which a little less than half was sent to Russia, a good third to the United States, and the rest to Belgium, Germany and other European countries, Japan, and British India;

(2) 50,000 tons of waste, sent to the extent of about a third to Germany, of an eighth to France, a tenth to the United States and Belgium respectively, and to other countries of Europe and certain States of South America and the British possessions.

Among the other countries, one of the most important was undoubtedly Russia, which not only had a considerable cotton crop, but also imported a still larger quantity (probably more than 200 thousand tons), from the United States, Egypt and Persia (it acquired almost the whole crop of this country) and from other countries. But the scantiness of the statistics at our disposal as regards this country does not enable us to undertake any detailed enquiry.

Just before the war, Germany imported nearly 500 thousands of tons of raw cotton, of which 75% were derived from the United States, 12% from British India and 90% from Egypt, and only re-exported about 50 thousands of tons, chiefly to Austria-Hungary (50%), Russia (20%), the Netherlands, Italy and Switzerland.

France came next with an import of about 350 thousands of tons of cotton and waste, derived as follows: about 70 % from the United States, 12 % from Egypt, 9 % from British India; against this she re-exported 58 thousands of tons, chiefly to Germany (50 %) and Belgium (19 %).

Japan imported 386 thousands of tons of ginned cotton and 16 of unginned cotton, almost entirely derived from British India (60 %), from the United States (30 %) and China (7 %). She re-exported only some hundreds of tons.

Austria-Hungary imported 207 thousands of tons, chiefly re-exported by Germany and other European countries; she re-exported some thousands of tons.

Italy imported 202 thousands of tons, 73 % from the United States, 17 % from British India and Ceylon, and 5 % from Egypt.

Of these she exported only a very small quantity, but she exported, on the other hand, 8,000 tons of waste.

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[1] The well-known divergences between the various Customs statistics obviously render impossible a comparison between the export figures registered by the exporting countries and the import figures registered by importing countries.

These divergences became even more marked during the war, on account of transport difficulties, submarine warfare, etc.

Spain imported about 88 thousands of tons, chiefly from the United States, and she exported a hundred tons.

Belgium's role as an *entrepôt* was particularly important because, while importing 141 thousands of tons (43 % from the United States, 20 % from British India, the rest being re-exports from other European countries), she, in her turn, re-exported 52.4 thousands of tons.

4. The proportion of the various qualities of cotton used in the several countries mentioned gives us an idea of the different kinds of manufacture in which they are engaged.

The large proportion of home-grown cotton which the United States retained for her own purposes (nearly a million tons), the small amount of Indian cotton (1,4 million tons) imported by this country as against the large imports of Egyptian cotton (28,9 million tons), and of the better-quality cotton from Peru and Mexico, indicate that in the United States the most important manufacture was that of high-class and expensive articles.

In the United Kingdom the manufacture of high-class cotton goods was even more extensive, owing largely to the much higher percentage of Egyptian cotton which that country — as compared with the United States — imported and retained for her own use[1].

Germany and particularly France also chiefly imported high-quality American and Egyptian cotton.

Although Italy imported a very large quantity for cotton from the United States, nevertheless Indian cotton formed a considerable part of her imports.

On the other hand, China and India mainly employ home-grown cotton for their manufactures, and together with Japan, specialize in the manufacture of the inferior qualities of Indian cotton, produced mainly for cheaper articles of general use.

5. A general survey of the numbers of spindles and looms in use in the various countries gives us some idea of their importance in the cotton industry: —

	Spindles (in millions) working about	Looms (in thousands) the year 1914
United Kingdom	56.3	800
United States	32.1	650
Germany	11.6	230
Russia	9.2	213
France	7.4	108
India	6.5	104
Austria-Hungary	5.0	170
Italy	4.6	140
Japan	2.7	25
Spain	2.2	55
Belgium	1.5	24
Switzerland	1.4	22
Canada	1.0	32
Sweden	0.6	12
Netherlands	0.5	40
Portugal	0.48	12
Denmark	0.1	4
Norway	0.06	2.6
Other countries	3.3	176.0
Total	146.54	2.819.6

[1] *The Report of the Departmental Committee appointed by the Board of Trade to consider the position of the Textile Trade after the War* (Cd. 9070, London 1918), shows that nearly 25 % of the spindles in the United Kingdom are exclusively adapted for the spinning of Egyptian cotton while the United States possess hardly 6 % of spindles suitable for the spinning of Egyptian cotton.

It was therefore estimated that about 146 million spindles and about 2,800,000 looms were working at the outbreak of war[1]. Of these 38.4 % and 28,3 % respectively were situated in the United Kingdom, 22 % and 23 % in the United States.

Unfortunately we have no sufficiently reliable information with regard to China.

The importance of an industry cannot, of course, be determined exactly by merely estimating the number of spindles and looms working in each country, the varying yield of the factories depending on the various qualities of the cotton manufactured, the various degrees of efficiency in the organisation and in the exploitation of the workshops, etc., all of which constitute modifying factors of considerable importance.

In fact, in calculating the net figures of the consumption in some of the chief countries, by taking the corresponding average for certain periods during which we may consider the influence of the stocks as of the same equivalent, it appears that the United States, although they had at their disposal a very much smaller number of spindles and looms than the United Kingdom, manufactured articles from a larger amount of raw cotton; the same phenomenon may be observed as between India and Russia, and Japan and France, etc.

Average Production plus Imports and minus Exports for 1909-1913[2].

	Thousand of metric tons
United States	968.1
United Kingdom	857.6
Germany	390.5
India	389.2
Russia	314.4
Japan	283.8
France	231.4
Italy	184.4
Austria-Hungary	184.1

But if we are satisfied with a general estimate, these figures of consumption give us a first group of countries producing cotton articles. It includes the United States and the United Kingdom, which, between them, use nearly 32 % of the total world cotton output for their manufacture; to these China may, perhaps, be added, but we have no reliable information with regard to this country. Germany, India and Russia, using between them 20 % of the world's cotton produce, form a second category. Finally, a third category includes the other countries, headed by Japan and France.

6. Another classification is based on the export traffic of semi-manufactured products and finished products by these countries.

From this point of view, the United Kingdom is far ahead of any of the other manufacturing countries.

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[1] See *Report of the Departmental Committee* already quoted; and the *Cotton Year-Book*, 1921, printed and published by the *Textile Mercury*, Manchester.

[2] According to official statistics. In the case of the countries which do not produce cotton, the figures given represent the difference between imports and exports.

The difference between the United States and the United Kingdom may, in part, be explained by the comparatively more extensive use of better qualities in the U. K., to which we have already referred.

In 1913 it exported 95.2 thousands of tons of cotton yarns to various countries, distributed as follows[1]:

	Thousands of metric tons
Russia	1.09
Sweden	0.725
Norway	1.13
Denmark	0.41
Germany	23.54
Netherlands	17.83
Belgium	2.13
France	2.27
Switzerland	4.31
Austria-Hungary	1.22
Greece	0.63
Bulgaria	1.22
Serbia	0.045
Roumania	3.22
Turkey in Europe	0.95
Turkey in Asia	3.49
Egypt	0.95
United States	2.45
Philippine Islands and Guam	0.36
Colombia	1.22
Brazil	0.59
Argentina	0.86
Other countries	3.08
Total	73.72
British West Africa	0.50
British Indies	16.92
Straits Settlements	0.68
Hong-Kong	0.68
Australia	0.63
Canada	1.63
Newfoundland	0.09
Other British possessions	0.32
Total	95.17

The United Kingdom, moreover, exported to the whole world 7 milliards 75 million yards[2] of cotton fabrics (piece goods), and a hundred million yards of various goods.

This immense and widespread current of export was absorbed more by the British possessions (3 milliards 993 million yards, of which more than 2 ½ milliards were absorbed by India, and ¼ milliard by Egypt) than by other countries (3 milliards 82 millions.)

Among the latter, the non-European countries occupy the first places, China coming first with rather more than ½ a milliard yards, Turkey next with 350 millions, Argentina with 200 millions, etc.

On the other hand, the European countries absorbed a comparatively small quantity of English fabrics.

Among these, leading countries were the Netherlands (84 million yards), Switzerland (80), Germany (76,4), Greece (32), Belgium (31), Portugal (28,6), Roumania (21,5), France (13).

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[1] See *Annual Statement of the Trade of the United Kingdom*, 1914.
[2] 1 yard = 0.914 metre.

Among the producing countries which have not yet been mentioned are Japan (50.2 million yards), the United States (44.4), Italy (10.2), Russia (3.9).

It is thus easy to see why the United Kingdom imported such small quantities of yarns (5.2 thousands of tons, chiefly from Belgium and Germany) and cotton fabrics (not more than 200 million yards, chiefly from the United States, Belgium Germany, Switzerland, France and Italy).

In spite of the great difficulties which this calculation involved, the percentage of the exports in relation to the production of yarns and fabrics has been ascertained [1]. According to the last *Census of produetion* and the corresponding export figures, about 12 % of the quantity and 15 % of the value of the yarns produced were exported, while the export of fabrics amounted to more than 85 % of the quantity and nearly 80 % of the value of the total production.

The difference between the percentage of the quantity and that of the value shows that the United Kingdom, on an average, exported the higher-grade yarns, but retained the more highly priced fabrics.

Against this enormous English export trade may be set a comparatively small volume of export on the part of the United States, and this was limited to fabrics [2].

This was due to the fact that the latter country manufactured mainly in order to meet the requirements of her huge home market.

The fabrics exported by the United States were estimated at 414.9 million yards, of which 199.9 were unbleached, 42.1 bleached, and 172.9 dyed.

To this must be added other products of less importance and about 30.5 thousand tons of waste.

Exports to Eastern markets, and as far as concerns European countries, to Turkey, consist chiefly of unbleached fabrics, whereas bleached and dyed fabrics were mainly exported to Oceania (almost exclusively to the Philippine Islands) and the countries of Northern America.

The following are the figures for the various continents:—

Exports of Fabrics in 1913-1914

	Millions of yards			
	Unbleached	Bleached	Dyed	Total
Europe	4.8	0.4	1.9	7.1
North America	34.9	13.7	88.7	137.3
South America	23.2	2.0	16.3	41.5
Asia	118.1	2.8	4.2	125.1
Oceania	10.6 [a]	22.9 [b]	61.6 [c]	95.1 [d]
Africa	8.3	0.3	0.2	8.8
Total	199.9	42.1	172.9	414.9

a of which 6.8 went to the Philippine Islands.
b „ 22.1 „ „ „
c „ 57.3 „ „ „
d „ 86.2 „ „ „

A similar classification for the exports of the United Kingdom provides interesting results.

The following table shows, in fact, that exports from the United States, although they cannot be directly compared with those of the United Kingdom, were, relatively speaking, larger than the latter only in the North and South American and Philippine markets, but were very much lower on the other markets of Oceania and on the markets of Europe, Asia and Africa.

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[1] See *Report of the Departmental Committee*, etc.
[2] See *Foreign Commerce and Navigation of the United States*, 1918.

Export of Fabrics

	From the United Kingdom in 1913		From the United States 1913-1914	
	Million yds	Percentage	Million yds	Percentage
Europe	518.5	7.3	7.1 [c]	1.7
North America	291.7 [a]	4.1	137.3	33.1
South America	580.8	8.2	41.5	10.0
Asia	4,700.8	66.4	125.1	30.2
Oceania	229.3 [b]	3.3	95.1 [d]	22.9
Africa	719.2	10.2	8.8	2.1
Other countries	35.0	0.5	—	—
Total	7,075.3	100.0	414.9	100.0

a of which 44.4 went to the United States.
b „ 16.9 „ „ Philippine Islands.
c „ 2.4 „ „ United Kingdom.
d „ 86.2 „ „ Philippine Islands.

Unfortunately these figures do not lend themselves to comparison with those of other countries, owing to the difficulties arising from the use of different kinds of measures (weight, length, etc.).

According to the Customs statistics, we can say, however, speaking generally, that the exports of manufactured goods from Germany were more than double the exports of such goods from the United States; France's exports were about double, those of Switzerland slightly larger, and Italy's rather more than three-quarters. These countries exported chiefly to the Balkans and Asiatic countries.

It should also be noted particularly that, whereas among European countries, France, Italy and Belgium and others show a very much greater export than import of yarns and fabrics, Germany imported, chiefly from the United Kingdom, about three times as much yarn as she exported.

As regards the other producing countries, the enormous export of yarn from India (89.81 thousand tons) should be noted: it was nearly all exported to China (80.74). India herself remained dependent on European fabrics.

On the other hand, Japan exported both yarns (chiefly to China) and fabrics (chiefly to India, China and other Eastern markets) to an extent considerably superior to the manufactured products which she imported, chiefly from the United Kingdom.

II.

POSITION DURING THE WAR

7. As will be well understood, great disturbances were caused in the cotton industry of the world by the outbreak of the great war.

There was first the blockade against the Central Powers, including Belgium and the invaded portions of France, which were deprived of extra-European provisions, and there were also grave difficulties in securing further supplies of raw cotton from the United States, Egypt, India and the minor producing countries.

The main consequences of these conditions were:—

(1) a decrease in the trade of raw cotton;
(2) a different orientation of the trade;
(3) a reduction in cultivation.

8. According to the sources referred to above, the exports of raw cotton from the United States were reduced to one-eighth for the best Sea Islands, and in total to one-half:

Export of Raw Cotton from the United States

Thousands of metric tons

	1913-14	1914-15	1915-16	1916-17	1917-18
Sea Islands	3.36	1.10	0.78	0.43	0.40
Upland and other qualities	2,156.24	1,945.17	1,341.21	1,292.83	1,009.97
Linters	—	51.19	55.58	107.50	42.21
Total . . .	2,159.60	1,997.46	1,97.57	1,400.76	1,052.58

The exports from India were still more considerably reduced, diminishing from 541 thousand tons in 1913-14 (March 31st-April 30th) to 186.88 thousand tons in 1918-19.

The exports from Egypt fell from 313.3 thousand tons in 1913 to 183.02 in 1917 and 225.52 in 1918 after various fluctuations.

9. But to this marked reduction in supplies there did not correspond an equally large reduction in the stocks at the disposal of the Allied countries (including Russia up to 1916), because the blockade of the Central European markets permitted the Allied countries to take advantage of the considerable quantities of raw cotton which was directed before the war to Central Europe.

As a matter of fact, the exports from the United States of Upland and other cottons continued, in general, to decrease, by reason of the stoppage of exports to Germany and Austria, and this in spite of the increases in exports towards the Asiatic countries (especially Japan), South America (especially Brazil up to 1916) and the Philippine Islands.

On the other hand, the exports of this cotton to the Allied countries were as follows:

Thousands of metric tons

	1913-14	1914-15	1915-16	1916-17	1917-18
England	759.89	876.54	622.29	646.61	533.43
Scotland	0.50	0.27	0.10	0.27	7.48
Ireland	13.61	4.85	3.22	0.82	—
France	257.64	142.34	153.50	150.19	123.11
Italy	121.88	246.98	188.61	153.41	79.701
Russia in Europe . . .	22.41	18.64	37.38	10.30	3.63

Exports from the United States to certain neutral countries — such as Spain and Portugal — also on the whole increased.

As regards Egyptian cotton, it is worth noting that, in spite of the large reduction in total exports, the exports to the United Kingdom increased by a good sixth; to the United States, after an increase up till 1915, they fell in 1918 to a level little below the pre-war level; exports to Italy maintained on the whole a higher level, whereas to France they fell to about one-third.

It should be added that in June 1918 an Official Commission of Cotton Control was formed for the acquisition of the Egyptian crop for 1918-19 for its distribution to the purchasing countries and for the stabilisation of prices.

This Commission secured large profits for the Egyptian Government[1], but its monopoly of purchase was abolished on July 31st, 1919.

Finally, in spite of the great decrease in exports from India, the supplies for the United Kingdom were only reduced to 70 %; the supplies to Italy to 50 % and

[1] See the *Reports on the Finance, Administration and Conditions of Egypt and the Soudan*, 1914-1919, Cd. 957. Mr. Ashley, of the Board of Trade, informs us that the sale prices were fixed by the Commission according to a system which allowed only a quota for risks and contingencies. Since the transaction brought in an unexpected profit, the Government reaped the benefit.

to China to a little less than 50 %, whereas the exports for France suffered a greater reduction.

It should be observed, however, that as the Allies, especially the United Kingdom and France, before the war, did not import great quantities of Egyptian and Indian cotton, the variations of the exports of Egyptian and Indian cotton to these countries only had a slight repercussion on the total of their resources.

The following are the figures for the United Kingdom and France:—

Imports of Raw Cotton into the United Kingdom

	Thousands of metric tons					
	1913.	1914.	1915.	1916.	1917.	1918.
United States	718.86	519.10	917.36	744.033	538.06	442.71
Egypt	182.66	152.45	203.44	161.80	126.05	176.22
India	23.27	47.31	42.64	36.33	34.47	26.99
Total (incl. other countries).	986.26	845.55	1200.95	984.76	736.28	675.45

Imports of Raw Cotton and Cotton Waste into France.

	Thousands of metric tons					
	1913	1914	1915	1916	1917	1918
United States	250.4	133.6	198.0	204.6	240.1	116.2
Egypt	40.2	16.0	10.9	14.2	9.6	13.6
India	31.3	37.6	11.4	10.3	8.1	7.1
Total (incl. other countries).	352.1	205.7	228.2	255.5	273.3	142.3

It should be noted further that a very small proportion of these supplies were furnished by the African possessions, on which the United Kingdom, France and certain other countries still base great hopes.

As regards Italy, her imports of raw cotton were reduced from 202 thousand tons in 1913 (of which 73 % came from the United States; 5 % from Egypt and 17 % from India) to 130 in 1918 (of which 76 %, 9 % and 15 % came respectively from the three sources mentioned).

A noteworthy feature was the increase of the general imports of Japan; between 1913 and 1918 this country increased its supplies of cotton, the figures for ginned cotton rising from 386 in 1913 to 404 thousand tons in 1918; Japan imported in particular larger quantities of cotton from the United States.

10. In addition to the above-mentioned general reduction in trade, there was a corresponding reduction in the areas under cultivation and in the cotton harvests in the principal producing countries; this reduction was also caused by the diminution in labour, particularly in the United States, and the extension of areas devoted to food production, and to other circumstances — meteorological, plant diseases, and so on.

The diminution of areas under cultivation is shown by a comparison between the average of 1912-14 with the war average 1915-18[1].

	Thousands of Hectares	
	1912-1914	1915-1918
United States .	14,596	13,784
India	9,669	8,672
Egypt	728	613
Total . .	24,993	23,069

[1] See the *Year-Book of the International Agricultural Institute*.

A similar comparison for the harvests shows an even greater reduction:—

	Thousands of metric tons 1912-1914	1915-1918
United States .	3,179.5	2,492.0
India	901.6	735.0
Egypt	323.7	236.2
Total . .	4,404.8	3,463.2

Nevertheless, the reduction in trade being, as we have observed, much more marked than the reduction in cultivation, the reserve stocks of raw cotton increased in the principal producing countries in question.

This is particularly noticeable in respect of the United States, which, in 1912-14, disposed of about 1,270 thousand tons, whereas in 1915-18 she had at her disposal an average of 1,656 thousand tons, which enabled her, particularly up to the time of her entrance into the war, to intensify greatly her export of manufactured products, especially in the case of certain classes of goods [1].

The great general increase in the resources of the United Kingdom was, moreover, remarkable in spite of the considerable reduction in the exports of raw cotton [2]. These resources increased by reason of the great reduction in the enormous exports of yarns, fabrics and waste from the United Kingdom compared with the exports before the war and also by reason of the almost complete cessation of the re-exportation of raw cotton.

According to Customs statistics, while the imports of raw cotton decreased from 986.26 thousand tons in 1913 to 675.45 in 1918, the export of English yarns decreased at the same time from 95.20 thousand tons to 46.13; the exports of fabrics from 7,075 million yards to 3,699.3; the exports of waste from 50.21 thousand tons to 8.6; the re-exports of raw cotton from 116.85 thousand tons to 0.181.

Examining, however, the figures of exports of yarns and fabrics, it will be seen that the great reduction in these categories was due to the closing of the markets in Central Europe, Turkey, Bulgaria, etc., and to traffic difficulties in trade with Canada, South America and Asia; on the other hand, it will be observed that exports to France increased 13-fold for yarn and 14-fold for fabrics and France was thus enabled to meet her war needs more completely than would have been the case had she been forced to rely only on the reduced capacity of her own cotton industry (29 % of the French spindles were in the regions occupied by the Germans [3]).

In Italy and in other countries, the export of yarns and fabrics was largely reduced for the benefit of internal consumption.

Such restrictions in trade were bound up with a system of prohibitions of exports of raw materials and manufactured products from the European countries and of concessions of special export permits.

It must also be remembered that the civilian populations had to make sacrifices everwhere for the needs of the army.

A *Cotton Control Board* was established in the United Kingdom and such boards were also established, in different forms and of lesser importance, in other countries, and these boards succeeded in regulating the output and activity of the national manufactures [4].

11. This increase in the supply was followed by a considerable increase in the number of spindles and looms in the United States, United Kingdom, Japan, Italy and other countries, and in the productive efficiency of these countries [5].

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[1] See *Statistical Abstract of the United States*, 1920, and the *Cotton Year-Book*, 1921.

[2] When noting the increase in raw material retained in the country, the great difficulties must be borne in mind which the cotton industry and the textile industries in general had to surmount, in order to make up for the lack of German dyes.

[3] Department of Overseas Trade, *Economic Survey of certain countries specially affected by the War*, London, 1920.

[4] G. Bigwood, *Cotton*, London, 1918, and the official sources quoted therein.

[5] See the *Cotton Year-Book*, 1921. As regards France, the wonderful increase in the cotton production in the non-invaded regions should be noted.

Especially noteworthy were the increases in the United States, where there were more than 4 million new spindles; in the United Kingdom, where there were more than 2 millions; and in Japan, where there were more than 1 million.

The following official figures relating to Japan are very significant:—[1]

	Number of cotton factories	Amount of capital invested (millions of yens)	Average number of spindles in work (millions)	Quantity of raw cotton worked (millions of kwan)[2]	Total production yarns (millions of kwan)[2]
1913	100	77.6	2.3	88.7	81.3
1914	103	81.2	2.4	95.1	82.3
1915	273	85.3	2.8	98.2	85.3
1916	240	94.3	3.0	108.8	93.0
1917	250	111.9	3.1	115.2	93.7
1918	285	132.8	3.4	136.4	100.5

This development allowed Japan to meet the reduction in her imports of manufactured cotton products, and to some extent to capture from the United Kingdom and other European countries the markets of the past for her manufactured products[3].

Although we have no precise data on the subject, we can assert[4] that the great decrease in European exports, especially in British exports, caused a considerable increase in the production of yarns and fabrics in countries which formerly depended upon these exports, notably South America and Asia. Especially in India, the production of fabrics, which reached 1,105.5 millions of yards in average 1909-13, has already exceeded the quantity of 1,614 millions of yards in 1917-18, and furnished a current of exportation.[5]

To sum up, one may say that, although the war diminished the world production of raw cotton, it strengthened the cotton industry in the U. S. A., in the United Kingdom, in Japan and in lesser measure in Italy and in a few other countries formerly dependent on imports.

As is well known, under these conditions the prices greatly increased, especially as a result of the inexorable and colossal demands of the war and of the risks attending navigation. The increase in the price of cotton at Liverpool between July 1914 and September 1918 has been calculated at about 300 %; for American Middlings, the increase has been from 7.26d. per lb. to 21.68; for No. 1 Fine Oomras from 5,87 to 18,78, and for the Egyptian quality known as F. G. F. Brown from 9,44 to 30,97.[6]

III.

POSITION AFTER THE WAR

12. At the close of hostilities, the cotton industry experienced the same initial period of prosperity that characterised almost all branches of the world's economic activities.

According to Customs statistics, the export of raw cotton from the United States rose from 1,052.58 thousand tons in 1917-1918, to 1,527.59 in 1919, though these quantities still fell below the pre-war exports.

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[1] *Financial and Economic Annual of Japan*, 1918-20.

[2] 1 Kwan = 3.75 kg.

[3] See the *Report of the Departmental Committee*, etc., 1918. In this Report, fear of Japanese competition is very marked, especially in view of the low scale of wages obtaining in Japan, her proximity to her markets, her knowledge of commercial usage and of local requirements, etc.

[4] See the *Cotton Year-Book* and *The Times Imperial and Foreign Trade Supplement. Cotton Section*. London, 1919.

[5] See *Review of the Trade of India in* 1913-14/1919-20, prepared for both Houses of Parliament by command of His Majesty, London, 1921. See also the *Report of the Departmental Committee*, etc.

[6] See the *Cotton Year-Book*.

This increased output was mainly absorbed by the United Kingdom (from 540.91 to 734.42 thousands of tons), France (from 123.11 to 180.62), Italy (from 79.7 to 127.37) and Japan (from 132.36 to 199.81).

The United States, however, being no longer compelled to provide for her war requirements, increased her export of cotton fabrics, especially to the South American countries and to China.

A considerable increase, moreover, occurred in the export of yarns, which before the war formed an insignificant part of the exports of the North American Republic.

At the same time, the special qualities of raw cotton which the United States imported from other countries rose from 51.12 to 79.56 thousands of tons; the small quantities of cotton fabrics which she had been able to import in 1918 also showed a similar increase. India and Egypt in the same way increased their exports of raw cotton, the former country by nearly 250 per cent. and the latter by 34 per cent.

An increase in imports, especially from Allied European countries and Japan, also took place.

In the United Kingdom the imports of raw cotton, mainly from the United States (as has already been pointed out) and Egypt, rose from 675.45 to 888.28 thousands of tons; a total, however, which was still inferior to the pre-war figures. Re-export showed a marked increase, while exports of yarns rose from 46.13 to 73.75 thousands of tons.

It must, however, be observed that, though the export of fabrics to Switzerland, Italy, Greece, the occupied Turkish territories, China and a few other countries, showed an increase, the export figures to South America, Africa, Egypt, India, and the other British possessions showed a considerable diminution, the total of these exports being, in fact, reduced from 3,699.3 millions of yards in 1918 to 3,523.7 in 1919.

This decrease must be attributed in great measure to a local development in the cotton industry, to which attention has already been drawn under § 11.

In Japan the increase in the imports of raw cotton was not only relatively greater, but even exceeded the quantity imported before the war, giving rise to an increase in the export of fabrics, especially to China.

It must be observed that in Japan the proportion of cotton imported from the United States has increased as compared with her total imports.

With the 1.9 million spindles in Alsace-Lorraine, France, in spite of her preoccupation with the task of reconstruction and the destruction of 1.4 million spindles, was able to import, chiefly from the United States, 218,55 thousands of tons of raw cotton and waste as compared with 142.3 in 1918, and to export yarns and fabrics to a very considerable amount.

The rapid recovery of Belgium was worthy of special attention. In 1919 she imported 62.6 thousand tons of raw cotton, of which she re-exported 11.15; and she succeeded in exporting a large quantity of manufactured goods.

In Italy, although the quantity of raw material imported did not vary greatly, the quantity of imported American cotton increased in 1919 — sure evidence of an improvement in the Italian manufacturing industry. The export of yarns and fabrics also increased, exceeding even the pre-war figures. Moreover, the imports of manufactured goods (mostly goods of the finer qualities, which Italy had had to import before the war) remained below the pre-war figures, which also indicates an improvement in Italian manufactures.

13. This general revival was greatly assisted by the large stocks available throughout the world at the close of hostilities (already referred to in § 10) — which, although they have not been accurately determined, must have been very considerable — and by the increased yield of the 1919 crop in the three principal cotton-producing countries.

According to the data of the International Institute of Agriculture, this increase was itself due to the extension of the areas under cultivation and the high yield of cotton in the case of India.

	1915-18	1919
	Thousands of hectares	
United States	13,784	13,584
India	8,672	9,450
Egypt	613	661
Total	23,069	23,695

	1915-18	1919
	Thousands of metric tons	
United States	2,492.0	2,478.5
India	735.0	1,051.6
Egypt	236.2	250.3
Total	3,463.2	3,780.2

14. This industrial prosperity was aided by the opening of large markets, by the restoration of free and safe means of transport and the general revival of confidence due to the cessation of the war.

Though partly hampered by the introduction of the eight hours' day, it was favoured on the other hand by the continuous rise in prices which ensured high profits for the producers. who were so overwhelmed with orders that they were compelled to refuse some of them.

It seemed in 1920, with the increase in the tonnage on the high seas, the beginning of an improvement in transport by land, the almost complete discontinuance of prohibitions on export and the gradual recovery of the devastated countries, that this condition of prosperity was bound to improve; but the economic crisis which occurred in the spring of 1920 completely changed the situation.

In spite of the extension of the areas under cultivation in the United States and Egypt and the marked increase in the crops in these countries and elsewhere, the cotton industry was brought to the verge of ruin.

	1919	1920	1921
	Thousands of hectares		
United States	13,584	14,991	10,732
India	9,450	8,505	7,650
Egypt	661	768	543
Total . . .	23,695	24,264	18,925
	Thousands of tons		
United States	2,478.3	2,913.9	1,700.0
India	1,051.6	645.2	550.0
Egypt	250.3	271.1	150.0
Total . . .	3,780.2	3,830.2	2,400.0

The foreign exchanges, steadily growing worse and rendering trade almost impossible, from which the devastated countries suffered more and more, and the withdrawal of American credit from Allied countries, etc., sensibly diminished the demand for manufactured goods. As a result, prices fell, factories were reduced to working only for a few days a week and a few hours a day, and a considerable number of spindles and looms in the factories stood absolutely idle.

The following figures are the result of an enquiry instituted by the *International Federation of Master Cotton-Spinners:—*

NUMBER OF 48-HOUR WEEKS DURING WHICH THE SPINDLES WERE IDLE

	Six months ending on 31. 1. 1921	Six months ending on 31. 7. 1921
Great Britain.	6.04	12.92
France.	2.3	6.92
Germany.	7.5	5.48
Italy.	0.99	3.11
Czecho-Slovakia.	13.3	8.76
Spain	4.7	9.17
Belgium	7.5	12.94
Switzerland.	1.39	3.39
Poland.	10.71	5.80
Austria.	10.89	?
Sweden.	4.43	7.50
Portugal	20.93	8.41
Finland	1.0	0.60
Denmark.	5.8	15.12
Norway	3.8	11.57
Japan	0.09	21.25
Canada.	0.765	1.56
Mexico.	2.77	0.17
Brazil	0.96	(about) 2.0

It must be noted that, with the exception of Poland and a few other less-important countries, the inquiry took into account almost all the spindles in the countries under review.

A general reduction in the exchange of raw materials and manufactured goods and a falling off in the 1921 crop followed, due to:

(*a*) The reduction of areas under cultivation, itself the consequence of the existence of large stocks, especially in the United States, where the stock has been estimated at approximately 1.8 million tons;

(*b*) The drought and the ravages of the cotton-worm.

Under these circumstances, Egypt thought it advisable to introduce temporary duties on the cotton produced, that is exported (P.T./35 per Kantar[1]) after August 1st, 1920, subject to periodical revision[2].

15. The considerations which have been rapidly dealt with above cannot fail from their gravity and importance to impress all those who are specially interested in the state of the industry as it is at present; but those, on the other hand, who concentrate their attention on the more permanent factors which have developed in the period under review will be especially impressed by two other circumstances

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[1] 1 Kantar = 450 kg.

[2] Mr. Ashley, of the *Board of Trade*, informed us that in November 1919 the British High Commissioner for Egypt had communicated to the British Government that the Egyptian Government thought it necessary to increase its revenues and to raise the duty on goods exported from Egypt from 1 % to 2 % *ad valorem*. This increase chiefly affected cotton, which, in 1919, represented 84 % of the total value of Egyptian exports. In January 1920, Lord Allenby again informed his Government that, on account of the delay and difficulty in obtaining the necessary consent of Great Britain, France, Italy, Belgium and Russia (Italy was opposed to it), the Egyptian Government proposed to levy a tax on ginned cotton.

A favourable reply having been received from Lord Curzon, the Decree of April 18th, 1920, instituting this tax, was passed and came into force on August 1st, the tax being payable before the ginned cotton leaves the factory.

which will probably cause alterations in the character of the world's cotton industry:

(1) The more striking of the two is the development of the Asiatic and to some extent, the South American manufactures, which may prevent the European cotton industry from placing on these markets the enormous stock of manufactured goods which they were able to dispose of there before the war.

It is probable that the full consequences of this factor will be mitigated by the fact that for some time it will be possible to rely on the markets offered by European countries in process of reconstruction, which are only now beginning to show signs of activity in the manufacture of cotton; but everyone is aware of the precarious position in which the industry may one day stand.

(2) The other circumstances in the remarkable advance in manufactures in the United States and the diminution, which will probably result from it, of the American export of raw cotton, which, as already shown, forms the chief sources of the world's supply.

This is a circumstance which is already engaging the attention of other manufacturing countries and gives rise to hopes of an improvement in the qualities produced in India and Egypt and of a greater development in the growth of cotton in other countries — in the East African British possessions, in the French Soudan, in Italian Somaliland, etc.[1]

One cannot say, however, how far these hopes are justified. The best prospects of success belong undoubtedly to the United Kingdom, which has experience in wider and more productive areas and can draw upon abundant capital[2].

It is impossible, therefore, to ignore the possibility of a decadence of the cotton industry in those countries which become deprived of their markets or find it impossible to obtain the necessary raw material.

IV.

SUMMARY AND CONCLUSIONS

I.

On the eve of the war, the world cotton industry depended on crops which are mainly produced in the United States, in China, in British India and in Egypt. Indian and Chinese cotton was generally of inferior quality. Chinese cotton was almost completely absorbed in China; Egyptian cotton, on the contrary, was almost entirely exported; Indian cotton was exported to the extent of about 50 % and American cotton to about 68 %.

II.

The United States and the British Empire (including Egypt) disposed of respectively 58 % and 21 % of the world production, and 72 % and 28 % of the total exports of all producing countries.

III.

Just as the United States was obliged to import raw cotton of different quality from her own, so the United Kingdom imported cotton from the United States and a considerable proportion of Egyptian and Indian cotton was exported to other countries.

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[1] It must also be noted that a change in the quality of cotton used in a country demands a change of tools: for instance, a reduction in the import of American cotton into the United Kingdom must lead to a reduction in the spindles specially adapted to the spinning of that cotton. In 1915 these constituted 75 % of the total of the spindles in the United Kingdom.

[2] See *Report of the Departmental Committee*, etc., 1918.

IV.

38.4 % of the spindles and 28.3 % of the existing looms in the world were in the United Kingdom; 22 % and 23 % in the United States.

Other producing countries which were large consumers of raw cotton were China, Germany, India and Russia, followed by Japan, France, Italy, Austria-Hungary and certain lesser countries.

V.

The export trade of the United Kingdom exhibited a great superiority over all other manufacturing countries; the United Kingdom supplied the whole world with yarns and fabrics, the export of which surpassed that of Germany and all other exporting countries. On the other hand, the United States worked mainly for their home markets and exported only small quantities of fabrics which were, for the most part, sent to South America and the Philippine Islands.

VI.

Among the European countries, France, Italy and others exported much more yarns and fabrics then they imported, but Germany imported, principally from the United Kingdom, about three times as much cotton yarns as she exported.

VII.

Asia provided the principal markets for the export of manufactured goods; but in Japan the cotton industry, working principally with Indian cotton (60 %), and American cotton (30 %) supplied a large quantity of manufactured goods to the markets of the East.

VIII.

The declaration of war caused a great diminution of the trade in raw cotton and a different orientation in the trade, due mainly to the blockade of the Central Powers. The large quantities of raw cotton which, before the war, had been absorbed by these markets were thus made available for other countries.

The United States was able to keep in her own country a greater proportion of raw cotton than formerly and to intensify her export of manufactured goods; the United Kingdom was able to increase its imports of Egyptian cotton, for which, towards the end of the war, a Commission of Control was instituted which realised large profits.

On the other hand, the United Kingdom — like the other countries — by means of the prohibitions of exports, was able to devote a large proportion of its own exports to internal consumption, and to economise in civil consumption so as to supply the needs of the army. The United Kingdom was able, moreover, to help France considerably after the invasion, by means of large exports of yarns and fabrics.

Japan, on the other hand, was able to increase her own imports of raw cotton.

IX.

Together with the reduction in traffic and with the changes thereby involved, there was a corresponding reduction in the harvests of the three raw-cotton-producing countries.

X.

There was, on the other hand, a considerable increase in the number of spindles and looms and the producing capacity of the United States, United Kingdom, Japan, Italy and other countries.

XI.

At the end of the war, the cotton industry experienced a period of prosperity; there was an increase in the export trade of raw materials from the three producing

countries, a large export of manufactured goods from the United States, including a considerable increase in the export of yarns — previously without importance — and there were also increased exports from other manufacturing countries, including Japan, Italy and, to a small extent, France.

Belgium's effort was particularly remarkable.

The United Kingdom increased its exports of yarns but not of fabrics, probably on account of the development of the cotton manufactures in India and in other countries which, before the war, were the principal markets for the British cotton industry.

XII.

Worthy of note also is the growing importation of American cotton into Japan and Italy indicative of improvement in the cotton manufactures in those countries.

XIII.

This revival in trade was due to the stocks of cotton accumulated during the war and to the increase in the areas under cultivation and of the harvests, to the return to free commercial traffic, to the general conditions of confidence and the continually increasing prices which assured accruing profits to the manufacturers.

But this period was of short duration. A fresh economic crisis arose and the situation was reversed. Under these circumstances Egypt introduced a temporary tax on the cotton produced, that is to say, exported.

XIV.

At present, the cotton industry is in great difficulties; the working hours are very short, orders are scarce, and prices have fallen to an incredible level.

The discouragement of producers, still further increased by the existence of large reserve stocks, has led to a reduction of the areas under cultivation and harvests.

XV.

Setting on one side purely temporary circumstances, two features have developed which may be destined to make profound changes in the cotton industry of the world:

(1) The development of the Asiatic and to some extent also the South American manufacturing industries, which will lead to attempts to secure markets hitherto reserved for the manufacturing activities of other countries, which will be unable to profit for more than a short time from the demands of the devastated European countries, a demand which in every case will place them in a precarious situation;

(2) The development of the cotton manufactures in the United States, from which there is reason to fear a systematic restriction in the export of raw cotton from this country, which has been hitherto, and still is, the principal source of the world's cotton supply.

Efforts which are being made at present to extend the cultivation of cotton are more likely to succeed in the case of the British Empire than in the case of other countries.

The possibility must therefore be reckoned with that a country which is no longer able to command markets or the necessary raw materials may see its cotton industry fall into decay.

IV. STATEMENT OF THE POSITION CONCERNING

COAL

PREPARED BY

DOCTOR SLOUTSKI AND PROFESSOR VINCI

CONTENTS

COAL

I.

POSITION BEFORE THE WAR

1. Coal had assumed an enormous importance in the economic life of the whole world on the eve of the war. The development of its use is parallel chiefly with the growth of industry.

With regard to the development of *transportation*, it is worthy of notice that traffic on the railways, as well as the tonnage of the merchant service, increased considerably in the 50 years preceding the war.

Certain countries have developed their systems prodigiously.[1] Russia, for example, between 1850 and 1890, increased her system 60-fold, Italy 30-fold, Austria-Hungary 16-fold, France 12-fold, the German Empire 7-fold, etc.

In the following years, the length of the railways continued to increase, although the increase was at a slower rate.

As regards the net tonnage of the merchant service, that of the United Kingdom had more than doubled since 1875; that of the German Empire had been tripled in the same period, even though that country has only one-quarter the net tonnage of the United Kingdom. France only increased her tonnage by a half. Outside Europe, we note the United States, which have more than doubled their tonnage, and Japan, which, starting from a very small tonnage, has contrived to increase her original amount 20-fold, thus surpassing France.

As far as the metal industry is concerned, in which coal plays so important a part, Germany — between 1880 and 1913 — increased her production of cast metal more than 9-fold; that of Austria-Hungary and of Belgium increased 5-fold, and that of France was more than doubled. The progress of the United Kingdom was slower.

Outside Europe, we find that the United States increased their production of cast metal 8-fold. The world's production in fact increased more than 4-fold between 1880 and 1913.

As regards the production of iron and steel, we note a progress of equal magnitude and importance.

If we take into account the coal used in other industries, and also for lighting and heating, we shall have some idea of the immense quantity which was necessary before the war to supply the needs of the whole world.

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[1] *Annuaire statistique de la France*, Paris 1919.

2. How did the various countries succeed in supplying these needs ?

The table below shows the production of coal in Europe and outside Europe since 1890.

World Production [1]

Millions of metric tons

	1890		1903		1913	
	Coal	Lignite	Coal	Lignite	Coal	Lignite
United States	143.1		324.2		517.0	
United Kingdom	184.5		234.0		292.1	
Germany	70.2	19.1	116.6	45.8	190.1	87.2
Austria	8.9	15.3	11.5	22.2	16.5	27.4
Hungary	1.0	2.3	1.2	5.3	1.1	8.8
France	26.1		34.9		40.8	
Russia	6.0	—	16.9	—	33.8	—
Belgium	20.4	—	23.8	—	22.8	—
Japan	2.6	—	10.1	—	21.4	—
British India	2.2	—	7.6	—	16.0	—
China	0.05	—	1.0	—	13.1	—
Canada	2.8	—	7.2	—	13.6	—
Australia	3.5	—	7.2	—	12.6	—
New Zealand	0.6	—	1.4	—	1.9	—
Spain	1.2		2.8		4.3	
Italy	0.4		0.5		0.7	
Netherlands	0.1	—	0.5	—	1.9	—
Sweden	0.3	—	0.3	—	0.4	—
Approximate total for the whole world	512 (Lignite 40)		880 (Lignite 75)		1,342 (Lignite 125)	

We notice the large proportion of lignite in the total production of Germany and Austria-Hungary. In 1913, the proportion of lignite in the total production of pit coal in Germany was more than 45 %; Austria-Hungary produced in the same year twice as much lignite as pit coal.

This distinction between the two kinds of fuel is necessary, in view of the difference in heating power between lignite and pit coal; certain qualities of lignite scarcely reach 30 % of the heating power of pit coal.

3. Before the war two countries occupied a preponderating position in the production of coal in Europe, namely the United Kingdom and Germany.

One point, however, is to be noted: while the United Kingdom occupied the first place as regards the production of coal, and Germany the second, Germany, on the other hand, occupied the first place in the metal industry.

Indeed, in 1913, Germany produced 16.8 million tons of cast metal, but the United Kingdom only 10.4. In the same year Germany produced 17.5 million tons of iron and steel, while the United Kingdom only produced 7.7.

Moreover, in 1912, Germany had 62,692 kilometres of railways in working, while the United Kingdom had only 37,845.

The United Kingdom, as we shall see, exported a considerable proportion of her total coal-production, while Germany kept the major portion of her coal for home consumption; again, the United Kingdom possessed a fleet which was of far greater importance than that of Germany, and necessitated a larger consumption of coal.

It is interesting to note that, during the 10 years immediately preceding the war, Germany increased her coal production by 65 % and her lignite production by 89 %, while the United Kingdom increased her coal production by 24 %.

[1] *Annuaire statistique de la France*, Paris 1919.

The third place in coal-production is held by Austria-Hungary. This country increased her production of coal by 38 % and her production of lignite by 32 % during the 10 years immediately preceding the war. It should be noted that the Hungarian production formed a small proportion of the total production of Austria-Hungary.

With regard to the metal industry, although unable to rival Germany and England, Austria-Hungary nevertheless occupies an important position among the other European States. It is above all its railways which consume coal, their length (45,452 km. in 1912) entitling them to the fourth place, immediately after France (50,993 km. in 1912).

During the 50 years which preceded the war, France more than trebled her production, and during the years directly preceding the war she increased it by 17 %, but notwithstanding this development, she depended, and still depends, largely on foreign countries for the fuel required in her manufactures. France produces a very small amount of lignite. Of 40.8 million tons of coal produced in 1913, 40 million tons were composed of coal and anthracite, and only about 800,000 tons of lignite. The departments which are richest in coal are the Nord and the Pas de Calais, which alone produced 27.4 million tons of coal in 1913. In France, transport and the metal industry are closely connected with the coal question.

In 1913, the production of cast metal in France was about five times greater than 50 years previously, and the production of iron and steel 3.5 times larger.

On the other hand, France has greatly developed her railway system, but the development of her merchant service has been slower in comparison with other countries.

From 1903 to 1913, Russia doubled her coal-production, increasing it from 16.8 million tons to 33.8 million. It was the Donetz Basin which supplied with coal not only the metal industry in the region bordering on Krivoi-Rog, but also that in Central Russia. This basin is the most important: out of 33.8 million of tons extracted in 1913, it furnished 25 ½ millions.

Thanks to this rich mining district, the Russian metal industry had acquired an important place among European States; in the production of cast metal, Russia held the fourth place in 1913, and from 1890 to 1913 it had increased its production more than four-fold. As regards iron and steel, Russia held the third place just before the war.

Nor must it be forgotten that Russia utilised, particularly in the centre of the country, a considerable quantity of wood for the metal industry and the railways; but coal was beginning gradually to supplant wood, the supply of which presented increasing difficulties.

Belgium did not produce enough coal for her own use, but her dependence on foreign countries was comparatively small. Out of 26 million tons which she consumed in 1913, she produced 22.8 million tons herself. Between 1890 and 1913, Belgium slightly increased her coal production and greatly developed her production of cast metals, iron and steel.

Her mercantile marine was a small one, and did not require much coal.

As regards railways, Belgium, which held the first place in respect of density, had also greatly increased the length of her railway system.

From the point of view of production, Spain stands very low in comparison with other countries, even with Belgium, but she increased her production in coal nearly four-fold during the ten years preceding the war, and increased her production in cast metals, iron and steel. The development of her railway system has been remarkable; she has increased it eight-fold since 1860, and has added one-third to her mercantile marine, which was about four times as large as that of Belgium.

The production of coal in 1913 in other European countries was insignificant. To the countries mentioned in the foregoing table (Netherlands 1.9 million tons; Italy 0.7; Sweden 0.4) should be added Serbia 0.3, Bulgaria 0.2, Roumania 0.2 and Greece (in 1910) 0.02 million tons.

All these countries imported almost the whole of the coal required for internal consumption. The metal industry, which was already considerable in Sweden and Italy, was little developed in the other countries.

4. In regard to production *outside Europe*, the first place belongs to the United States; the other countries are far behind, and their joint production cannot be compared with the immense production of the United States.

It must, however, be remembered that the total production of the United States includes 84 % of bituminous coal.

The production of lignite in the United States is negligible.

The United States have increased their production of coal by nearly 60 % since 1903, Canada by 53 %; the most important increase has been recorded in China, where production has risen from 1 million tons in 1903 to 13.1 million tons in 1913.

The British Indies and Japan have increased their production by a little more than half.

5. Although the estimates of the world's production of coal and lignite are very uncertain, they may be calculated at 512 million tons in 1890, of which about 40 millions were lignite; at about 880 million tons in 1903, of which nearly 75 millions were lignite; and at about 1,342 million tons in 1913, of which nearly 125 millions were lignite.[1]

According to these estimates, in 1913 the United States, Great Britain and Germany were producing 81 % of the world's production of coal and lignite (the U.S.A. 38.5 %, the United Kingdom 21.8 % and Germany 20.7 %).

In the case of coal alone the percentage was 82.1 %, of which 42.5 % was produced by the United States, 24 % by the United Kingdom and 15.6 % by Germany.

In 1890, the United Kingdom was the chief producing power in the world, but in 1899 the United States came first; they still maintained this advance in 1913, leaving all the other countries of the world behind them.

6. From what has been said, it will be seen that there were countries which had an immense production of coal, others which had enough and others again which produced none at all themselves and which were obliged to import foreign coal.

Considering the European countries in the first place, it must be observed that — according to official data for international commerce — just before the war the export of coal from non-European countries to Europe was negligible. Great Britain and Germany were supplying the remaining States of Europe, and the first mentioned occupied the first place.

Exportation of British Coal in 1913.[2]

Countries to which exported	Millions of tons
France	12.7
Italy	9.6
Germany	8.9
Russia	6
Sweden	4.5
Argentine	3.7
Egypt	3.2
Denmark	3.0
Spain	2.5
Norway	2.3
Belgium	2
Netherlands	2
Brazil	1.8
Austria-Hungary	1
Total (including other countries)	71.1
Exports to British possessions	2.3
Grand total	73.4 (74.6 metric tons).

[1] *Annuaire statistique de la France*, Paris 1919, and Imperial Mineral Resources Bureau: *Coal, Coke and By-products*, Part I, London 1921.

[2] Not including export of bunker coal, which in 1913 amounted to about 21 million metric tons.

We see that France, Italy and Germany were the three principal customers of the United Kingdom before the war. The exports to these countries represented 42,5 % of the total British export.

Great Britain exports chiefly coal; the export of coke and briquettes was relatively insignificant. Moreover, it must be noted that three-fourths of the exports are of the sort known as " steam coal."

Between 1903 and 1908 the British export increased by 38 %, but from 1908 to 1912 the export from Great Britain remained more or less stationary; in 1913 it considerably increased.

The export of coal since 1908 is as follows:—

	Millions of metric tons
1908	63.54
1909	64.08
1910	63.07
1911	65.73
1912	65.47
1913	74.57

In 1913 Germany exported 34.6 million tons of coal and 6.4 million tons of coke to the following countries:

Export of Coal and Coke from Germany in 1913.

Millions of metric tons

Destination	Coal	Coke	Total
Austria-Hungary	12.15	1.05	13.20
Netherlands.	7.21	0.28	7.49
Belgium	5.72	0.93	6.65
France.	3.24	2.37	5.61
Russia.	2.11	0.54	2.65
Switzerland.	1.63	0.36	1.99
Italy.	0.89	0.18	1.07
Total, including other countries.	34.6	6.4	41.0

If we add to the above figures 3 million tons of all kinds of briquettes, we obtain the figure of 44 millions as the total export from Germany in 1913.

This table shows that nearly one-third of the total export was sent to Austria-Hungary, and that, in fact, Germany had only five countries who were really important customers: Austria-Hungary, the Netherlands, Belgium, France and Russia; these States absorbed about 80 % of the total German exports.

Germany also imported a certain quantity of coal, although she herself possessed a surplus. In 1913 she imported 18.3 million tons of coal of all sorts, of which 10.5 millions were pit coal.

It was from Great Britain that Germany imported almost all her coal. The rest, and particularly lignite, was imported from Austria-Hungary (about 7 million tons).

Germany had therefore to compete against British coal, not only in the European markets but also in her own country. The importation of British coal is mainly accounted for by the fact that the cost of transporting it by sea from England to German ports such as Stettin, Koenigsberg and Danzig was cheaper than that of transporting German coal from the interior of the country to the industrial centres, in spite of the fact that the latter transport was very often carried out by inland waterways. As regards the development of her exports, Germany was making much more rapid progress than the United Kindgom.

Between 1903 and 1913 Germany more than doubled her export of coal, whereas Great Britain only increased hers by 60 % in the same period, allowance being made for the abnormal increase of the English export in 1913.

All the other European countries import coal, but some of them not only import a considerable quantity but are also exporters.

Austria-Hungary in 1913 imported about 15 million tons, of which nearly 14 million tons consisted of pit coal;[1] and exported about 8 millions, 7 millions of which were lignite. The coal came almost entirely from Germany; from England Austria-Hungary only imported about 1 million tons.

Austrian exports were almost entirely destined for Germany. Austrian exports remained practically stationary during the 10 years prior to the war. Imports, on the other hand, almost doubled during the same period, for in 1903 they were only 6.4 millions.

Belgium in 1913 exported about 5 million more tons of pit coal, more than 1 million of coke and more than half a million tons of briquettes; this is equal to nearly 7 million tons of raw pit coal. This country imported 8.8 million tons of coal and a small quantity of briquettes. The total import, coke and briquettes, reckoned in their equivalent in raw coal, amounts to 10.8 million tons. Belgium received the greater part of this coal from Germany — about 65 % of the total import; Great Britain came second with 2.3 million tons of coal; from France, Belgium received only 0.8 million tons.

The greater part of the Belgian export was destined for France — 4.2 million tons of raw coal out of 4.9 millions; the rest was exported in small quantities to more than 25 countries in different parts of the world.

From 1903 to 1913 the export from Belgium may be regarded as stationary. This state of affairs may be explained by the fact that, on the one hand, Belgium was steadily developing her metal industry, which required an ever-increasing quantity of coal, and, on the other hand, by the fact that the coal trade was becoming concentrated in the hands of Germany and Great Britain.

France imported in 1913 about 23 million tons of coal, coke and briquettes, of which about 18.7 million tons consisted of pit coal. About 50% of the coal was imported from Great Britain; the balance came from Belgium (4.8 millions) and Germany (6 millions). The export from France was very small (1.7 million tons in 1913).

Thus the United Kingdom was the chief source of France's coal supply.

English coal shipped by sea to France was easily able to compete with German coal, of which the transport by rail was becoming costly. It must not be forgotten that the British mines are close to the coast and that coal can be loaded almost direct on to British ships. For this reason British coal found practically no competitors, especially in the West of France.

From 1903 to 1913 France increased her import by 60 %; her export was doubled, but it still remained a negligible quantity.

Italy imported 11 million tons in 1913. Between 1903 and 1913 her import doubled. She received almost the whole of her coal from the United Kingdom, about 10 million tons; the rest was imported almost exclusively from Germany. Austria-Hungary, France and the United States supplied only a very small proportion of the Italian imports of coal.

Russia was also an importer; her import doubled between 1903 and 1913 (3.5 millions in 1903 and 7.7 millions in 1913). In 1913 Russia received half of this amount from Great Britain; Germany supplied her with 2 million tons.

Spain imported 2.7 million tons of coal in 1913, almost the whole of which came from Great Britain, the only great producing country which is within easy reach of Spain, and from which transport is less costly.

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[1] The differences between the statistics of the importing countries and the corresponding statistics of the exporting countries have an obvious explanation.

7. Outside Europe, the first point which we note is that the export of coal from the United States was almost exclusively destined for North America. The following are the export figures for the financial year 1913-14:

Millions of tons

	Coal	Bituminous Coal	Total
Europe	0.01	0.9	0.91
North America	4.0	14.0	18.0
South America	—	0.6	0.6
Other countries	—	0.2	0.2
	4.01	15.7	19.71

The export of coke was quite negligible (0.72 million tons).

The amount of export to Europe was thus quite negligible, and this is easily understood. In spite of the reduced price of American coal, the freight rates from the U. S. A. to Europe were so high that European countries could not, before the war, think of obtaining supplies from a country so far distant.

France, if she had purchased American coal, would have paid 40 to 50 francs per ton for it, whereas she could get Cardiff coal delivered at Havre for 30 francs.

It is therefore easily understood that the export from the U.S.A. was confined to the American Continent; Canada took the largest quantity, receiving 16 million tons out of a total of 20 millions exported.

Amongst European countries, Italy received the largest quantity of American coal, almost exclusively bituminous, taking 85 % of the total export from the United States to Europe.

The United States also imported a comparatively negligible quantity of coal (in 1913, 1.4 million tons). The greater part came from Canada (1.1 millions in 1913).

The other extra-European countries exported coal in very small quantities. Among them may be mentioned Japan.

8. The following are the details of stocks available for consumption in the principal countries of the world [1]:

European Countries 1913			Extra-European Countries 1913		
	Production of coal and lignite	Stocks available for consumption		Production of coal and lignite	Stocks available for consumption
	(in round figures, showing millions of metric tons)				
Germany	277.3	262	United States . .	517	499
United Kingdom .	292.4	193	Canada	13.6	31
Austria-Hungary	53.8	60	British India. . .	16	16
France	42.8	59.5	Japan	21.4	15
Russia	33.8	35	Australia	12.6	9
Belgium.	22.8	26.4			
Italy	0.7	11			
Spain.	4.3	7			

The above figures include coal and lignite for certain countries; but they do not include coke or briquettes imported and exported by certain countries or include them without any reduction. It is rather difficult therefore to compare consumption in the countries above mentioned.

[1] For European countries, see the *Rapport général sur l'Industrie française* by the French Ministry of Commerce, Paris 1919.

For extra-European countries, see Imperial Institute, *Coal*, London 1920.

If we restrict ourselves to the exclusive consideration of the production and trade in coal in 1904 and 1913, we reach the following result for the United Kingdom and Germany:

Millions of metric tons

	United Kingdom		Germany	
	1904	1913	1904	1913
Production	236.1[1]	292.1	120.8[1]	190.1
Import	*very small*	*very small*	7.3	10.5
Export	64.4[2]	95.6[3]	18.0	34.6
Available stocks	171.7	196.5	110.1	166.0

In view of the fact that the export of coke and briquettes from the United Kingdom was extremely small and that coke and briquettes must be added to the German export — which, without any reduction, remained below 10 million tons — we may assume that the United Kingdom always consumed a larger amount of coal than Germany, but that the excess was less in 1913 than in 1904.

II.

POSITION DURING THE WAR

9. The coal production of Europe underwent diminution during the war. On the other hand, outside Europe the production increased, especially in the United States, a fact which partially compensated for the deficit in European production.

Production of Coal and Lignite [4]

Millions of metric tons

	1913	1914	1915	1916	1917	1918
United States	517	466	482	535	591	615
United Kingdom	292	270	257	261	253	231
Germany	277.3	245	235	253	263	261
Austria	43.9	39	38	40.8	?	?
France	40.8	29.8	19.9	21.5	29	26
Russia	33.8	33	28	?	?	?
Belgium	22.8	17	14	17	15	14
Japan	21.4	22	20	23	26	28
British India	16	17	17	17	18	21
Canada	13.6	12	12	13	13	14
Hungary	9.9	9	9	?	?	?
Spain	4.3	4.4	4.7	5.6	6	?
Netherlands	1.9	1.9	2.3	2.7	3.1	3.4
Italy	0.7	0.8	1.0	1.3	1.7	2.0
Approximate world total	1,342	1,210	1,190	1,270	1,335	1,332

During the war, the United Kingdom showed a continuous decrease in production; in 1918 the production was 79 % of that of 1913.

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[1] *Annuaire statistique de la France*, Paris 1919.

[2] Including 17.5 million tons used as bunker coal by foreign ships.

[3] Including 21 million tons of bunker coal.

[4] *Annuaire statistique de la France* 1919, and Imperial Mineral Resources Bureau: *Coal, Coke and By-products*, London 1921. This latter gives the following figures for Russia; 1913, 31.7; 1914, 35.6; 1915, 31.4; 1916, 34.3; 1917, 31.4. For the world total see United States Geological Survey: *Report on the Mineral Resources of the United States in* 1919, Washington 1920.

Belgium showed a considerable decrease in production, which fell from 22.8 millions in 1913 to 17 millions in 1914, to 14 millions in 1915, and, after a slight recovery in the two following years, returned to 14 millions in 1918 (61 %).

In France this decrease amounted in 1915 to almost 50 % in comparison with 1913, in consequence of the occupation of the mines in the North, the richest in France; but in 1918 the production attained 63 % of that of 1913.

In Italy coal production did not decrease during the war. This country almost trebled her production in 1918, although this was limited to lignite, which was largely used during the war. Italy was compelled to increase her production as far as possible, owing to the decrease in the importation of English coal.

With regard to Germany, the decrease in production reached 12 % in 1914 in comparison with 1913; 15.7 % in 1915.

From 1916 onwards production increased till it reached in 1917 and 1918 94 % of the 1913 output.

The decrease in the production of German coal during the war refers especially to pit coal; the production of lignite underwent a barely perceptible diminution in 1914; in 1915 the production of lignite exceeded the production of 1913, and reached in 1918 an increase of more than 13 % in comparison with 1913.

The two mining coalfields which supplied Germany with the largest quantity of coal are the Ruhr and Upper Silesia. The former is the more important.

PRODUCTION OF COAL [1]

Millions of metric tons

	Ruhr	Upper Silesia	Saar	Lorraine	Total production in Germany
1913	114.5	43.4	13.2	3.8	190
1914	98.3	37.0	10.0	2.9	161
1915	86.8	38.1	8.4	2.0	147
1916	94.6	41.7	8.9	2.0	159
1917	99.0	43.0	9.6	2.6	168
1918	96.0	39.8	9.2	2.7	160

In 1913 the Ruhr coalfield alone produced nearly 60 % of the total production of pit coal in Germany, Upper Silesia 23 %. In 1914 the decrease in production in the Ruhr amounted to 14 %; the lowest production during the war was in 1915 (decrease of 23 %), but from 1916 onwards there is a distinct increase in production.

Coming to Upper Silesia, we find that in 1917 her production almost reached the 1913 level, but in 1918 there is a noticeable depression, which has continued steadily since the war.

It is interesting to compare with the total German production the production of the two remaining mining coalfields of Germany, one of which, the Saar, is at present under a special administration, while the other, the Lorraine coalfield, has been incorporated in France.

The coalfield of the Saar is by far the more important of these two, although its production cannot be compared with that of the Ruhr or of Upper Silesia.

As regards the Lorraine coalfield, its production is altogether negligible.

10. As we have mentioned above, the extra-European production of coal during the war was entirely different from that of Europe.

The production of the United States, although showing a decrease of nearly 10 % in 1914, increased considerably in the following years, and in 1918 amounted to 119 % of that of 1913.

The production of Japan, after a fall in 1915, shows a distinct increase, reaching in 1918 an increase of 133 % in comparison with 1913.

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[1] MINISTÈRE DU TRAVAIL: *Compte rendu des travaux au cours de l'année* 1920, Paris 1921.

British India has contrived to increase its production by 12.8 %.

As for Canada, after slight decreases, it succeeded in obtaining an almost greater quantity of coal in 1918 than in 1913.

As a result of these increases the proportion of the world's output of coal produced by extra-European countries, and especially by the United States, has increased.

This proportion has still further increased in consequence of the reduction in world production — brought about, as we have already stated, by the reduction in European production.

It follows then that the production of the United States, which formerly amounted to 38.5 % of the world production, amounted in 1918 to 46.7 %, whilst that of the United Kingdom fell from 21.8 % to 17.3 %, and that of Germany from 20.7 % to 19.6 % of the world production.

It must be noted that in 1918 the German production (of coal and lignite) had already exceeded the English production.

11. The disturbance in the import and export of coal during the war was far more sensible than in the sphere of production.

It should also be noted that during the war the coal trade ceased between the Allies and enemy States.

In the case of the United Kingdom, the necessity for increasing home consumption and the decrease of coal production gave rise to a decrease in the export of pit coal amounting to almost 20 % in 1914, nearly 41 % in 1915, nearly 48 % in 1916, by more than 52 % in 1917, and finally by more than 57 % in 1918.

With regard to the countries receiving English coal during the war, one special feature is to be noticed: while the export of English coal decreased for all countries, France, on the contrary, proved an exception to the rule.

It is true that there was in 1914 a very slight decrease in the export of English coal into France, but since 1915, and until the end of the war, the quantity of English coal exported to France remained about 41 % above pre-war export.

Needless to add that the majority of this coal was intended for war industries.

The United Kingdom decreased her export to Italy by more than half.

Nevertheless, France and Italy kept their predominant position, even during the war, as recipients of British coal; France keeping the first place, which she had long held, and Italy the second.

We give below a comparative table of the production, export, and stocks available for consumption in the United Kingdom during the war.

Millions of metric tons

	Production	Export	Bunkers	Available Stocks
1913	292	78	21	193
1914	270	63	19	198
1915	257	47	14	196
1916	261	42	13	206
1917	253	39	10	204
1918	231	35	9	187

In this table, coke and the briquettes are reckoned by their equivalent in raw pit coal (60 kg. of coke for 100 kg. of pit coal and 90 kg. of pit coal for 100 of briquettes).

As we have already noted, the production decreased during the war, but the export decreased in far larger proportions, a fact which enabled Great Britain to increase her total consumption during the war. Thus the increase was made in export alone.

We shall find that after the war, when the production of war material ceased, consumption fell to the normal pre-war level.

In the case of France, the destruction of the mines in the North entailed a marked decrease in her production as well as in her consumption, in spite of help from the United Kingdom.

Here we will reproduce the table of the production, import and available stocks of coal in France:

	Millions of metric tons		
	Production	Import [1] Net	Available Stocks
1913	40.8	23.8	64.6
1914	27.5	18.8	46.3
1915	19.5	20.8	40.3
1916	21.3	21.3	42.6
1917	28.9	18.2	47.1
1918	26.3	15.4	41.7

This table show clearly the considerable decrease in production during the war and the decrease in net import and in available stocks.

Before the war, half the coal needed to supply the deficiency in national production was imported from the United Kingdom; Germany and Belgium came next. In 1914 the import of English coal had not decreased to any extent, but, on the other hand, import from Belgium decreased nearly 40 %. Since 1915, and until the end of the war, no coal had been imported from Belgium, but the import from England increased; and in 1916 brings the general decrease in import down to a little more than 11 %, as compared with the year 1913. In 1917 there was a marked decrease in import from England, which fell yet lower in 1918.

It is worthy of note that American coal did not begin to come regularly into France until the end of 1919. Before that date, import from America was exceedingly small.

In Germany, Austria-Hungary and the Balkan countries, on account of the blockade, the coal-trade at one stage of the war was reduced to a reciprocal exchange. Belgium in this respect was similarly situated.

12. During the war, the United States markedly increased their production, export and available stocks.

Anthracite. [2]

	Millions of metric tons			
	Production [3]	Import	Export	Available Stocks
1913-14	83.0	—	4.0	79.0
1914-15	82.4	—	3.7	78.7
1915-16	80.6	—	3.8	76.8
1916-17	79.4	—	4.6	74.8
1917-18	90.4	—	4.8	85.6

Bituminous Coal.

	Millions of metric tons			
	Production	Import	Export	Available Stocks
1913-14	434.0	1.3	15.9	419.4
1914-15	383.4	1.4	14.6	370.2
1915-16	401.5	1.6	18.9	384.2
1916-17	455.9	1.3	19.7	437.5
1917-18	500.6	1.4	21.2	480.8

[1] Import minus export, including coke and briquettes as represented by their equivalent in raw pit coal. The figures for production and consumption differ slightly from those given in the preceding pages, according to the various official sources. For the figures given in this table see *Compte rendu des Travaux* par le Ministère du Travail, Paris, 1921.

[2] *Statistical Abstract of the United States*, Washington 1919.

[3] The production is of the calendar year preceding the fiscal year.

Export of Bituminous Coal

Millions of metric tons

	To Canada	To Italy	To Europe in general	Total (including the other countries
1913-14	11.6	0.7	0.9	15.9
1914-15	8.5	1.6	2.0	14.6
1915-16	10.5	2.8	3.6	18.9
1916-17	13.1	1.1	1.7	19.7
1917-18	16.8	0.2	0.3	21.2

Anthracite is exported almost exclusively to Canada.

American export, although on the increase, remains, as we shall find, relatively insignificant.

Export to Europe increased during the war, since the belligerent countries of Europe were eager to increase their store of fuel from every possible source; but already from 1916 to 1917, on account of the submarine warfare, this export began to decrease.

This condition has contributed to the development of home consumption, and therefore to the development of the metal, mechanical and transport industries in America.

It may be added that, among the European customers for American coal, Italy alone continued to import a more or less considerable quantity.

Japan imports but a very small quantity of coal. Before the war, her requirements in pit coal were covered by her own supply, a fact which enabled her to export a large quantity; but during the war, though the production increased on a large scale, export, on the contrary, decreased. Thus there was an increase of consumption brought about by the rise in home industries. The export of pit coal in 1918 shows a decrease of more than 38 % as compared with 1914. Japanese export goes chiefly to China and Russia in Asia.

13. The abnormal conditions of production during the war and the general upheaval markedly raised the price of coal in Europe.

During the war, the Allies made arrangements with a view to regulating the coal trade and controlling prices. Until the middle of 1916, trade was free; from the middle of 1916, the sale price was fixed.[1]

In France, control was exercised on the price of French as well as of English coal, and this took place as the result of an agreement between France and the United Kingdom.

Already in 1915, the United Kingdom had forbidden the export of coal to neutral countries, except under special authorisation; in the same year she instituted licences for the import of coal.

By the Franco-British agreement the French Government issued import licences which the British Government approved and transmitted to the Export Committee. In June 1917 a code of directions was published, containing regulations for the

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[1] *The Report on the Coal Situation in Great Britain*, made by R. Warhan and J. Thomas to the 1st Congress of the International Chamber of Commerce (London 1921, N° 7, Secrétariat général), states that:

"Soon after the hostilities began, the British coal trade wished to assist the Allies in France, Italy, and Belgium, by placing reduced maximum prices upon the value of British coal for export to those countries. This was done by a purely voluntary arrangement of the coal-owners, and a list of prices for coal and a list of rates of freights (also arranged voluntarily by the shipowners) to all the ports of those countries were agreed upon.

"This arrangement came into operation on June 1st, 1916, before Government control of the coal trade was instituted, and was continued under Government control until after the end of the war, in fact, until 1919.

"The price (for example) for best Northumberland coal was fixed at 30s. per ton and best gas coal at 25s. per ton, and though these prices represented about double the pre-war price they did not correspond to the increase in the cost of production."

supply of coal for export and the supply of vessels. The scale of prices was regarded as fixing the prices for consignments to France or Italy and as a minimum for consignments to other countries.[1]

In 1917, France created an International Coal Office, which collected information as to the various restrictive measures concerning the price of coal and its import and export.

It was thus possible, during the war, to check prices.

Similar steps were taken in Italy and in other countries.

III.

POSITION AFTER THE WAR

14 During the brief period which has elapsed since the conclusion of peace, it has not been possible for the production of coal, its import and export, to recover their normal level. The upheaval was too catastrophic for previous conditions to be restored on the morrow of the war.

In the first year of peace, the situation became even worse. The coal production of Europe in 1919 was, on the whole, with the exception of Belgium, lower than in 1918.

Outside Europe, production, as we have seen, increased during the war, but here too we may note a general decrease in 1919, due to the very great fall in American production. For this reason world production reached its minimum in 1919, and we must return to 1910 to find an equally low figure.

In 1920 a general increase in world production took place. The production of the United States increased to 586 million tons as against 494 millions, but, in spite of this, the production of 1918 (615 million tons) was not reached.

As we have seen, the year 1919 is the worst as regards production of coal. This is explained largely by the fact that, after the conclusion of peace, industrial troubles arose in Europe and America, due principally to the closing down of munitions factories, which consumed a large quantity of coal.

It is interesting to note the share of the various countries in the world production of coal in 1919-20.

World Production of Coal and Lignite [2]

Millions of metric tons in round figures

1913.....1,342	1917.....1,335
1914.....1,210	1918.....1,332
1915.....1,190	1919.....1,158
1916.....1,270	1920.....1,300

[1] Imperial Mineral Resources Bureau: *The Mineral Industry of the British Empire and Foreign Countries: Coal, Coke and By-products*, London 1921 (page 55).

[2] The figures for 1919 and 1920 are given in the publication of the Imperial Institute. *Coal*, London, 1920. See also *Bulletin de Documentations économiques*, No. 166, edited by the Belgian Ministry for Economic Affairs.

PRODUCTION OF INDIVIDUAL COUNTRIES
COAL AND LIGNITE [1]

Millions of metric tons

EUROPE	1913	1918	1919	1920
United Kingdom . . .	292.1	231	233.5	232
Germany [2]	216.9	209.2	175.6	211.3
Upper Silesia	43.4	39.8	25.7	31.7
Saar.	13.2	9.2	9	9.4
Lorraine	3.8	2.7	2.4	3.2
France	40.8	26	19.4 [3]	22 [3]
Belgium	22.8	14	18.3	22.4
OUTSIDE EUROPE				
United States	517.0	615	494	586
Japan	21.4	28	31	31
British India	16.0	21	22.6	18
Canada	13.6	14	12	17

In 1920 there was a certain improvement, due to increased production in Germany, but the needs of Europe were supplied chiefly by the various over-seas countries; those countries which, before the war, did not export coal to Europe, have, during and since the war, become the regular suppliers of Europe. Not only the United States, but also Japan and other countries have themselves begun to export coal to Europe.

In 1913, the first place as regards the production of coal was held by Europe: in 1920, this place was taken by North America, as is shown in the following table:—

	1913		1920	
	Millions of metric tons	Percentage	Millions of metric tons	Percentage
North America	531.6	39.6	601.3	46.3
South America	1.6	0.1	1.7	0.1
Europe	730	54.4	597	46.0
Asia	55.8	4.2	75.8	5.7
Africa	8.3	0.6	11.8	0.9
Oceania	15	1.1	11.9	1.0
The whole world. . . .	1,342	100	1,300	100

15. In Europe, Belgium approximately attained her pre-war production.

Although the production of Belgium is high, the export of coal from Belgium is very small compared with that of 1913; consumption is also lower than in 1913, on account of the decrease in import.

We give a table showing the production, import and export, and also the consumption of coal in Belgium during the years 1919 and 1920.

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[1] The figures for 1919 and 1920 (provisional for some countries) are taken from the *Mineral Industry*, etc., already mentioned, and the Report of the Ministry of Labour (*Compte rendu du Ministère du Travail*).

[2] Excluding the production of Upper Silesia, the Saar and Lorraine. The share of the Ruhr district in Germany's production, according to the figures given above, is 114.5 in 1913; 96 in 1918; 71 in 1919; 88 in 1920.

[3] Without the Saar and Lorraine.

PRODUCTION AND CONSUMPTION [1]

(Coke and briquettes given in their equivalents in raw pit coal)

	Thousands of metric tons		
	1913	1919	1920
Production	22,842	18,343	22,414
Variation of stocks	+ 539	— 759	— 314
Imports [2]	10,753	133	1,845
Exports	7,009	4,104	2,125
Consumption [3]	26,046	15,131	22,448

The Belgian imports in 1920 amounted to one-sixth of the total imports of 1913. Almost the whole of her coal came from Germany (1.4 million tons), whilst before the war 65 % only of her imports came from that country; in 1920 she received 0.36 million from Great Britain (2.3 millions in 1913). In 1920 Belgium exported 2.1 million tons, 0.9 of which went to France (4.2 millions in 1913).

16. The question of the post-war coal production is a matter of quite special importance for countries such as Germany and France.

The disturbances which have recently taken place in Upper Silesia and the uncertain political situation of that country have naturally been obstacles to the development of the coal production of this rich coalfield during 1921. It is difficult to give the exact figures of the coal production in Upper Silesia during the first months of the current year.

According to certain authorities, Upper Silesia produced 2.8 million tons in January 1921, against 3.72 million tons in January 1913; in February this production amounted to 2.3 millions; in March to 2.7 millions The total production of the first quarter of 1921 is therefore 7.8 millions, with a monthly average of 1.9 millions.

The average of 1913 was 3.6 millions.
» » » 1919 » 2.1 »
» » » 1920 » 2.6 »

At the present time Upper Silesia supplies Poland, Austria, Czecho-Slovakia Italy and Hungary.

In March last Upper Silesia exported nearly 700,000 tons (production 2.7 millions), distributed as follows:—

To Poland	305,000
» Austria	202,000
» Italy	100,000
» Czecho-Slovakia	55,000
» Hungary	26,000

In April the exports amounted to 768,000 tons (production 2.9 millions), distributed as follows:

To Poland	283,000
» Austria	286,000
» Italy	92,000
» Czecho-Slovakia	57,000
» Hungary	30,000

[1] The figures for 1919 and 1920 are approximate.
[2] Not including imports intended for use as bunker coal.
[3] The consumption for 1913, plus the increase of stock in 1913, is roughly equivalent to the amount available for consumption which we have given for 1913 in N° 8.

The position of Germany in 1919, 1920, and 1921 will be considered in outline.

In 1919, the output of Germany, including the Saar, was 116 million tons of coal, and about 94 of lignite; in 1920, without the Saar, she produced a much greater quantity: 132 millions of coal and 111 millions of lignite. The output of lignite in 1920 was a record never previously reached (87 millions in 1913).

It will be interesting to compare the coal output of Germany in 1920 within her present boundaries, with the previous output in the same area. [1]

	Millions of metric tons
1913	173.0
1914	148.1
1915	136.6
1916	148.1
1917	155.8
1918	148.1
1919	105.3
1920	132.0

The output in 1920 was much less than that in the year 1913. If we take into consideration the enormous output of lignite, which was 111 millions of tons in round figures, it may be said that the shortage in 1920 was to a great extent compensated for by lignite. Germany is very rich in lignite, and at the present moment she is making special efforts to develop her output still more.

In the first half-year of 1921 Germany produced [2]:

	Millions of metric tons
Coal	61,0
Lignite.	52,0
Coal briquettes	2.2
Lignite briquettes	10.3

These figures do not include the yield of Alsace-Lorraine, the Saar, the Palatinate and Upper Silesia.

In the first half-year of 1920 Germany produced (not including the Saar, Alsace-Lorraine, the Palatinate, but including Upper Silesia) about 62 million tons of coal and 52 of lignite; and in the first half-year of 1913, 84.7 million tons of coal and 41.9 of lignite.

As a result of the Treaty of Versailles, Germany undertook to deliver a fixed quantity of coal yearly to the various Powers. France was to receive, for ten years, from 25 to 27 million tons per year — a quantity which represented her imports of German coal before the war and the pre-war output of the ruined mines.

Belgium, Italy and Luxemburg were also to receive from Germany a certain quantity of coal yearly. The Spa Conference revised the amount of coal to be handed over by Germany. France was to receive for six months, beginning in August 1920, 1.6 million tons of coal monthly out of the 2 million tons delivered to the Allies, but during the first half-year of 1920 she received from Germany only one-third of the quantity laid down in the Treaty of Versailles. [3] During the period from August to October the deliveries were made practically in accordance with the agreement.

The mining areas of the Saar and Lorraine provided France in 1919 with about 11.4 millions, and in 1920, with 12.6 millions of tons of coal.

Of these two areas, the Saar, as we have already seen, produced 9 millions in 1919 and 9.4 in 1920.

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[1] That is to say, the output of Germany exclusive of Lorraine and the Saar, but including Upper Silesia. The figures for 1919 and 1920 are provisional.

[2] *Reichs Anzeiger*, July 26th, 1921.

[3] *Compte-rendu*, Ministère du Travail, Paris, 1921.

The output of France within her 1914 frontiers and including the Lorraine and Saar areas, was as follows [1]:

	Pre-war Frontier	Lorraine	Saar
1913.....	40.8	3.8	13.2
1919.....	19.4	2.4	9.0
1920.....	22.0	3.2	9.4

The French output for 1920 (without Lorraine and the Saar) thus shows a decline of 45 % as compared with 1913. If we add 12.6 millions produced in 1920 by these two areas, we obtain a total of 34.6 million tons produced in 1920.

The above figures thus show the importance of these two areas, which together produced more than half the French coal produced in 1920 within the pre-war frontiers. It must, however, be remarked that these two areas themselves consume a large quantity of the coal which they produce. In particular, Lorraine consumes a great deal more than she produces. In 1913 she consumed rather more than 11 million tons, and only produced 3.8 millions.

17. The import of coal into France after the war shows a remarkable decline, as the result of the falling off of English exports. At the close of the war England began to limit her export in order to keep her coal for home consumption.

In 1920 France received 13.2 million tons of English coal from the United Kingdom, whereas in 1919 she had received 15.7 and in 1915, 19.5; but it must be observed that these quantities still exceed the quantity imported in 1913 (11.4 million tons).

Belgium resumed her exports to France, which had been interrupted during the war, but in 1920 France received scarcely one-third of the amount imported in 1913. Germany also began her deliveries of coal to France, and in 1920 the latter received from Germany one-third more than in 1913 (6.1 millions).

In order to give a summary of the position in France in 1920 from the point of view of production, import and consumption of coal, we reproduce the following table,[2] which shows the sources from which France could obtain her coal supply in that year.

Millions of metric tons

Production of coal and lignite	25.2
Saar, delivery in France.	4.5
Imports from U.K.	13.2
» » Belgium.	0.9
» » U.S.A.	3.7
Delivery by Germany estimated in pit coal	11.5
Total available for consumption in France	59.0

In France the position of dependence in which the country is placed with regard to its coal supply is causing great anxiety.

Before the war — as we have seen in No. 8 — the amount available for consumption exceeded production by rather more than 15 million tons; but in 1920 the deficit reached about 30 millions, and it is expected that, as industry develops, it will probably reach 40 million tons.[3]

It must, however, be observed that during 1921 France has been affected by the economic crisis, which has restricted the consumption of coal.

This situation forced the French Government to take steps to abolish the restrictions on the freedom of trade in coal.

18. The coal question is of supreme importance for the United Kingdom, seeing that this question is very closely bound up with that of the supremacy of the British fleet. During 1919 and 1920 the United Kingdom failed to raise its

[1] *Compte rendu* Ministère du Travail, Paris 1921. The figures are provisional.

[2] Report referred to above.

[3] See the *Rapport général sur l'Industrie française*, Paris, 1919, and the Report submitted by the French delegates to the Chambre de Commerce internationale (Brochure 7, quoted).

output, not only to the 1913 level, but even to that attained during the war before 1918. It is probable that the output for 1921 will be still lower, on account of the recent miners' strike.

This state of affairs helps to explain the policy of restrictions on the international trade in English coal.

In 1920 the Government fixed the quantity of coal to be exported yearly, with a view to reserving a sufficient quantity for home consumption.

The countries which used to import English coal were seriously affected by these measures. France and Italy, which obtained their supplies largely from England, suffered the most.

In 1920 the quantity for export was fixed at 21 million tons. France was to receive 45 %, Italy 20 % and the other countries were to receive the remainder.

This allocation was based on the estimate of an output of 240 million tons in 1920, but, although the quantity produced was only 232 millions, the export rose to 24.9 millions as a result of the falling off in the estimated home consumption.

The figures for the production, export and available stocks of coal in 1919 and 1920 are given in the following table:

(In millions of metric tons and in round figures.)

	Production	Bunker Coal	Export [1]	Available Stocks
1913 . . .	292	21	75	196
1919 . . .	233	12	36	185
1920 . . .	232	14	25	193

It will thus be observed that the available stocks, although falling short of what was anticipated, very nearly attained the level of 1913. The output showed a rather marked decline, and so did the exports.

After the war the United Kingdom continued for some time its policy of control for the coal trade, on account of the difference between the home price and the export price, and also on account of the decline in output.

As a matter of fact, the foreign consumer paid a much higher price for coal than that charged on the English home market.

The average cost of the production of coal in England in 1919 and 1920 was about 27s. 7d. per ton at the pithead; the foreign consumer paid 49s., whilst the price for home consumption was 23s.[2]

In *Coal, Coke and By-Products*, edited by the Imperial Mineral Resources Bureau, we find the following passage on page 56: "The prices fixed by the Government for coal for home consumption were intended (taking the coalfields as a whole) to cover approximately the cost of production; but the collieries were allowed to obtain the best prices they could for coal exported or sold for foreign bunkers. Although the volume of export and bunker coal was severely limited by the Government, yet the prices obtained were so high as to produce a very large total profit."

It must be observed that the quality of the exported coal was probably superior to that employed for home consumption.

Later there was a tendency towards the reduction of the price of coal intended for export, due to the general crisis and the reduction of freights. This reduction allowed countries which had been dependent on England to obtain their supplies elsewhere, chiefly from the United States.

Thus, at the moment when larger supplies of coal became available, most of the foreign markets remained closed to England.

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[1] Excluding the negligible export of coke and briquettes.

[2] *Compte rendu*, du Ministère du Travail, Paris 1921 (page 385).

These circumstances, moreover, led to a change in the English policy and to the abolition of discrimination in prices.

19. We possess no accurate figures with regard to the output in Russia. According to some information, coal production in the Donetz basin (which is, so to speak, the Russian Ruhr) was lower in 1920 than in 1919, and more than six times less than that of the same basin in 1913, while the decline in the number of workers between 1913 and 1920 was 35 %.

In the Moscow area, as well as in the coalfields of the Ural and of Siberia, it would appear that the output, although lower than before the Revolution, in 1920 was greater than in 1919.

In the Moscow area, during the first half of 1920, the output was 23 % higher than in 1919, but 23 % lower than in 1916, that is to say, before the Revolution.

In the Ural basin, during the same period, the production in 1920 was about 8 % higher than in 1919, but 20 % less than in 1916.

In the Siberia basin, the production in the first half of 1920 was 28.5 % higher than in 1919, but lower than that in 1916.

The total production of the four basins in the first half of 1920 is 10 % below that of 1919, on account of the large decrease in the production of the Donetz basin, and 77.7 % below that of 1916.

We see by these data that the last three basins, which are in Russia proper, where the political situation is more stable, production was on the increase in 1920 as compared with 1919, although on the decrease as compared with the year before the Revolution.

Thus it may be said that the coal situation in Russia is connected with the stability of the political situation in the Ukraine, where the Donetz basin happens to be.

20. After the war, Europe underwent a marked political transformation owing to the creation of several independent States.

Amongst these States, Poland is especially worthy of mention from the point of view of coal, more especially having regard to Upper Silesia.

In 1913, Poland produced nearly 9 million tons of coal; she received from Upper Silesia 7 million tons of coal; from Germany 0.2 million; and from the Donetz Coalfield 1 million tons altogether, including imports from other countries, about 9 million tons. The production and import of coal therefore amounted to 18 million tons; 19.4 millions was required for consumption. The remaining 1.4 millions are represented by the production of lignite and the import of coke and briquettes.

Thus we find that almost the whole of the coal imported in 1913 came from Upper Silesia (35 % of its annual consumption).

At the present moment, Poland is producing rather more than 6 million metric tons (6.1 millions in 1919 and 6.4 millions in 1920). In 1919 she imported rather more than a million tons, and, in 1920, 3.4 millions. In 1919 she consumed 7 million tons, and, in 1920, 9.7 millions, about half of the consumption of 1913.[1]

Czecho-Slovakia received a great part of the reserve of coal of the former Austro-Hungarian Empire.

In 1913 Czecho-Slovakia produced 12.6 million tons of coal, and 24.8 millions of lignite; in 1919, 10.4 millions of coal and 17 millions of lignite; in 1920, 11 million tons of coal and 19.7 millions of lignite. Thus, in 1920, the

[1] With regard to the question of coal alone, it is clear that the definite settlement of the Upper Silesian question is vital both for Germany and for Poland.

According to the partition proposed by the League of Nations, the productive capacity of the Silesian coalfield — on the basis of the data for 1913 — would be approximately divided in the proportion of 76 % to Poland and 24 % to Germany.

See Bureau Officiel de Statistique allemande, *Wirtschaft und Statistik*, No. 10.

production of coal was 12.6 % less than in 1913, and the production of lignite was less by 20.8 % as compared with 1913.

Exact statistics for other countries, such as Jugo-Slavia and Hungary, are not forthcoming.

With regard to the new State of Austria, the coal production was about 90,000 tons in 1919, and more than 140,000 tons in 1920. During the first half of 1921 production exceeded 65,000 tons. In 1919 Austria produced nearly 2 million tons of lignite; in 1920 2.4 millions, and during the first half of 1921 about 1.2 million tons. In 1920 she imported 2.5 million tons of coal, 1.2 millions of lignite and 255,000 tons of coke. During the first quarter of 1921 she imported 1.2 million tons of coal (615,000 in 1920) and 315,000 tons of lignite (359,000 in 1920).

According to the arrangements arrived at, Austria receives a certain quantity of coal from Czecho-Slovakia, from Upper Silesia and from Poland. In spite of that, in 1919 the deliveries were only 30 %; in 1920 still less, for from January to the end of September Austria received only 26 % of her coal supplies.

21. After the war — we read in the *Report submitted by the Italian Committee to the First Congress of the International Chamber of Commerce*[1] — Italy only imported half the quantity of coal which she required for normal use. In 1919 6 million tons of coal were imported, chiefly from the United Kingdom, and only 33,140 tons as reparation from Germany. In 1920, 5 million tons were imported in all, 3 millions of which came from the United Kingdom, 1 million from the United States, 1 million from Germany as reparation, and a small quantity from other countries.

22. Outside Europe, after the war, the production and consumption of coal was highest in the United States.

In 1919, as we have seen, the United States produced 494 million metric tons, and 586 millions in 1920, as compared with 615 millions in 1918 and 517 millions in 1913. Consumption has also decreased, whilst exports, after a decrease in 1918-19, increased in the year following.

Canada formerly absorbed the greatest quantity of American export coal, but since the war, export to Canada has been on the decrease. In 1918-19, 15 % less than for the year 1917-18 and, in 1920, the decrease is 39.7 %. Export to Canada in 1920 is below even that in 1913.

We find, on the other hand, an increase in export to Europe.

The principal recipients in 1920 were:—

France	3.6	million	tons
Italy	2.4	»	»
Netherlands . .	2.1	»	»
Sweden	1.2	»	»
Switzerland . . .	0.8	»	»

Complete statistics with regard to Japan are lacking. According to official sources, the production in 1919 being 31 million tons, the import 0.7, export 2 millions, Japan consumed in 1919 about 30 million tons, double the amount of her pre-war consumption. The export in 1920 probably reached the same figure, for in the first half of that year export amounted to almost a million tons.

23. The above considerations clearly show a distinct decrease in coal-production after the war. In certain countries, apart from causes of a general nature, there are special reasons for this decrease.

The destruction of the Northern mines in France hinders this country from resuming her production promptly, while Belgium, not having had her mines destroyed, has easily been able to recover her pre-war production. We must also note the ill-considered exploitation of the mines during the war; the chief aim then was

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[1] *Chambre de Commerce internationale*, Brochure N° 7, quoted.

to extract as much coal as possible and by any means, without troubling about future consequences. But it is above all the strikes, the decrease in working hours and the decrease of individual output which contribute to the falling-off in output.

The recent strikes of the English miners brought about a marked decrease in the English production during the first half of the current year. In some of the countries, over and above the strikes, we must also take into consideration political disorders. In Westphalia, for example, in the month of August 1913, there were 390,000 workmen who produced 9.8 million tons. In August 1920, 460,000 workmen only produced 7.5 million tons.

The reduction in the individual output in certain countries should also be remarked. In France, the average daily production has decreased from 695 kg. in 1913 to 448 kg. in 1919.

In the United States, there was a certain amount of depression in 1919, but in 1920 an improvement is to be noticed.

In certain countries particularly affected by the war, the under-nourishment of the working classes may partly explain the decrease of individual output.

To all these reasons we must, of course, add reasons of a general nature, such as the crisis which has arisen in almost all branches of economic activity in the whole world and which has restricted the world's demand for coal. It is, moreover, easy to anticipate that, as soon as these causes have partly or entirely disappeared, the world's production of coal will revive — above all, thanks to the reconstruction of Central Europe and Russia, in the requirements of countries such as the United Kingdom and the United States, which developed their industries enormously during the war.

It is, however, to be feared that the recovery of production will not be as rapid as the increase in demand, a state of affairs which may eventually increase the difficulties encountered by the various countries with regard to coal supply, more especially if it is not found possible to make use of other combustibles or to exploit new coal basins in which Europe and the other continents appear to be still rich.

IV.

SUMMARY AND CONCLUSIONS

I.

Before the war three countries, namely the United States, the United Kingdom and Germany, were predominant in the production of coal. The United States had 38.5 % of the world production, the United Kingdom 21.8 %, and Germany about 20.7 %.

The United States consumed the greater part of their production. Their consumption was equal to that of Germany, the United Kingdom and Austria-Hungary put together.

II.

Before the war the United States exported barely 3 % of their production. This export cannot be compared with the much larger export of England or Germany.

III.

In Europe we are witnessing a struggle between Germany and the United Kingdom for the supply to European markets. Germany increased not only its export but also its consumption — a fact which allowed it to develop its industry to an enormous extent. The United Kingdom, in comparison with Germany, increased its consumption less rapidly, but, in spite of the extremely rapid progress of Germany, the English export was still greater than that of Germany.

IV.

Austria-Hungary, France, Russia and Belgium had a more or less considerable production, which was, however, insufficient for their home consumption. These countries also exported a certain amount of coal on account of economic advantages. The remaining European countries, whose coal production was insignificant or nil, are almost exclusively importing countries.

V.

Outside Europe, with the exception of the United States, mention should be made of Japan and the various British possessions as coal-producing countries, which exported small quantities almost exclusively to the remaining extra-European countries.

VI.

During the war the production of coal in Europe showed a marked decrease. Outside Europe it increased, especially in the United States, which became the largest coal-producers in the world.

Belgium and France showed the most marked decrease, owing to the German occupation of their territory. As regards France, we must also take into consideration the destruction of her richest Northern mines.

VII.

The course of import and export of coal in Europe was deeply modified during the war. The decrease in production and the ever-growing requirements of the war industries compelled the European States to restrict their export.

VIII.

The United Kingdom showed a decrease of more than half in export, but the export of English coal to France, stimulated by war requirements, increased by more than 40 %.

IX.

Coal prices underwent a considerable increase during the war, in spite of the system of agreed prices and those prices fixed for the sale of English coal and the restrictions and control of destination in the various neutral countries. This system is one of the most striking examples of State intervention in private industry.

X.

After the war the world's production reached its minimum in 1919, and we must go back to 1910 before we find the same figure. With the exception of the United Kingdom and Belgium, all the European countries are on the decrease as compared with 1918. The United States also show a decrease of nearly 20 % on their production in comparison with the preceding year. The main cause of this decrease is to be found in the closing down of munition factories, which consumed a large quantity of coal. The United Kingdom and Belgium show a decrease in 1919 as compared with 1913, whilst other European countries show a much greater decrease. The United States show a smaller decrease as compared with 1913.

In 1920 there was a general increase in output: in Europe, especially in Belgium, which reached its pre-war level; and outside Europe, in the United States, which surpassed its pre-war output.

XI.

As a result of the Peace Treaty, the frontiers of certain countries underwent considerable modifications. Owing to this fact Germany lost Lorraine and the Saar basins (17 million tons in 1913 and 12.6 millions in 1920), the latter being under special administration. The problem of Upper Silesia must also be borne in mind (43.4 million tons in 1913 and 31.7 millions in 1920).

In 1920, exclusive of Lorraine and the Saar, Germany produced 132 million tons of coal, as compared with 173 millions in 1913; but the production of lignite increased to 111 millions, as compared with 87 millions in 1913.

XII.

The two coalfields of Lorraine and the Saar supplied France with an amount of coal equivalent to more than one-half of that produced in 1920 within the pre-war frontiers. It must, however, be observed that these coalfields consume a considerable quantity of the coal produced and that, by reason of the great reduction in French coal production, France imports a much larger quantity of coal from America than before the war.

XIII.

The United Kingdom continued to control its export for a certain period after the war. The foreign consumer paid a higher price for English coal than the price established for consumption in United Kingdom. This policy of control has, however, been recently abolished by reason of the fall in prices and freights and the competition of American coal.

XIV.

Among the new States, we must consider chiefly Poland and Czecho-Slovakia, which have received almost the entire coal reserves of the former Austro-Hungarian Empire. In the case of the first, moreover, we have to face the question of Upper Silesia, whence, before the war, Poland imported a large quantity of coal.

We have no accurate data with regard to Russia, but it appears that in the Donetz basin, where the political situation is unstable, the production in 1920 shows a great decrease as compared with that of 1919 and 1913, whilst in the other basins the production in 1920 showed an increase as compared with 1919 and a decrease as compared with 1913.

XV.

No accurate forecast can be made with regard to coal. The industrial, political and social crises in certain countries have an unfavourable influence on the production of coal. To these must be added the destruction of the mines in the North of France, the uneconomic exploitation carried on during the war and the individual output, which shows a decrease almost everywhere.

It is, however, to be feared that the recovery of production will not be as rapid as the increase in demand, a state of affairs which may increase the difficulties encountered by the various countries in securing their coal supplies, more especially if it is not found possible to make use of other combustibles, or to exploit new coal basins in which Europe and the other continents appear still to be rich.

V. STATEMENT ON THE POSITION CONCERNING

MINERAL OIL

PREPARED BY

DOCTOR SLOUTSKI AND PROFESSOR VINCI

SUMMARY

I.

II.

III.

IV.

MINERAL OIL

I.

POSITION BEFORE THE WAR

1. For half a century oil was nothing but a simple means of lighting, and there were signs of it being driven out by gas and electricity. Although oil was an important product in commerce, there was, properly speaking, no oil question; but, since oil has been used as a combustible, the question has become of capital importance, the same footing as the question of coal, iron, etc.

The tremendous development in the use of "mazout" and other products derived from oil, was caused by the invention of the combustible engine, particularly of the "Diesel" engine. Oil derivatives are being used more and more in aviation, in motor traffic, on railways, in maritime transport and in industry. The advantages of oil over coal (reduced weight, reduced personnel and greater heating power) have forced the various countries to attempt to acquire possession of the world's richest oil-fields in order to avoid being placed in a position of inferiority to or dependence upon other countries. At the present moment the oil question is a branch of international politics; it has already provoked a number of disputes and been the subject of various international agreements.

2. Before the war the principal oil-producing countries were the following[1]:

	Production in thousands of metric tons						
	1913	1910	1900	1890	1880	1870	1860
United States . .	33,126	27,941	8,482	6,110	3,504	701	66
Russia	8,573	9,597	10,339	3,915	410	28	—
Mexico.	3,457	444	—	—	—	—	—
Roumania	1,885	1,352	227	53	16	12	1
Dutch E. Indies . .	1,542	1,523	311	—	—	—	—
Galicia	1,088	1,764	326	92	32	—	—
British India . . .	1,057	818	144	16	—	—	—
Total (comprising other countries)	51,550	44,093	20,156	10,314	4,013	774	67

[1] *Annuaire statistique de la France*, Paris, 1919. The figures for certain countries — *e.g.*, Roumania — do not exactly coincide with those drawn from official sources. From Roumanian sources it appears that that country produced 1,848 thousands of tons of crude oil in 1913, and 1,326 thousands of tons in 1910. The discrepancies are, however, of no importance.

The United States in 1913 held the first place in the production of oil. The development of that production has been extraordinary.

Russia came second; in 1900 this country was, in fact, first. In 1863 Russia produced 6,000 tons; in 1913 her production had risen to 8.6 million tons. The years 1900 and 1901 were particularly brilliant for Russia, but the production in the following years was stationary until 1905, when, as a result of the Russo-Japanese War and the revolution of 1905, it fell to a third of the 1904 yield.

The United States and Russia were the two most important oil producing countries before the war. Out of 51.½ million metric tons produced in the whole world in 1913 the United States and Russia produced more than 41.½ millions, the United States being responsible for 64.3 %, and Russia for 16.7 %, of the world output.

Before the war Mexico was next in importance after Russia as an oil-producing country, but her production (3.½ million tons) cannot be compared with that of the United States or even of Russia. Mexico only commenced to exploit her wells about 1902; at that time her production was about 1,400 tons. In 1911 her production increased almost four-fold as compared with the preceding year.

There remain only four countries, each of which in 1913 produced from 1 to 2 million tons of oil — namely, Roumania (1.9 millions), the Dutch East Indies (1.5), British India (1.1) and Austria Hungary (Galicia) (1.1).

The combined production of certain other countries — Germany, (140,000 tons), Italy (7,000 tons), Egypt (13,000 tons), Japan and Formosa (259,000 tons), Canada (30,000 tons), Trinidad (67,000 tons), the Argentine (19,000 tons), Peru (284,000), etc. — was in 1913 less than a million tons.

From the above it can be seen that the number of countries producing a more or less considerable quantity of oil is very small, which means that most countries which consume oil are importers.

3. Among the principal exporting countries before the war, the United States, Russia and Mexico — the three largest producers — exported oil over the whole world.

The United States, with their immense production, held the first place as an *exporting* country. They exported crude oil and especially refined oil (lamp and fuel) and products of distillation. In the fiscal year 1913-1914, the quantity of *crude oil* exported was 146.5 million gallons (465,000 metric tons), of which 47.8 tons were exported to Europe[1].

Three European countries received nearly the whole of the American crude oil export to Europe: France (30.2 million gallons), Spain (12.1) and Italy (5.4 millions).

But the greater part of the American crude oil export went to North America (75 million gallons), and of this Canada absorbed 70 %; then come Mexico and Cuba. South America received 21.8 million gallons, almost the whole of which was absorbed by the Argentine and Chile.

But the American export of crude oil was small compared with the export of refined oil and, above all, of *lamp oil*, which constituted the most important export.

In the fiscal year 1913-1914 the total export of lamp oil was 1,157 million gallons; of this Europe received more that 61 %, Asia 23 %, and North and South America the remainder.

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[1] The gallon is the unit employed for measuring crude and refined oil in the official statistics of the United States foreign trade, from which we have drawn the data in this paragraph. With regard to crude oil the following statement is employed to reduce gallons or barrels to metric tons: 7.5 barrels containing 42 gallons equal 1 metric ton.

As the density of the various refined products is not the same, it is difficult to reduce them to metric tons. For that reason we merely give in the text the figures in gallons for refined oil.

In Europe the following countries received the largest quantity of lamp oil:

United Kingdom . .	197	million	gallons
Netherlands	177	»	»
Germany.	79	»	»
France.	58	»	»
Belgium	56	»	»
Denmark.	53	»	»
Italy.	36	»	»
Sweden	31	»	»
Norway	24	»	»
Portugal	7	»	»

The United Kingdom and Netherlands received thus more than half of the lamp oil exported to Europe. In Asia, Japan received one-third of the American export, China rather less; British India and the Dutch East Indies and several other countries received the rest.

Fuel oil occupied second place in the list of American exports of refined oil.

In 1913-1914, 475 million gallons were exported. The exports to Europe amounted to 248 millions, and the United Kingdom received the largest quantity.

United Kingdom .	198.0	million	gallons
Austria-Hungary .	12.0	»	»
Germany.	9.6	»	»
Netherlands . . .	9.0	»	»
Belgium	6.4	»	»
France.	5.9	»	»
Italy	4.2	»	»
Total (including other countries).	248.0	»	»

Of the countries of North America, Canada received the largest share of the United States export, and Chile received practically the whole of the amount exported to South America.

The United States also exported *lubricating oil* and a few *other products of distillation*, the quantities exported, however, being comparatively small.

It will be seen from what has been stated that, among European countries, the United Kingdom is the most important purchaser of American lamp oil and combustible oil.

Finally it must be pointed out that the United States *imported* a certain quantity of oil, almost entirely crude oil. Nearly the whole of the crude oil came from Mexico (737.7 million gallons out of a total import of 773), while a certain quantity came from the British Indies and Peru. The quantity of refined oil imported was negligible.

4. The other oil-producing countries also exported a certain quantity, but the amounts — according to official statistics[1] — were small in comparison with the total United States export. Mexico exported a *large proportion* of her (crude) oil to the United States; a certain quantity was exported to South America, Canada, Cuba and Europe (United Kingdom).

Before the war, the Mexican exports amounted to nearly 20 million barrels — a quantity equivalent to 840 million gallons, or 2.7 million metric tons. The quantity of refined oil exported from Mexico was comparatively small.

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[1] In the case of Roumania we have specially consulted: *La Roumanie économique*, Bukarest, 1921, published by the Ministry for Industry and Commerce.

Russia exported, in 1913, 232 million gallons of crude oil (736,000 tons), or about a quarter of the export of Mexico. She exported also refined oil, spirit, etc., but the total quantity, which did not amount to a million tons, was insignificant in view of the export of the United States. A quarter of the Russian export went to England; France, Germany and a few other European countries also drew their supplies from Russia.

In Roumania, oil held a very important place among the products of the country. In its foreign trade, oil took the second place, the first being held by cereals.

Roumania exported in 1913 nearly a million tons. The principal countries receiving these supplies were the following:

England	232.8	thousand	metric	tons
Germany.	151.4	»	»	»
Egypt	121.6	»	»	»
Italy	118.6	»	»	»
Austria-Hungary . .	77.0	»	»	»
Turkey	64.6	»	»	»

It must be noted that these exports — estimated in metric tons — included not only crude oil, but *especially* lamp oil and distilled oil, as well as benzine, by-products and gas oil.

Austria-Hungary (Galicia), in 1913, exported 244,000 metric tons of refined oil. The largest quantity went to Germany (150,000 tons); then came France (48,000 tons) and Switzerland (22,000 tons). The export of thick and lubricating oils amounted to 154,000 tons, of which 68,000 went to Germany.

5. Turning to the chief importing countries — according to official statistics —, the United Kingdom claims first consideration[1]. In 1913 it imported nearly 487 million gallons.

The quantity thus imported falls under the following heads:

Lamp oil	157	million	gallons
Motor spirit	101	»	»
Lubricating oil	68	»	»
Gas oil.	66	»	»
Fuel oil	95	»	»

Before the war, after the development of lighting by gas and electricity, the import of lamp oil was not increasing. Three-fourths of the imports came from the United States, and the remainder from Roumania, Russia and Mexico.

The import of fuel oil showed, on the other hand, a considerable increase, which was most marked during the last few years before the war. Oil products began to be employed more and more in industry generally, and in particular for transport by sea.

In 1906, the import of fuel oil was, indeed, only 13.8 million gallons; in 1913 it was 95 millions — twice the amount in 1912 (48 millions).

The United States have always supplied the United Kingdom with the greatest quantity of fuel oil. In 1913 the United States supplied 54.7 % of the total quantity imported; the other countries were Roumania (27.3 %) and Mexico (12.6 %). From her overseas possessions the United Kingdom received in 1913 only about two million gallons.

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[1] It must be noted that the figures given for importing countries do not coincide with the corresponding figures of exporting countries on account of the well-known differences in the customs statistics of the various countries.

It will easily be understood that these differences are specially marked during the war period.

Attention should also be directed to the imports of lubricating oil, which increased during the years immediately preceding the war, and to the imports of gas oil, which also showed a marked increase. Of these two kinds of oil, the United States supplied the largest quantity.

The United Kingdom imported motor spirit (benzine) in ever-increasing quantities. The development of motoring and aviation necessitated the increasing consumption of motor spirit. In 1906, the motor spirit imported amounted to 26 million gallons (this quantity included all kinds of spirits, and not only petrol for motors); in 1913, the quantity imported was more than 100 million gallons (exclusively petrol for motors).

The United States, the Dutch possessions, and Russia were the chief countries from which the United Kingdom drew its supplies of petrol. Borneo, the Netherlands and Roumania supplied the remainder. From its overseas possessions, the United Kingdom received one-fifth of its total imports.

France imported crude oil from the United States, Roumania and Russia. In 1913, she imported nearly two million hectolitres (about 145,000 tons or 46 million gallons) of crude oil, of which more than one million came from the United States; 2.6 million hectolitres of refined oil, of which 1.8 millions came from the United States, 0.5 million from Austria-Hungary and the remainder chiefly from Roumania, Germany and Russia; 2.4 million hectolitres of petrol, of which 0.9 million came from Roumania, 0.6 million from Russia and the remainder from Austria-Hungary, the Dutch Indies and a few other countries. With regard to the by-products of petroleum it was from the United States and Russia that France drew practically the whole of her supplies.

Germany imported chiefly lamp oil. In this case also, before the war, the United States supplied her with the largest quantity. In 1913, Germany imported more than 0.7 million tons of this oil, of which more than 0.5 came from the United States; Austria-Hungary, Roumania and Russia supplied the remainder.

Germany imported, among other oil products, lubricating oil (0.2 million tons in 1913, of which 0.1 came from the United States) and benzine (159,000 tons in 1913). The last-named product was obtained chiefly from Roumania, Russia and the United States.

Italy imported the greater part of her oil from the United States. In 1913 the quantity imported rose to 115,400 metric tons; the quantity supplied by the United States was 80,400, Roumania coming next with 24,200 tons. The remainder was imported from Austria-Hungary and Russia. In the space of five years — namely, from 1909 to 1913 — Italy increased her imports of oil by nearly 23 %.

Italy also imported various mineral oils, by-products and benzine (30,600 tons in 1913), especially from the United States.

6. As already pointed out, the consumption of oil has continually increased, especially since the development of its use as fuel. As a result of the difficulties in the way of expressing the quantity of refined oil in terms of crude oil, it is not easy to determine the quantity of oil consumed in the United States. It is, however, quite certain that in 1913 the United States consumed the greater part of their enormous output and held the first place among consuming countries.

Even before the war the American railways used a very considerable quantity of oil; the remarkable development of the American railway system and the increasing use of automobiles (which has no parallel in any other country) necessitates an enormous consumption of oil and oil products.

The consumption of oil in the United States is one of the most important economic questions, and is closely connected with the question of the oil reserve in the United States. We shall see later the influence exerted by this question upon the international oil policy of that country.

With regard to Mexico a rough estimate of the consumption in this country may be obtained by subtracting the quantity of oil exported from the quantity

produced, for Mexico imported a comparatively insignificant quantity. As its exports on the eve of the war were about 2.7 million tons and its production nearly 3,5 millions, it may thus be said that Mexico consumed nearly 0.8 million tons.

Russia exported only a very small quantity of her oil. In 1913, out of a production of 8.6 million tons she exported 736,000 tons of crude oil and a small quantity of refined oil and derivatives. The remainder was therefore used for home consumption.

Roumania, which before the war produced 1.9 million tons, exported one million, but as this quantity consisted chiefly of refined oil, it must be inferred that she consumed less than 0.9 million tons.

With regard to the chief countries which produce little or no oil, such as the United Kingdom, France, Germany, Italy, etc., the yearly consumption is equal to the imports, minus the small quantities re-exported.

Thus, before the war, three countries may be said to stand out as the chief consumers of oil — the United States, Russia, and the United Kingdom, which among them consumed the greater part of the world's output.

7. Before the war the production of oil was an industry carried on mainly in America, where the richest oil wells are situated (Pennsylvania, California, Oklahoma, etc.). It was chiefly in the United States that the most important oil trust in the world — "The Standard Oil Company" — was formed and developed. Before and during the war, this company could be described without exaggeration as dominating the world's oil market. Its outstanding feature is that it is principally concerned in the refining and distribution of oil, but in the United States there are many oil-producing companies which are absolutely dependent upon the "Standard Oil Trust", for it owns the whole or the greater part of their share capital.

It is true that the "Standard Oil Trust" had a rival, especially just before the war, in the "Royal Dutch", a company of Dutch origin which absorbed the independent enterprises in the Dutch Indies; the "Shell Transport", an English company for exploiting the oil in the Dutch Indies, the Caucasus, Roumania and also the United States; the "Mexican Eagle", an English company which carried on operations in Mexico; the "Anglo-Persian Oil" and the "Burman Oil", English companies for exploiting the oilfields in Persia and Burma; the "Turkish Petroleum", for working the Musul wells, etc. But the "Standard Oil Trust" nevertheless remained the most powerful of all. As will be seen, it played a predominant part during the war, and became the chief agent for supplying the Allies.

The struggle between the "Standard Oil" and the other companies did not reach a climax till after the war, when it led to the amalgamation of the "Royal Dutch" and the "Shell Transport" and the San Remo Agreement between the United Kingdom and France.

II.

POSITION DURING THE WAR

8. During the war, oil, more particularly in its refined products, played a most important part. It was the great development of motor and aerial locomotion during the war that brought out the importance of this product, an importance which grew even after the war; and thus the "oil problem" arose.

The part played by the United States as purveyors of oil to the Allied Governments is the most noteworthy fact of this period of the war. As Russia and Roumania were not in a position to transport oil, it may be said that almost the whole amount of oil consumed by the Allies during the war came from the United States, which, moreover, kept on importing from Mexico larger quantities of oil.

9. The production of oil in the United States during the war steadily increased — this also holds good of the import. The following is a table of the production during the war [1]:—

Years	Millions of gallons	Millions of metric tons
1913	10,434.7	33.1
1914	11,162.0	35.4
1915	11,806.4	37.5
1916	12,632.2	40.1
1917	14,083.3	44.7
1918	14,949.0	47.5

The import of every kind of oil also shows an increase after the depression during 1914-15. The export increased as well, but in a comparatively small proportion.

Years	Imports	Exports
	Millions of gallons	
1913-14	791.1	2,281
1914-15	662.2	2,187
1915-16	871.4	2,443
1916-17	1,078.8	2,784
1917-18	1,403.7	2,876

These figures point to a considerable increase in consumption.

Of the various oil products imported during the war, a considerable increase is shown in the import of crude and refined oil.

The import of crude oil doubled during the war; this oil is imported, as before the war, almost exclusively from Mexico.

The import of refined products has increased twenty-three fold, from 1.9 million gallons during 1913-14 to 45 million gallons during 1917-18. Up to 1917 the import of this product was small, but from 1917 the import began to increase: 1915-16, 2 million gallons; 1916-17, 33.4 million gallons; 1917-18, 45 million gallons. Almost the whole amount of this refined oil came from Mexico.

Amongst the products exported we note a decrease in the export of lamp oil and an increase in the amount of raw oil and fuel oil. The increase in the case of raw oil is not very marked: from 146 million gallons during the year 1913-14 to 185 million gallons during the period 1917-18.

10. This increase in the export of raw oil does not affect Europe, which has very considerably reduced its imports from the United States, these having fallen from 47.8 million gallons to 1.5 million gallons. The largest decrease is shown in the export to France.

During the financial year 1913-14 America exported 30.2 million gallons of crude oil to France, which amounted to more than 62 % of the total amount of this product exported to Europe; during 1917-18 the export to France amounted to only 0.3 million gallons.

On the other hand the export of crude oil to North America is increasing heavily. It rose from 75 million gallons during the year 1913-14 to 177 million gallons during the year 1917-18. Almost the whole amount exported was sent to Canada.

The exports to Mexico fell from 15 to 3 million gallons during the war.

But while the exports of raw petroleum to Europe showed a marked decrease during the war, the export of fuel oil showed a very marked increase: between 1913-1914 and 1917-18 it increased more than three-fold, from 248 million gallons to more than 823 million gallons.

Three-quarters of this oil was destined for the United Kingdom (198 million gallons in 1913-14 and 788 million gallons in 1917-18), while the export to France

[1] *Statistical Abstract of the United States*, Washington, 1920.

showed a decrease of from 5.9 million gallons in 1913-14 to 4.7 million gallons during 1917-18.

The export of fuel oil to North America also continued to increase. The export to Canada increased almost three-fold.

As for lamp oil, the American export to Europe during the war diminished by one-half.

The most marked decrease in export was in the case of the Netherlands, Sweden and France. The exports to the Netherlands fell from 177 million gallons during 1913-14 to 0.6 million gallons during 1917-18.

11. Mexico has also increased its production of oil during the war, and to a considerable extent. The production during 1918 is more than 2½ times greater than that of 1913, the figures rising from over 1 milliard gallons, that is to say, about 3.5 million metric tons, to 2.7 milliards (about 9.5 million metric tons). During 1913 Mexico was responsible for 6.8 % of the world's production, and during 1918, 13.6%, which gives it the second place amongst the producing countries.

Mexico has also considerably increased its exports.

	Export in millions of gallons
1914	865.2
1915	1,026.6
1916	1,264.2
1917	1,932.0
1918	2,381.4

We have seen that a large proportion of Mexican oil is exported to the United States, which are thus enabled to meet the shortage in their own production, but, during the war, Mexico considerably increased its export of oil to Europe, especially to the United Kingdom, as we shall see later on.

The production of oil in Roumania during this period showed a considerable decrease, as this country was compelled to destroy a number of its oil wells during the invasion of its territory.

In 1913 its production was 1.9 million tons, and in 1918 1.2 million tons.

The most marked decrease occurred in the year 1917: 0.4 million tons.

Owing to circumstances arising out of the war there has been practically no import or export of oil from Roumania.

The position was such that in 1917 Roumania was compelled almost completely to cease production. The oil products destroyed by the Roumanian Government during the retreat amounted to 837,000 tons, of which 213,000 tons consisted of crude oil and 375,000 consisted of benzine. It has been calculated that in order to revert to the normal production of 1913, about 120 more borings will have to be made [1].

The production of crude oil in Galicia (Austria-Hungary) has considerably decreased during the war. The decrease in production during 1915 as compared with 1913 amounted to more than 32 %. The production during 1915 was the lowest. During 1916 production increased by 23 % as compared with the previous year, but 1917 again shows a decrease (0.83 million tons), which continued in 1918 (0.78 million).

During the war the import of crude oil to Austria-Hungary underwent a marked decrease, except during the year 1917. Before the war Austria used to import crude oil, especially from Roumania (in 1913 it imported more than 19,000 tons). In 1915 the import of Roumanian crude oil decreased to nearly 3,000 tons; in 1916 the import was almost nil; but in 1917, when the Roumanian territory was occupied by the Austro-German troops, the import increased to almost 21,000 tons.

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[1] See *La Roumanie économique*, already quoted.

Before the war Austria-Hungary exported a fairly large quantity of refined oil and other oil products. During the war these exports decreased considerably, especially in 1915, when there was a decrease of more than 73 % as compared with 1913, but in 1916 the exports even exceeded those of 1913. In 1917, on the other hand, a fairly considerable decrease is recorded. The exports from Austria went chiefly to Germany and countries occupied by the armies of the Central Powers, which could not obtain oil from other countries because of the blockade [1].

We have few data bearing on the oil industry in Russia during the war.

The *Geological Survey* of the United States [2] has published the figures for oil production in Russia : 9.4 million tons in 1917 and 5.5 million in 1918, as compared with 8.6 millions in 1913. It may also be taken for granted that the exports of Russian oil during the war were insignificant. It will be seen, for example, from the official statistics of the United Kingdom that in 1915 imports of Russian oil sank to a negligible quantity, and that from 1916 there were no further imports of Russian oil [3].

Generally speaking, it may be asserted on the basis of the statistics supplied by the *Geological Survey* that the quantities of oil available throughout the world increased considerably from 1913 to 1918:

World Production

	Millions of metric tons		
	1913	1917	1918
United States . . .	33.13	44.71	47.46
Mexico	3.46	8.25	9.51
Russia	8.57	9.42	5.52
Dutch Indies (*a*) . .	1.54	1.78	1.84
Roumania.	1.88	0.37	1.21
British India. . . .	1.06	1.08	1.07
Galicia	1.09	0.83 (*b*)	0.78
Peru	0.28	0.34	0.34
Japan and Formosa.	0.26	0.39	0.33
Total (including other countries) .	51.6	68.8	70.0

(*a*) Including British Borneo.
(*b*) In part estimated.

12. It would be interesting to consider, in a general way, the varying amounts of oil imported into the United Kingdom and France during the war.

The first point that strikes us with regard to the United Kingdom is the great variations in the quantities of *crude oil* imported. In 1913 imports were negligible. In 1914 there was a considerable increase; more than 15 million gallons were imported, of which more than 11 millions came from Mexico and more than 3 millions from British Possessions. In 1915 the import of crude oil amounted to 4 million gallons, only to decline to zero in 1918.

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[1] *Die Mineralölindustrie Oesterreich-Ungarns*, Vienna, 1919 (published by the Scientific Commission of the Ministry of War).

[2] Department of the Interior, United States Geological Survey, *Report on the Mineral Resources of the United States in* 1919, Washington, 1920. (See also the *Reports* of previous years.)

[3] According to *Petroleum*, published by the Imperial Institute in 1921, the production of petroleum in Russia during the war was as follows:

	(*in metric tons*)
1914	9,574,360
1915	9,792,580
1916	10,400,160
1917	8,362,903
1918	3,143,960

We observe a marked decrease at the outset in the import of *lamp oil*; but in 1918, as a result of the increase in imports, the decline amounts to only about 6 % (157 million gallons in 1913 and 148 million gallons in 1918).

The import of *lubricating oil*, on the other hand, considerably increased from 68 million gallons in 1913 to more than 102 million gallons. This increase is to be explained by the activity of the metallurgic industries during the war, and especially by the considerable consumption of oil in connection with aerial and motor traffic.

The import of *fuel oil*, however, shows the greatest increase. The import of this product, which amounted to 95 million gallons in 1913, had increased to more than 842 millions by 1918. This indicates the part played by this product during the war. Immediately after the war, as we shall see, the import of this product fell very considerably, although it was still greater than before the war.

Besides importing three-quarters of its oil supplies from the United States the United Kingdom drew a portion of its supplies also from Mexico, — a very small proportion, it is true, in comparison with the imports from the United States. British Possessions also provided a certain amount of fuel oil.

The import of *motor spirit*, which was of great importance during the war, nearly doubled, increasing from 101 million gallons in 1913 to nearly 193 million gallons in 1918. The United Kingdom imported this product not only from the United States, but also from Dutch Borneo, from certain Dutch Possessions, from Mexico, and also a considerable portion from British Possessions. The United States import of this product only represented 54 % in 1917.

13. During the war the oil question attracted a good deal of attention in France. Its importance was all the greater because France's production of coal had decreased considerably owing to the occupation of the mines in the northern districts by a foreign army[1].

The country's oil requirements for 1917 were estimated at 50.000 tons per month, 30,000 of which were required for the army, while the import of oil amounted to only 30,000 tons per month. This deficit was due to the difficulty of sea transport and also to the comparatively small number of tank steamers at the disposal of France.

The oil question was thus always a rather serious one, especially in France, and great efforts were made to deal with it. "It may be assumed", as we read in the report presented to the President of the Council in 1917, "that the problem of supplies will not arise, and that France will be able, without difficulty, to place in the various producing countries, the contracts necessary to assure the aforementioned monthly quantities."

Indeed the statistics of oil production, which were considered in the previous section, afford clear proof of the enormous quantities of oil available throughout the world during the war.

As France produces practically no oil, she consumed what she imported. During the first two years of the war, the import and, therefore, the consumption decreased, but it rose again in 1917-18, to exceed the pre-war consumption.

As regards motor spirit, however, we already note an increase during the second half of 1914, when the import amounted to 276,000 tons of spirit as against 200,000 tons for the first half-year. The total consumption for 1914, therefore, amounted to 476,000 tons; in 1915 the consumption was 475,000 tons; in 1916, 640,000; in 1917, 610,000, and in 1918 about 1 million tons. The greater proportion of the spirit went to the army.

The improvement in the oil imports to France in the last two years of the war was due either to the agreements entered into with the United States as to the use of tank-steamers, and consequently the number of tons to be imported (this amounted

[1] J. Bèranger, *Le Pétrole et la France*, Paris, 1920.

to a million tons in 1918), or to the special measures taken by the French Government with regard to the foreign trade in oil.

On July 13th, 1917, the "General Oil Committee" was formed in France to examine, co-ordinate and control the means of satisfying the needs of the general public and the State services. This Committee organised both the consumption of oil and its direct purchase.

The French Government, therefore, bought directly and on its own account oils and spirits, more particularly from the "Standard Oil" and the "Royal Dutch" Companies.

On August 21st, 1918, a "General Commissariat of Spirits and Fuels" was formed, at the head of which Senator Henri Béranger was placed. The duty of this Commission was to supervise the supply and distribution of spirits, heavy oils, etc.

The Commissariat was attached to the Ministry of Agriculture and Food. It exercised a general control over all dealings in and treatment of oil. Purchases were always made on behalf of the Government, which resold to an Oil Trust, financially responsible to the Government.

In other countries the restriction and organisation — although less important — of the import sale and consumption of oil are also to be observed.

III.

POSITION DURING THE WAR

14. The oil problem has since the war assumed considerable proportions and an international character.

At present oil is of interest to the entire world, especially the residue arising from the distillation of crude oil (mazout). Its use in the Navy is already notable, and is increasing daily.

Quite recently, France has built a large ship, *Paris*, driven exclusively by mazout, which apparently possesses a double advantage: increased radius of action and considerable reduction of crew. Thus the steamer *Paris* will ship 6,250 tons of oil to carry her 8,000 nautical miles, while 5,375 tons of coal — the maximum which she could ship — would carry her 5,000 nautical miles. Moreover, the use of oil enables her to accommodate 280 passengers, and further to make a return voyage from France to America without taking in fresh supplies. As regards the crew, instead of 260 men the *Paris* only requires 140.

Moreover, in the United States the use of oil on the railways is continually on the increase, and it appears that mazout also offers great advantages for the metal industry. The peace-time development of motoring and aviation has also given benzine a very high importance.

15. The main characteristic of international politics with regard to oil since the end of the war is the rivalry between two powerful groups: the American group and the European group, or, one may say, the rivalry between the United States and the United Kingdom.

For the latter the oil question is intimately connected with supremacy on the seas. When ships were driven by coal, the United Kingdom, which possesses extremely rich coal-mines, controlled one of the vital elements of naval supremacy.

But as soon as coal began to be replaced by mazout as the fuel for ships, the situation was completely, changed, as the United Kingdom possessed no oil-wells.

It must also be observed that the United Kingdom at first held the most important place for the transportation of this fuel; but the United States soon began to concern themselves with the construction of tank ships. The world tonnage of tank ships on June 30th, 1919, was estimated at about 2,600,000 tons, of which nearly 1,500,000 tons were under the English flag and 1,000,000 on the American

register. On June 30th, 1920, the world tonnage amounted to about 3,400,000 tons, 51 % of which belonged to the United States.

In the first place, then, the United Kingdom was faced with the question of the control of oil, both as regards its production and transportation.

Thus the oil policy of this country was directed — even before the war — towards the formation of powerful companies for the control of the production of oil wherever this was still possible; but in 1919 the "Shell Transport" combined with the "Royal Dutch" to form the "Royal Dutch Shell". The latter in time secured control of the "Mexican Eagle", and, with the "Anglo-Persian Oil", the "Burman Oil" and other companies of less importance, it succeeded in controlling — outside the sphere of the "Standard Oil" — important supplies in Roumania, the Dutch and British Indies, Russia, Egypt, Persia, Mesopotamia, Burma, Venezuela, Mexico and also the United States.

16. France for a time took no part in these transactions, but since French capital was also involved in various oil enterprises, and as she owned oil-fields in her African and Asiatic colonies, and, moreover, was to share with the United Kingdom the German and Turkish oil interests, it was clear that she could not long remain uninterested in the movement. The United Kingdom secured the collaboration of France. By the Convention of San Remo, signed between these two countries on April 24th, 1920, the United Kingdom and France came to an agreement to follow a policy of co-operation in all countries, "where the oil interests of the two nations may be combined to practical advantage."

According to a *White Book* published in July 1920, this agreement binds the two Governments to assist their nationals in dealings with the Roumanian Government for the purchase of oil concessions, shares, or other interests. All shares and concessions, which were formerly enemy property, will be equally divided between English and French interests.

As regards the territories of the former Russian Empire, arrangements are made for joint action in the case of new concessions and the export and supply of oil.

With respect to Mesopotamia the English Government undertakes to hand over to the French Government 25 % of the net output of crude oil produced in that country at market prices. If the wells are exploited by private companies the French Government will receive 25 % of the shares of these companies, but in that case the local Government must be allowed to participate.

The agreement also imposes on the English Government an obligation to grant to France facilities for obtaining oil supplies from the "Anglo-Persian Oil Company" by means of the construction of special railways, pipe-lines, etc., and to afford French subjects in English possessions the same advantages as are accorded by France to English subjects in her colonies.

Finally, France is to afford facilities to Anglo-French companies to exploit oil-fields in French colonies or protectorates, including Algeria, Tunis and Morocco.

17. As against this European group, there is then the American group universally known under the name of the "Standard Oil Co.".

The oil question has assumed a special aspect for the United States since the war ended. For a long time that country felt no anxiety in this field; production increased and was always about 70 % of the production of the entire world. But it soon became clear — and especially so during the period of industrial prosperity in 1919 — that the stock was decreasing. The considerable consumption of the United States was exhausting the reservoirs, which the production was not sufficient to replenish.

There were only two means with which to meet the danger: restriction of consumption, which was impossible in view of the progress of industry, or the obtaining of concessions abroad. For the latter purpose an important corporation, — the "Sinclair Oil", — was formed in the United States.

But the American representatives who were sent out to buy oil concessions in various parts of the world collided at once with the European group, which put into force — to employ the American expression — the policy of the "closed door"[1].

Under these circumstances the American Government created in American territory "reserves" where oil could not be exploited without permission.

Moreover the *Geological Survey* published amazing figures regarding the oil reserves of the United States and the danger of the exhaustion of these resources in the near future. It appeared that foreign countries were consuming 200 million barrels per year, and that their reserves would last for 250 years, while the United States consumed 400 million, and their supplies would last only for 18 years. Finally, in May 1920, President Wilson, in reply to a request on the part of the American Senate, sent a note containing a statement of the restrictions imposed upon the purchase by foreigners of oil concessions in various countries.

An official exchange of correspondence took place on this subject between the Governments of the United States and the United Kingdom. The former asked for the adoption of the policy of free exploitation of oil resources, especially in Mesopotamia, regardless of the question of nationality.

The British Government replied that its policy was in no way intended to prevent American nationals taking part in the development of the world's oil supplies. To refute the American allegations the Foreign Office sent the United States a Memorandum drawn up by the Petroleum Department, which reviewed the existing systems for the exploitation of oil-wells in the British Empire and sought to prove that there was no general policy aiming at the exclusion of foreigners.

18. The Anglo-American question, especially as regards concessions in Mesopotamia, deserves somewhat fuller treatment in view of the fact that it is connected with the Mandate exercised by the United Kingdom over Mesopotamia.

Before the war, two countries had secured an important share in the Mesopotamian oil concessions : Germany and the United Kingdom.

An agreement between German and English concessionaires led to the formation of the "Turkish Petroleum Co."; but by the Convention of San Remo, France took the place of Germany, though this company — and according to Article 7 of the Convention of San Remo all Anglo-French concessionary companies — remained under the permanent control of the British Government.

The United States regarded certain measures taken by the British Government in Mesopotamia as indicative of a restrictive policy and maintained that, in mandated territories, the rights of foreigners should be equal to those of the nationals of the State exercising the mandate.

In addition to this dispute we must also mention the disputes between the United States and the Netherlands in connection with Djambi oil (Sumatra). The Netherlands intended to grant oil concessions in Djambi. The United States claimed equality of treatment, and the Netherlands granted this equality, but made the condition that reciprocity of treatment in the United States should be given to Dutch firms.

Finally, we must note that Japan, who consumes twice as much oil as she produces, and who is almost completely dependent upon the "Standard Oil Co.", also made proposals to obtain concessions to exploit oil in Djambi.

19. We will now deal with the statistical side of the question, examining the production of, and foreign trade in, oil since the war in certain countries for which we possess sufficient data.

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[1] *Bulletin of American Petroleum Institute*, December 10th, 1920.

World Production[1].

	Thousands of metric tons				
	1913	1917	1918	1919	1920
United States	33.1	44.7	47.5	54.8	64.4
Mexico	3.5	8.3	9.5	12.6	23.2
Russia	8.6	9.4	5.5	3.7	3.5
Dutch Indies	1.5	1.8	1.8	2.2	2.3
British India	1.1	1.1	1.1	1.1	1.0
Roumania	1.9	0.4	1.2	0.9	1.0
Galicia	1.1	0.8	0.8	0.8	0.8
Peru	0.3	0.3	0.3	0.4	0.4
Japan	0.3	0.4	0.3	0.3	0.3
Total (including other countries)	51.6	68.8	70.0	79.4	97.2

The figures for 1919 and 1920 are to be regarded as only approximate, especially in view of the uncertainty existing as to the Russian production. A considerable increase in the world production is noticeable, due especially to the increase of the production in Mexico and in America.

Comparing the production of 1913 with that of 1919, we note an increase of 27.8 million tons. In 1920 the increase was far greater: 45.6.

20. As usual, the United States hold the first place. In 1919 their production amounted to more than 69 % of that of the world. In 1920, in spite of a larger output, it fell to 66 % on account of the great increase of Mexican production.

The export of oil from the United States is increasing, compared with pre-war export. This is largely due to the scarcity of coal in Europe.

In 1919 the export was 2.5 milliard gallons as against 2.2 milliard in 1913-14. In 1920 the export amounted to more than three milliards. Both before and during the war it was principally refined oil which was exported. Out of a total export of 2.5 million gallons in 1919, crude oil amounted to only one tenth. In 1920 the proportion was almost the same.

Compared to 1917-18, the last year of the war, the export for 1919 shows a slight decrease, but in 1920 it had already become greater than that of 1917-18.

It would be interesting to compare the export of the principal oil products in the financial years 1918 and 1919, in order to observe the effect of the cessation of hostilities upon American exports to Europe, and on the total export.

Exports

Fuel Oil

	Millions of gallons	
Country of destination	1918	1919
United Kingdom	787.9	446.9
Canada	288.4	254.8
Chile	30.8	35.8
Panama	27.9	25.6
Mexico	20.4	23.1
Peru	30.8	35.8
Italy	26.5	31.3
France	4.7	3.9
Total (including other countries)	1,223	898

[1] For 1919 and 1920 see: Imperial Mineral Resources Bureau, *The Mineral Industry of the British Empire and Foreign Countries*, London, 1921.

Lamp Oil

Country of destination.	Millions of gallons 1918	1919
United Kingdom	178	177
France	82	84
Italy	39	10
China.	40	92
Brazil.	22	22
Canada	12	3
Total (including other countries)	528	717

Lubricating Oil

United Kingdom	106	93
France	65	44
Italy	20	18
Total (including other countries)	270	273

Gasoline

United Kingdom	79	115
France	67	74
Italy	36	43
Total (including other countries).	260	323

This table shows a decrease in the export of oil fuel immediately after the cessation of hostilities. The most considerable decrease, as can be seen, is in the case of the United Kingdom. The export of lamp oil shows an increase, thanks especially to the increase of the export to China. In Europe export remains almost stationary, except for a considerable decrease in the case of Italy.

A slight rise in the total exports of lubricating oil will also be observed in spite of the falling off in exports to Allied countries, and a striking increase in the export of gasoline, especially to the United Kingdom.

But it must be noted that in 1920 the American export shows generally a considerable increase, especially in that of motor spirit.

21. In spite of the development of the production of American oil, the consumption and exports of this country are such that it is obliged to import more and more Mexican oil. Therefore the importance of Mexico to the United States is obvious.

American oil importation increases progressively: more than 50 million barrels were imported in 1919, and more than 100 million in 1920.

It also became necessary to encroach upon stocks.

22. After the United States, Mexico now holds the second place among oil producers, thus replacing Russia, where the production shows a considerable decrease. Mexico, a country extremely rich in petrol, makes astonishing progress. In 1913 she was only producing 3.5 million tons. This production, compared with that of other countries, was relatively high, but, compared with the production of America or even of Russia, it appeared negligible. In 1919 the production increased to 12.6 million tons. In 1920, however, it made a considerable step forward, rising from 12.6 to 23.2 million tons. This amount is no longer so insignificant compared with that of the Un ted States, as it represents 36 % of the production of that country.

The United States and the United Kingdom control Mexican production. A still greater development of Mexican production may be expected in the near future. Undoubtedly this country might have been able very largely to increase her production were it not that her defective means of transport retard her progress.

Mexico herself consumes only a small amount of oil, and in consequence exports almost the whole of her production. In 1919 Mexico exported nearly 2.4 milliard gallons to the United States — that is to say, more than 70 % of the total export; it exported more than 258 millions to South America, 126 millions to England, 105 millions to Canada and about the same quantity to Cuba.

Exact data regarding the production of oil in Russia are not forthcoming. The figures given in Section 19 may, however, be considered as approximately correct — that is to say, 3.7 million tons for the year 1919, and 3.5 millions for the year 1920. Of this quantity, Baku produced more than 3 millions in 1919, and more than 2.8 millions in 1920[1].

The Roumanian production, after a fairly pronounced fall in 1919, increased in 1920 and rose from 0.9 million tons to about one million, but the output still falls below that of the pre-war period.

Before the war Roumanian export amounted to nearly one million tons, but in 1919 it was much reduced, amounting only to about 44,000 tons for all kinds of oil, of which more than 11,000 tons went to Czecho-Slovakia, about 10,000 to Bulgaria, and 8,500 to Turkey.

In 1920 Roumania exported nearly 230,000 tons, of which 58,000 went to Austria, 50,000 to Italy, 50,000 to Egypt, 30,000 to Czecho-Slovakia, 11,000 to the Serb-Croat-Slovene State, 15,000 to Hungary, and 6,700 to Turkey. But in the first quarter of the year 1921, Roumanian export greatly decreased.

Galicia is now a part of the Republic of Poland. In 1919, its production amounted to 831,000 tons, and in 1920 to 765,000, thus falling short of the pre-war figures.

23. During the war, and up to 1919, the price of oil was considerably increased. Later there was a marked fall in prices, which was attributed in part to the fall in the cost of carriage. The question of the transport of oil has always been intimately connected with the price of oil. The tonnage of the tank steamers was not large enough, but, as we have seen, this tonnage is increasing more and more — a fact which lowers the price of transport and consequently that of oil.

The decrease was especially great in the last two months of the first half of 1921. From $ 3.25 per barrel on May 19th, the price in the United States for "Pennsylvania" dropped to $ 2.25 in the last days of June. In December 1920 the price was $ 6.10.

Another reason assigned for the fall in the price of American oil is the dearness of the dollar. Importing countries have been obliged to break into their stocks while waiting for the fall in the dollar or in the price of oil, but, generally speaking, the fall in the price of oil was to a great extent influenced by the economic crisis which overtook the entire world in 1920, and is the cause of a decrease in the consumption of this product for industrial purposes. On the other hand, the fall in the price has probably contributed to lower production in 1921[2].

24. In view of the decrease in the world production of coal and the advantages of using oil, the possibility of the substitution of oil for coal is one of the questions of interest at the present time to the economic world.

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[1] See *The Petroleum Times*, July 17th, 1920, and July 16th, 1921, and *Petroleum* published by the Imperial Institute, London, 1921.

[2] See International Chamber of Commerce, First Congress, London, 1921: *Raw Materials*, Pamphlet No. 7, Paris.

World Production

(Millions of metric tons)

Year	Coal	Percentage	Oil	Percentage
1913	1,341	100.0	51.6	100.0
1919	1,158	86.3	79.4	153.8
1920	1,300	96.9	97.2	188.3

But the table given above clearly shows that, although oil production has undergone very rapid development during the last two years after the war as compared to 1913, the quantity at present available only reaches 1/14 of the coal production. The comparison is striking, even taking into consideration that the calorific power of coal is lower than (about one-third) that of oil.

On the other hand it must be noted that the coal-fields of the world known up to the present are very much richer than the reserves of oil. The recent discovery of oil-wells in the basin of the Mackenzie River in Northern Canada, as well as in the Argentine, in Venezuela, etc., the development of the exploitation of the sources already existing in Mesopotamia, Persia and elsewhere, will no doubt still further increase the world production of oil. But if we consider that the new sources we have mentioned involve a greater or less degree of uncertainty, and if, moreover, we take into account the enormous coal-fields which could be exploited in Upper Silesia, in China and in Canada, etc., it can only be inferred, on the basis of our present knowledge, that it is quite possible that oil will take the place of coal for uses where it offers superior advantages, but on account of inadequate supplies it appears scarcely likely at present to supersede coal.

Moreover, as far as is known at present, an increase in the output of shale oil — the cost of production of which is *very high* as compared with that of petroleum — cannot appreciably modify the problem.

The British Empire, especially in Australia and Canada, owns the greatest quantity of shale oil in the world. In Europe, after England, France and Germany, mention must also be made of Esthonia in particular, and also of Sweden, Italy, Spain and Russia[1]. It would appear that the United States are also endowed with rich reserves of shale oil. But it must be pointed out that this oil — as was the case with lignite — was used mainly during the war for special reasons.

In consequence of the blockade its production in Germany developed greatly during the war. This national production is still continuing, as Germany, on account of the depreciation of the mark, is not in a position to buy extensively in foreign markets.

In Sweden and the United States important investigations are now being made with the object of improving the methods of distillation and rendering the use of this oil economically possible in normal circumstances[2]. So far, however, small progress has been made in solving the economic problem.

IV.

SUMMARY AND CONCLUSIONS.

I.

The question of oil is a very important one. From being a simple means of illumination it has now, owing to the utilisation of mazout and other derivatives, become an essential product for industry and, above all, for transport.

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[1] *Kommerjielle Meddelanden*, Stockholm, May 25th, 1921.

[2] In an article by J. O. Lewis in the *Engineering and Mining Journal*, September 25th, 1920.

II.

Amongst the various oil-producing countries, the United States, which in 1913 was responsible for 64 % of the world's production, held an entirely exceptional place. The second place was held by Russia, who, however, only produced about 17 % of the world's supply, while only nearly 7 % was produced by Mexico, the third large oil-producing country.

III.

The United States was the most important exporter of oil. They exported principally refined oil, and, in particular, lamp oil. In 1913-14, 61 % of this oil was exported to Europe, and the United Kingdom and the Netherlands received more than half of the lamp oil exported. Fuel oil only held the second place in the American export, and 80 % of this went to the United Kingdom.

IV.

Mexico exported her oil — almost exclusively crude oil — only to the United States and to a few other countries of the American Continent. Her export to Europe was comparatively small and was largely to the United Kingdom.

Russia exported but little and chiefly raw oil; but the export from Roumania and Austria consisted chiefly of refined oil.

V.

In the last years preceding the war, the importation of fuel oil, especially to the United Kingdom, constantly increased. We may also note the considerable increase in the importation of motor spirit.

Generally speaking, European countries imported most of their oil from the United States, and a certain amount from Roumania, Russia and Austria-Hungary. It should be noted that these countries always imported a greater quantity of refined than of crude oil.

VI.

The United States were one of the greatest consumers of oil in the world. Before the war the United States consumed the greatest part of their enormous output, and held first place among consuming countries. Mexico, whose industries were not developed, consumed but little oil; Russia, on the other hand, consumed most of her oil. Roumania consumed less than half of her production. The non-producing countries consumed about as much as they imported. Before the war, three countries consumed the largest quantities of oil: the United States, Russia and the United Kingdom.

VII.

Before the war Europe was supplied with oil by the American "Standard Oil Company", the "Royal Dutch" and other companies of less importance. The "Standard Oil" was the most powerful, and held the leading place in the world's output of oil. This advantageous position enabled it to compete without difficulty the struggle with its rivals and to exercise a great influence on the price of oil.

VIII.

During the war oil played an extremely important part. The most characteristic feature of this period is the part played by the United States as the chief purveyor of oil to the Allies. For this reason the production of oil in the United States increased considerably. The importation of oil into the United States also increased and was, as before the war, almost exclusively from Mexico.

The exportation of crude and lamp oil to Europe was very greatly reduced during the war; on the other hand, the exportation of fuel oil increased three-fold. Three ourths of this oil was sent to the United Kingdom.

IX.

Mexico also increased her production as well as her export.

Owing to the course of events in the war, the export from Roumania was in general greatly reduced. Note should also be taken of the destruction of the oil wells which was ordered by the Roumanian Government at the time of the retreat. Austrian oil during the war was exported chiefly to Germany.

On the whole, the supplies of oil available throughout the entire world largely increased.

X.

In view of the importance assumed by oil during the war, certain countries instituted a policy of restriction as regards the trade in oil. In France particularly, owing to the decrease in the production of coal, the oil question was of foremost importance. France concluded certain conventions with the United States by which the latter placed at her disposal the necessary tonnage for the transport of oil, and bound themselves to supply France with a specified quantity of oil. The purchase of oil was effected directly by the State; in 1917 the French Government established an Oil Board, and in 1918 a General Commissariat of Spirits and Fuels, which together controlled the trade in oil.

In other countries restrictions and organisations, though less important, were also evident.

XI.

The importance of oil in industry went on increasing after the war. Another oil product — benzine — has also become extremely important owing to the enormous development of automobile traffic and aviation.

XII.

As regards the United Kingdom, the question of oil is of special importance, and is bound up with the question of supremacy on the seas. Even before the war the oil policy of the United Kingdom was directed towards the formation of powerful companies for exploiting new oil-fields; in 1919, the "Royal Dutch" combined with an English company, and, with the aid of other English companies, control was secured — outside the sphere of the "Standard Oil" — of important sources of oil supply in all parts of the world. By an agreement signed at San Remo on April 24th, 1920, the United Kingdom secured the co-operation of France.

XIII.

The struggle between the European and American groups has become very acute, and has even given rise to certain disputes.

The United States, faced with the imminent exhaustion of supplies, had endeavoured to obtain concessions in various countries, but their representatives came into collision with the concessions obtained by the European group.

The United States claimed that the policy of the "open door" should be adopted in the mandated countries, particularly in Mesopotamia, where certain measures taken by the English Government seemed to the United States to furnish proof of a restrictive policy.

XIV.

The world production of oil increased after the war. The United States still hold, as they have always held, the first place. The export of American oil to Europe is increasing, particularly as regards motor spirit and fuel oil. This increase is largely due to the deficit in coal.

XV.

The United States continued to increase their consumption. In order to cover the deficit in production they imported ever-increasing quantities of Mexican oil;

moreover, it was necessary to encroach on stocks. Mexico enormously increased her production after the War, and for this reason she has become a country of very considerable importance to the United States.

XVI.

In Europe a large decrease must be noted in the production of oil in Russia, and also an increase in Roumanian production and exports, which, however, still fall short of the pre-war production and exports.

Production in Galicia still stands at the war level, *i.e.*, it is below the pre-war output.

XVII.

During the war and down to 1919 the price of oil kept on rising. Finally a fall occurred which is attributed to the abundance of transport, to the depreciation of the currency in the devastated countries of Europe, and also, in a general way, to the economic crisis which began to reduce the amount of this product consumed in industry.

XVIII.

The diminution in the world production of coal and the economic advantages offered by the use of oil have raised the question of the possibility of substituting oil for coal. But the world production of oil only amounts to one-fourteenth of the production of coal. This is a striking comparison, even if we take into consideration that the calorific power of coal is one-third lower than that of oil.

Moreover, the world reserves of coal seem to be much greater than those of oil. Again, if we consider the possibility of developing coal production in Upper Silesia, China, Canada, etc., we may well doubt whether the inadequate supplies of oil that are available can really dethrone coal, even if we take into account the discovery of new oil-fields and the development of the production of shale oil.

VI. STATEMENT OF THE POSITION CONCERNING THE IRON INDUSTRY

(IRON ORE, CAST IRON, STEEL)

PREPARED BY

DOCTOR SLOUTSKI AND PROFESSOR VINCI.

SUMMARY

I.

II.

III.

IV.

Iron Ore, Cast Iron and Steel

I.

POSITION BEFORE THE WAR

1. The iron question is intimately connected with that of coal and iron ore. In every country the production of cast iron, iron and steel, is dependent upon its supplies of coal and iron ore.

This dependence holds good not only as regards the quantity, but also as regards prices. The higher the price of coal and iron, the higher the cost of the manufacture of iron — other things being equal. It is, therefore, not surprising to find, as the tables below demonstrate, that the first places among iron-producing countries are held by the United States, Germany and the United Kingdom, the countries which are richest in coal and iron ore.

WORLD'S PRODUCTION IN 1913[1]

(Thousands of metric tons)

	Iron Ore	Coal		Lignite
United States	62,972	517,000		
Germany	35,941[2]	190,100		87,200
France	21,918		40,800	
United Kingdom . . .	16,253	292,100		?
Spain	9,862[3]		43,00	
Russia	9,514	33,800		?
Sweden	7,476	400		?
Austria	3,039	16,500		27,400
Hungary	2,059	1,100		8,800
Italy	603[4]		700	
Norway	544	?		?
Belgium	150	22,800		?
Algeria	1,349	?		?
Tunis	597	?		?
Canada	136	13,600		?
Japan	172	21,400		?
Approximate totals for the whole world . .	175,000	1,342,000 (125,000 of which are lignite)		

[1] *Annuaire statistique de la France*, Paris, 1919; and UNITED STATES GEOLOGICAL SURVEY: *Report on the Mineral Resources of the United States in* 1919, Washington, 1920.

[2] Including 7.3 million tons of iron ore, produced in Luxemburg.

[3] Not including iron ore containing silver.

[4] Not including iron ore containing manganese.

	Cast Iron		Crude Steel
United States	31,462	United States	31,802
Germany	19,309[1]	Germany	18,935[2]
United Kingdom . . .	10,424	United Kingdom . .	7,786
France	5,207	France	4,687
Russia	4,635	Russia	4,868
Belgium	2,485	Belgium	2,467
Austria	1,758	Austria	1,840
Hungary	623	Canada	1,060
Canada	1,024	Italy	933
Sweden	736	Hungary	809
Italy	427	Sweden	591
Spain	425	Japan	255
Japan	240		
World's total . . (approximate)	79,000	World's total . . (approximate)	76,000

Moreover, it must be remembered that France, possessing as she did rich deposits of iron ore, was able to develop her iron industry, thanks to her ability to obtain supplies of coal in the neighbouring countries; while Belgium, who possessed a considerable amount of coal, also developed her iron industry, since she was similarly able to obtain iron ore in the neighbouring countries, etc.

It is not possible to draw up exact statistics for the production of iron and steel, as these two products are distinguished principally according to the amount of carbon which they contain—the quantity varying according to the methods employed in different countries.

The most trustworthy statistics are those which deal only with crude steel; and it is to this product that we confine our attention.

2. The world production of iron ore has increased more than five-fold since 1870, that of cast iron six-fold during the same period, while the production of steel increased in a lesser degree.

In 1870 the United Kingdom held the first place for the production of iron ore. This production was more than 50 % of the world's production, about five times greater than that of the United States, and about four times that of Germany.

In 1913, the position was reversed. The United States had enormously increased its production of iron ore. In the same period the United Kingdom had not developed her production at all, and it was, in fact, even a little below that of 1871. As regards Germany, her production in 1913 was about eight times greater than that of 1871[3]; and it must be noted that the Lorraine production accounted for 21.1 million tons out of the 35.9 millions produced in Germany, including Luxemburg. As regards France, the chief centre for the production of ore in 1913 was in the department of Meurthe-et-Moselle (92 % of the whole).

[1] Including 2.5 million tons of cast iron produced in Luxemburg.
[2] Including 1.3 million tons of crude steel produced in Luxemburg.
[3] *Annuaire statistique de la France*, Paris, 1919.

1871 (Thousands of metric tons).		1913 (Thousands of metric tons)	
United Kingdom . . .	16,597	United States	62,972
Germany with Luxemburg. . . .	4,368	Germany with Luxemburg . . .	35,941
United States	3,440	France	21,918
France	2,110	United Kingdom . .	16,253
Austria-Hungary . . .	1,093	Spain	9,862
Russia	791	Russia	9,514
Sweden	663	Sweden	7,476
Spain	586	Austria-Hungary . .	5,098
Algeria	172	Algeria	1,349
Italy	86	Italy	603
Approximate total for whole world	31,000	Approximate total for whole world . . .	175,000

As regards the production of cast iron and steel, we notice almost the same phenomenon in every case; in 1870 the United Kingdom holds the first place and the United States the second. In 1913, however, the United States produced three times more than the United Kingdom. The latter country increased the production of cast iron by more than 51 % between 1871 and 1913, while the United States increased its production thirty-fold.

Between 1880 and 1913 Germany (including Luxemburg) increased her production of cast iron more than nine-fold and her production of steel to as till greater extent. France and Russia also considerably increased their production.

3. At the outbreak of war, the United States held the first place among countries engaged in the iron industry, and similarly the first place in the production of coal. It is well known that the United States consumes the greater part of its coal; its export of this fuel was therefore inconsiderable. We notice the same phenomenon in regard to iron ore, the United States exporting — as is shown by official statistics — a relatively small amount compared with its production of this raw material.

We notice, in fact, that in 1913 the export of iron ore from the United States was only about one million tons, a very small quantity compared to the immense production of this country.

America exported principally to Canada. The export to Europe was very small ; this was probably also due to the reason underlying the insignificance of the pre-war export of American coal, *i.e.*, the high cost of transport. The United States also imported a certain amount of iron ore — 0.8 million tons — the greater part of which came from Cuba. Sweden supplied the United States with the iron ore it obtained from European countries, but the quantity was very small.

On the other hand, the export of cast iron from the United States, in 1913, amounted to about 290,000 tons, against 155,000 tons imported. The export trade in iron and steel was equally insignificant in comparison with production.

Before the war, the United Kingdom held third place as regards the production of cast iron and steel, and fourth as regards that of iron ore.

The United Kingdom exported only a very small part of the iron ore which she produced. In 1913, the amount of this product exported was a little over 5,000 tons out of a total production of 16 millions in the same year. 40 % of the exports went to France, 20 % to Japan.

The export of cast iron was greater though still small compared to production — a little over one million tons out of a total production of rather more than 10 million tons. Among the European countries which imported English cast iron are to be noted: France 158,000 tons, Germany 130,000, Italy 110,000, Sweden 95,000, etc. The United Kingdom also exported nearly 125,000 tons to the United States of America.

As regards raw steel, out of 7.8 million tons produced in 1913, the United Kingdom only exported 368 metric tons of steel in bars, and 1,135 metric tons of rolled steel; the export, however, of all kinds of raw and manufactured iron and steel[1] amounted, in 1913, to five million tons.

The United Kingdom exported to a number of countries, and the amount exported to foreign countries was practically identical with that sent to her possessions. In 1913, out of over five million metric tons of all kinds of raw and manufactured iron and steel, 2.3 million tons were exported to British possessions. India took the greater part of this, the figures for 1913 being 0.8 million tons. In 1913, the exports to Europe had risen to 1.4 million tons.

The following are the principal countries to which England exported these products:

France	203,000	metric tons
Germany	199,000	» »
Netherlands	146,000	» »
Italy	143,000	» »
Belgium	126,000	» »
Sweden	118,000	» »

Outside Europe, excluding the British Possessions, the United Kingdom exported in 1913, 1.2 million tons to the following countries:

Argentine	358,000	metric tons
Japan	238,000	» »
United States	176,000	» »
Brazil	115,000	» »

The United Kingdom imported about 7.5 million tons of iron ore in 1913. This is equivalent to about one-half of her production. The greater part of this amount — 4.6 million tons — came from Spain. Other countries supplying the United Kingdom with iron ore were: Algeria, about 0.8 million tons; Norway, about 0.5 million tons; Sweden, about 0.4 million tons; France, about 0.3 million tons.

The import of cast iron amounted in 1913 to 0.2 million tons, and the import of all kinds of raw and manufactured iron and steel to 2.4 million tons.

The quantities of iron ore and cast iron available in the United Kingdom for 1913 were as follows:

(Millions of metric tons)

Iron Ore		Cast Iron	
Production	16.2	Production	10.4
Imports	+ 7.5	Imports	+ 0.2
Exports	(negligible)	Exports	— 1.1
Quantity available	23.7	Quantity available	9.5

4. Although before the war Germany produced a much greater quantity of cast iron and steel than the United Kingdom, the exports of all kinds of raw and manufactured iron and steel from the German Empire (including Luxemburg) amounted in 1913 to only 5.7 million metric tons, a quantity which did not therefore much exceed the exports of the United Kingdom, which in 1913 exported 5 million tons. The quantity imported was insignificant.

The exports of iron ore were much greater than those of the United Kingdom: 2.6 million tons against 0.005. However, compared with the German production, which amounted to 36 millions in 1913, the quantity exported remained insignificant.

Germany in 1913 consumed a large quantity of iron ore. Her production did not suffice for her requirements and, in 1913, the quantity imported was 14 million tons.

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[1] Bars, pipes, iron wire, etc., and including cast iron to an amount of 1.1 million tons.

Three countries in particular supplied Germany with east iron: Sweden, France, and Spain; from these countries Germany imported, in 1913, respectively 4.5, 3.8 and 3.6 million tons, *i.e.* more than 85 % of the whole of her imports. Other countries from which she drew supplies were Russia (0.5 million), Algeria (0.5 million), Norway (0.3 million), etc.

In 1913, the amount of iron ore available in Germany was therefore as follows:

(Millions of metric tons)

Production		36
Imports	+	14
Exports	—	2.6
Quantity available		47.4

It was thus twice that of the United Kingdom (23.7).

With regard to cast iron, the import of this product into Germany was insignificant, and in 1913, amounted to 0.12 million tons; during the same period Germany exported about 0.8 million, of which 0.3 went to Belgium, 0.1 to France, 0.1 to Austria-Hungary, etc.

Germany had thus at her disposal nearly the whole of the cast iron produced and about double the amount available in the United Kingdom.

(Millions of metric tons)

Production		19.3
Imports	+	0.12
Exports	—	0.8
Quantity available		18.6

5. Before the war, France exported a fairly large amount of ore. In 1913, she exported 10 million metric tons, which found a market almost exclusively in Germany (4 millions) and Belgium (5 millions)[1].

The remainder was exported to the Netherlands and to Great Britain.

Before the war, the import of iron ore was limited to 1.4 million tons, imported mainly from Germany (0.8 million tons in 1913), and Spain (0.4 million). France received from Algeria and Tunis only 4 % of the exported. The greater quantity went to the United Kingdom (58 %) and the Central Empires (37 %).

The consumption of iron ore in 1913 was therefore as follows:—

(Millions of metric tons)

Production		21.9
Imports	+	1.4
Exports	—	10
Quantity available		13.3

During the same period, the United Kingdom consumed 23.7 million tons of ore, and Germany 47.4.

France, in 1913, imported 0.05 million tons of cast iron and 0.2 million tons of iron and steel, and exported 0.8 million tons of these products.

Pig iron was imported mainly from Sweden and the United Kingdom and exported to Belgium, Switzerland and Germany. Iron and steel were imported from Germany, the United Kingdom, Sweden and Belgium, and exported to Germany, Belgium, Switzerland and a few other countries.

(Millions of metric tons)

Production	5.2
Imports	+ 0.05
Exports	(negligible)
Quantity available	5.25

[1] The data derived from the commercial statistics of exporting countries are not to be compared with the corresponding data of the importing countries in view of the well-known differences between them.

It will thus be seen that France had at her disposal almost the whole of her production of cast iron — a quantity which, however, continued to be much smaller than that available in the United Kingdom (9.5) and in Germany (18.6). As regards exports of iron ore, France was in the front rank with 10 million tons in 1913, as against a German export of 2.6 millions, and an insignificant quantity of English exports. On the other hand, Germany and the United Kingdom could be regarded as the most important sources for the supply of iron and steel in Europe.

No statistics dealing with Russian commerce are available and, therefore, no comparison can be instituted between Russia and other countries. It is probable, however, that that country which — as we have seen — produced a considerable amount of iron ore, exported a fairly large quantity of ore, extracted mainly in the Donetz Basin, and did so in spite of the development of its iron industry.

6. Belgium, whose output of iron ore is negligible, nevertheless holds a relatively important place in the production of cast iron and steel. Her production of cast iron was, in 1913, larger than that of Austria-Hungary, but her output of steel was nearly the same as that of Austria-Hungary.

The lack of raw material compelled Belgium to import much iron ore. In 1913, her imports amounted to rather more than 7 million tons, of which 4,7 millions were imported from France. The other countries which supplied Belgium with iron ore were Luxemburg (1.6 million tons), Norway, Spain, Germany and a few other countries.

In 1913, Belgium exported 0.7 million of iron ore, including untreated iron residue, of which 0.5 million were sent to Germany.

As her output of cast iron, before the war, was insufficient for Belgium she imported a certain quantity. In 1913, these imports amounted to 579,400 tons. Germany, which supplied Belgium with more than 221,000 tons, Luxemburg about 141,000, Great Britain more than 130,000, and a few other countries, were the chief sources of Belgium's supply. Her exports in 1913 amounted to 16,700 tons, of which nearly 14,000 were sent to France. Imports and exports of iron and raw steel were insignificant in 1913, about 80,000 tons being imported and 158,000 tons exported.

The imports and exports of raw steel in bars were negligible.

The quantities of ore and cast iron available in Belgium, in 1913, are given in the following table:

(Millions of metric tons)

Iron Ore		Cast Iron	
Production	0.15	Production	2.5
Imports	+ 7.1	Imports	+ 0.6
Exports	— 0.7	Exports	— 0.02
Quantity available	6.55	Quantity available	3.08

7. The development of Austria-Hungary's iron industry steadily increased, and this necessitated an ever-increasing import of iron one, for she did not produce sufficient to supply her own industries.

In 1913, she imported 942,000 tons of iron ore as against 374,000 in 1909, while her exports amounted in 1913 to 106,000 tons, as against 178,000 in 1909. The quantity available in 1913 was as follows:

(Millions of metric tons)

Production	5.1
Imports	+ 0.9
Exports	— 0.1
Quantity available	5.9

It is worthy of remark that during the same period France had at her disposal 13.3 millions and Belgium 6.4 million tons.

Imports of cast iron also increased from 196,000 tons, in 1909, to 306,000 tons in 1913. Exports of cast iron, which had always been insignificant, decreased, as did the exports of ore: in 1909, 60,000 tons were exported and in 1913, 49,000.

	(Millions of metric tons)
Production	2.4
Imports	+ 0.3
Exports	— 0.05
Quantity available	2.65

The consumption of cast iron was therefore smaller than in Belgium (3.08) and in France (5.25).

It will also be seen that the imports of iron and crude steel which amounted to 39,000 tons in 1909 and to 65,000 in 1913 increased. It must, however, be noted that, in 1913, imports showed a decline of nearly 27 % as compared with 1912. Exports also continued to increase. In 1909, the figures were 43,000 tons and in 1913, 76,000.

Austria-Hungary is the last country with which we have to deal which, while not producing sufficient iron for her own consumption, nevertheless showed a comparatively large output.

8. The other countries have no very advanced iron industry, and their requirements as regards raw material are comparatively unimportant.

Among these countries Sweden and Spain exported much of the iron ore they extracted and had iron industries on a very modest scale. Swedish steel, however, enjoys a high reputation. As regards Italy, which is rather poor in iron ore, her production of cast iron in 1913 was 427,000 tons and her imports were 240,000 tons, *i.e.*, nearly 60 % of her production.

As regards steel, the production of which in 1913 was a little less than 1 million tons, Italy imported only 7,000 tons.

9. Finally, it must be noted that the development of the iron industry was very closely connected with that of the engineering trade and that the value of the exports of machinery was greater in Germany than in the United Kingdom, and greater in the United Kingdom than in the United States.

II.

POSITION DURING THE WAR

10. The war occasioned considerable disturbance in the metallurgic industry. This industry was compelled, not only in belligerent, but also in neutral, countries, to adjust itself to the constantly increasing demand for munitions and armaments. The metallurgic industry had become a war industry; the majority of factories which had hitherto produced all kinds of machinery and implements had to undergo important alterations in their equipment in order to be able to devote themselves exclusively to the extremely lucrative occupation of producing munitions and armaments.

During the war the consumption of large quantities of iron in connection with these industries resulted in a prodigious demand for iron ore and coal.

The problem of iron ore was less acute in Germany owing to the fact that she was in occupation of the richest mines in the north of France and was able, during the war, to import iron ore from Sweden without difficulty. It should be added that the decline in the production of coal in Germany was not very great.

In France, on the other hand, which was unable to work its northern mines, the production of iron ore fell from 22 million tons, in 1913, to 1.7 million tons in 1918 [1]. The coal production in that country also fell considerably.

The production of iron ore also fell in the United Kingdom, although the decrease was not so heavy as in France; in 1913 the United Kingdom produced 16.25 million tons and in 1916 13.7 million tons, but in 1917 its production increased to 15.3 million tons. The production of coal in the United Kingdom showed a marked decline.

The production of iron ore in Sweden during the war showed a relatively slight decrease. In Spain, on the other hand, the decrease was fairly considerable, that country producing 9.9 million tons in 1913 and 5.6 million tons in 1917.

The United States, after a very marked decrease in 1914 (42.1 million tons as compared with 63 million tons in 1913), showed a marked increase in its production during the war. In this country the same phenomenon is to be observed as in the case of coal.

The following table gives the world's output:

World Production of Iron Ore [2]

(Thousands of metric tons)

	1913	1914	1915	1916	1917	1918
United States . .	62,972	42,103	56,415	76,370	76,494	70,773
Germany	28,608	20,505	17,710	?	?	?
Luxemburg. . . .	7,333	5,007	6,139	6,752	4,509	?
France	21,918	11,252	620	1,681	2,035	1,672
United Kingdom .	16,253	15,105	14,463	13,711	15,083	15,285
Spain	9,862	6,820	5,618	5,857	5,551	?
Russia	9,514	?	?	?	?	?
Sweden	7,476	6,587	6,883	6,986	6,217	?
Austria	3,039	4,182	?	?	?	?
Hungary	2,059		1,238	?	?	?
Italy	603	706	680	947	999	695
Norway	544	652	715	880	?	?
Belgium	150	82	5	30	17	0.5
Algeria	1,349	1,115	819	939	1,065	782
Tunis	597	248	286	367	606	?
Canada	136 [3]	222 [4]	361	250	195	188
Japan	172	136	136	159	?	?

It is not possible to give an approximate extimate of the amount of iron ore available throughout the world during the war: but, judging from the figures we possess, it would appear that — as in the case of coal — in spite of the increase in output in the United States — the quantity available in any year of the war never reached 175 million tons, *i.e.*, the amount at which we have estimated the 1913 production.

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[1] 83 % of the French output of iron ore used to be drawn from the invaded zone and 9 % from the zone occupied by the armies.

[2] For 1913 see Table in No. 1; and for the following years: United States Geological Survey: *Report*, etc., already quoted.

[3] Exports in 1913: 278.

[4] Exports.

11. The table given below illustrates the effect which these variations have had upon the production of cast iron.

World Production of Cast Iron [1]

(Millions of metric tons)

	1913	1914	1915	1916	1917	1918
United States	31.5	23.7	30.4	40.1	39.2	39.7
Germany [2]	16.8	12.6	10.1	11.5	11.7	11.3
Alsace-Lorraine	3.9	2.4	1.8	2.1	2.0	1.8
Saar	1.2	0.8	0.7	0.8	0.8	0.7
United Kingdom	10.4	9.1	8.9	9.1	9.5	9.2
France	5.2	4.5	1.3	1.4	1.7	1.3
Belgium	2.5	1.5	0.07	0.1	0.008	?
Austria-Hungary	2.4	2.0	2.0	2.4	?	?
Sweden	0.7	0.6	0.8	0.7	0.8	0.7
Italy	0.4	0.4	0.4	0.5	0.5	0.3
Spain	0.4	0.4	0.4	0.5	0.4	0.4
Luxemburg	2.5	1.8	1.7	1.8	1.4	1.3
Russia	4.6	4.3	3.7	3.7	?	?
Japan	0.2	0.3	0.3	0.4	?	?
Canada	1.0	0.7	0.8	1.1	1.1	1.1

It will be seen that among the great producing countries, the United States alone have increased their production of cast iron during the war, while the production of the other countries, for which complete information is available, has diminished. The reduction in the case of the United Kingdom is almost imperceptible; other countries, however, show a very marked reduction.

In spite of the considerable decrease in the production of cast iron in Europe, it does not appear that world production during the war fell off to any great extent. This result was due to the increase of production in the United States, which during the war became the chief source of supply for the Allies of this product as well as of coal and many other commodities.

Moreover, the production of steel in the United Kingdom and in other countries during the war showed a considerable increase.

The production of this commodity decreased in Germany, but in a comparatively small degree.

Production of Raw Steel [3]

(Millions of metric tons)

	1913	1914	1915	1916	1917	1918
United States	31.8	23.9	32.7	43.5	45.8	45.2
Canada	1.1	0.8	0.9	1.3	1.6	1.7
United Kingdom	7.8	8.0	8.7	9.3	10.0	9.7
France	4.7	3.2	0.9	1.9	2.2	1.8
Germany	17.6	14.0	12.3	14.9	15.1	14.1
Belgium	2.5	1.4	0.1	0.1	0.009	0.01
Italy	0.9	0.9	1.0	1.3	1.3	1.0
Russia	4.9	4.8	4.9	?	?	?
Austria-Hungary	2.6	2.2	2.7	3.3	2.9	1.8
Luxemburg	1.3	1.0	1.0	1.3	1.1	0.9
Sweden	0.6	0.5	0.6	0.6	0.6	0.5
Japan	0.6	0.3	0.3	0.4	?	?

[1] *Annuaire statistique de la France*, 1919, and *Report*, already quoted, *of the* U. S. Geological Survey.

[2] Not including Luxemburg, Alsace-Lorraine and the Saar.

[3] League of Nations: *Monthly Bulletin of Statistics*, No. 7, and U. S. Geological Survey, *Report*, etc., already quoted.

The belligerent States, owing to the necessity of maintaining a constant and ever-increasing supply for the needs of their armies, were compelled to intensify their production of armaments and munitions to the utmost possible extent; hence the increase in the production of steel, which was mainly due to the import of cast iron from the United States to Europe and to the constantly increasing use made of scrap iron for the production of steel.

Two countries — France and Belgium — suffered the most marked decrease in the production of steel, the causes being the same as those already referred to as tending to a decrease in the production of iron ore and cast iron in these two countries.

Italy, as we are aware, increased her production of iron and steel. In spite of this, the amount produced was not sufficient for requirements, and Italy was forced to import considerable quantities during the war.

12. Foreign trade in steel was profoundly affected during the war.

Germany was forced entirely to suspend the export of iron, and her trade in this product was limited almost exclusively to exchange with Austria Hungary. Both the United Kingdom and France diminished their exports considerably. The United States alone was able to increase her exports to an appreciable extent. Import trade also decreased, and, in the case of certain countries — France for instance — the special cause of this decline was the scarcity of means of transport and the reduction of her merchant marine.

But the difficulty of transport by sea and the submarine war made it impossible for the countries of Europe to import all the iron ore and cast iron which they required. We shall see that, in the case of certain countries, the importation of such semi-manufactured or even finished products as required a smaller amount of tonnage, increased considerably during the war.

The United States, as we have said, perceptibly increased their export of iron, but there was no export of iron ore from the United States to Europe before the war, nor did this develop during the war. Exports of iron ore from the United States were exclusively directed to Canada. The exports of this substance remained approximately stationary during the war, excepting for a considerable decrease in 1915.

The position with regard to cast iron is quite different.

Export of Cast Iron

(Millions of metric tons)

	Europe	North America	Total (including other parts of the world)
1913-14	49.0	129.0	205.0
1914-15	79.0	42.0	132.7
1915-16	180.5	100.0	291.3
1916-17	679.0	144.0	848.0
1917-18	205.0	128.5	369.3

This table shows a considerable increase in the export of American cast iron to Europe during the war. The increase was smaller in 1917-18 than in the previous years on account of the submarine campaign and the intervention of the United States in the war. A decrease in the export of this product to North America may be noted during the first two years of the war. The following are the European countries of destination:

(Thousands of metric tons)

	1913-14	1914-15	1915-16	1916-17	1917-18
Italy	18.5	36.8	107.5	287.5	100.0
United Kingdom	17.9	40.7	50.0	136.5	94.5
Belgium	4.6	0.3	—	—	—
Netherlands	2.6	0.9	1.9	26.3	—
Germany	2.2	0.05	—	—	—
France	0.5	0.005	17.5	127.7	8.4
Switzerland	—	—	2.1	3.0	—
Russia	—	—	1.3	4.2	—
Norway	—	—	0.1	22.2	2.0
Denmark	—	—	—	19.5	—
Sweden	—	—	—	38.9	—
Spain	—	—	—	14.5	—
Austria-Hungary	2.7	—	—	—	—

The export of American cast iron to Italy showed a marked increase, but the comparative increase was still more considerable in the case of France, which obtained the bulk of her supplies of this product from the United States. Exports to the United Kingdom also greatly increased. Thus the three great allied countries in Europe were able to make good to some extent the deficit in the production of cast iron caused by the war. The decrease in the export of European cast iron forced the neutral countries also to obtain supplies from the United States, and we see such countries as Denmark, the Netherlands, Switzerland, Norway, Sweden and Spain becoming the customers of America for a large amount of cast iron, whereas, before the war, they obtained all their supplies in Europe.

A great increase in American exports of manufactured iron and steel, more especially to Europe, is also to be noted.

The total exports of iron bars for all countries were five times as great in 1917-18 as in 1913-14, but the greatest increase was shown in the year 1915-16 (316,000 tons, as against 46,000 tons in 1913-14). In this year nearly one-third of the total exports of iron bars was effected to Europe; in 1913-14 the amount exported to Europe was negligible.

In 1915-16 one-half the iron exported to Europe was sent to the United Kingdom. France received rather more than 23 % of the total amount exported. The rest was exported to Portugal, Greece, Russia in Europe and certain other countries. In 1916-17 the amount of iron bars exported to the United Kingdom was only 22 % of the amount exported in 1915-16, and in 1917-18 the proportion fell to 11 %. A considerable reduction is also to be noted in the case of France and other European countries.

On the other hand, the export of iron bars to Italy greatly increased in 1916-17 and 1917-18. In 1915-16 the amount exported was negligible, but in the following year it had increased to 9,000 tons, and in 1917-18 to 10,000 tons.

Almost the same phenomenon was to be observed in regard to export of steel bars and wire. It should, however, be noted that in regard to Italy a much greater increase took place in steel exports than in iron exports.

13. All the belligerent countries in Europe were compelled to reduce their exports of iron and steel very considerably by the introduction of various regulations governing the production of, and trade in, iron products in order to have as much as possible available for their own use.

The United Kingdom in 1913 exported rather more than 5,000 tons of iron ore, whereas in 1918 it only exported 160 tons. An exception, however, is to be noted in regard to the export of cast iron and iron to France. It is well known that during the war the United Kingdom greatly increased her export of coal to France and greatly reduced her coal exports to other countries. The same phenomenon is to be noted in regard to the export of iron to France. In 1913 the

total English exports of all kinds of cast iron amounted to rather more than 1.1 million tons, of which 0.16 millions went to France; in 1914 the total amount exported was 0.8 million tons, of which only 0.09 went to France; in 1915 the total exports of cast iron amounted to 0.6 million, of which 0.14 went to France; in 1916, of a total of 0.9 million tons of cast iron exported, France received rather more than 0.5 million; in 1917 a considerable reduction in the total amount exported took place, and a very slight reduction in the amount exported to France; in 1918 there was a very great reduction in the total exports — 0.5 million, and of this amount France received approximately 0.4 million tons.

With regard to export of all kinds of iron and steel both crude and manufactured, very much the same developments are to be observed, namely, a reduction in the total exports and an increase in the amount exported to France.

In the case of Italy, English exports of cast iron in 1915 and 1916 showed an increase; the same applies to exports in 1915, 1916 and 1917 of all kinds of iron and steel, whether raw or manufactured.

III.

POSITION AFTER THE WAR

14. In 1919, with the close of the war, we are faced with a world-wide diminution in the production of cast iron. In Europe, we find a noticeable decrease in the production of cast iron, especially in the United Kingdom and Germany, whether in comparison with 1918 or 1913. Outside Europe, the United States reduced their production of cast iron in 1919, but only in comparison with 1918.

In 1920, however, a general recovery took place in the case of certain countries. In France, the production of cast iron was increased, thanks on the one hand to the recovery of the northern mines occupied during the war by foreign armies, and, on the other hand, to the incorporation of Alsace-Lorraine, which possesses, as is well known, very rich iron mines.

The following table shows the production of cast iron in the principal countries of the world in 1913, 1918, 1919 and 1920:

PRODUCTION OF CAST IRON[1]

(Millions of metric tons)

	1913	1918	1919	1920
United States	31.5	39.7	31.5	37.0
Germany[2]	12.9	9.2	6.3	2.0
United Kingdom . . .	10.4	9.2	7.5	8.1
France[3]	5.2	1.3	1.29	2.2
Alsace-Lorraine[4] . . .	3.9	1.8	1.1	1.1
Belgium	2.5	?	0.2	1.1
Luxemburg.	2.5	1.3	0.6	0.7
Canada	1.0	1.1	0.8	1.0

Practically the same phenomenon is to be observed in the production of raw steel, except in the case of France.

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[1] LEAGUE OF NATIONS: *Monthly Bulletin of Statistics*, No. 7.
[2] Not including Luxemburg and Alsace-Lorraine.
[3] Not including Alsace-Lorraine.
[4] MINISTÈRE DU TRAVAIL: *Compte rendu des travaux au cours de l'année* 1920, Paris, 1921.

PRODUCTION OF RAW STEEL
(Millions of metric tons)

	1913	1918	1919	1920
United States	31.8	45.2	35.2	42.8
Germany	17.6	14.1	?	?
United Kingdom . . .	7.8	9.7	8.0	9.2
France[1]	4.7	1.8	2.2	2.1
Belgium	2.5	0.01	0.3	1.2
Luxemburg.	1.3	0.9	0.4	0.6
Canada	1.1	1.7	0.9	1.1

15. As a result of the Treaty of Versailles, Germany lost one of her richest deposits of iron ore by the incorporation of Lorraine with France. We must also mention here Luxemburg's retirement from the German Customs Union.

The two tables below demonstrate the important influence exercised by the Lorraine basin on the production of iron ore in France and in Germany.

France:	Production (1913 frontier) .	21.9	million	metric tons
	Lorraine	21.1	»	»
	Luxemburg	7.3	»	»
	Productive capacity . .	50.4	»	»
Germany:	Production for 1913 (including Luxemburg)	35.9	million	metric tons
	Productive capacity . .	7.5	»	»

The output of the Lorraine Basin was almost equal to that of the whole of France. Germany's pre-war productive capacity would appear to be now reduced by about one-fifth. Before the war, France received only a comparatively insignificant supply of ore from German Lorraine, the production of this area being almost entirely absorbed by Germany and Luxemburg.

It is of interest now to consider the importance for France and Germany of the two basins of Lorraine and the Saar as regards the production of cast iron and steel.

With regard to the iron industry, the Saar Territory only supplied a small proportion of Germany's output, as is shown by the following table:

PRODUCTION IN 1913

	Cast Iron	Steel
	(Millions of metric tons)	
Rhineland and Westphalia .	8.2	10.1
Lorraine	3.9	2.3
Saar	1.2	2.1
Silesia[2]	1.0	1.4
Other regions.	3.5	1.7
Total for Germany . .	16.8	17.6
Total for Luxemburg .	2.5	1.3
	19.3	18.9

[1] Not including Alsace-Lorraine.

[2] It appears that, as a result of the partition of Silesia between Germany and Poland, which has been proposed by the League of Nations, the production of coal, ore, cast iron and steel will be divided up, on the basis of the 1913 statistics, in the following manner:

	Percentage falling	
	to Germany.	*to Poland.*
Coal	24.1	75.9
Iron ore	3.1	96.9
Pig iron	47.9	52.1
Cast iron	62.7	37.3
Cast steel	52.9	47.1
Raw steel	13.6	86.4

As a result of the incorporation of Alsace-Lorraine in France, the special arrangement concerning the Saar Territory and the output of Luxemburg, the productive capacity of France in respect of cast iron and raw steel should, *ceteris paribus*, be more than doubled.

Production in 1913

	Cast Iron				
France:	Production (1913 frontier) .	5.2	million	metric	tons
	Lorraine	3.9	»	»	»
	Luxemburg	2.5	»	»	»
	Saar	1.2	»	»	»
	Productive capacity .	12.8	»	»	»
	Raw Steel				
France:	Production (1913 frontier) .	4.7	million	metric	tons
	Lorraine	2.3	»	»	»
	Saar	2.1	»	»	»
	Luxemburg	1.3	»	»	»
	Productive capacity .	10.4	»	»	»
	Cast Iron				
Germany:	Production for 1913 (including Luxemburg) . . .	19.3	million	metric	tons
	Productive capacity .	11.7	»	»	»
	Raw Steel				
Germany:	Production for 1913 (including Luxemburg) .	18.9	million	metric	tons
	Productive capacity .	13.2	»	»	»

The reunion of Lorraine to France considerably altered, as we have already seen, the iron output of that country. France, however, remains relatively poor in coal in spite of the possession of the Saar. On the other hand, Germany, which, in spite of the loss of the Saar, is rich in coal, has become very poor in iron. Thus some system of co-operation between these two countries, which, as will be observed, are dependent upon each other, appears practicable. At present France can only vely upon the quantity of coal with which Germany is obliged to supply her, in virtue of the Treaty of Versailles.

Mention must also be made of the great furnaces at present under construction in France with a capacity of 618 thousand tons, and the new converters and Martin furnaces [1].

The monthly figures for the production of coal, cast iron and raw steel for the first six months of 1921 are given below [2]:

(Thousands of metric tons)

	Coal and Lignite [3].	Cast Iron [5].	Raw Steel [5].
January 1921	3,246 [4]	293	268
February »	2,875	292	264
March »	2,969	300	251
April »	3,009	292	257
May »	2,919	283	244
June »	3,258	285	245

[1] *Rapport général sur l'industrie française*, Paris, 1919.
[2] League of Nations: *Monthly Bulletin of Statistics*, etc.
[3] Including the Lorraine and Saar output.
[4] Including 75,000 tons of lignite.
[5] Including in the Lorrae output.

It must be pointed out that, unless the production of cast iron and raw steel in the second half of 1921 is much greater than the production for the first half, France (including Lorraine) will have produced barely 3.5 million tons of cast iron and 3 millions of steel for the whole year — *i.e.*, a quantity far below her productive capacity.

Special conditions in France and the industrial crisis which overtook the whole world in the middle of 1920 supply the reasons for this greatly restricted output:

16. When the special position of Germany is taken into account, two countries now appear to be predominant in the production of iron in Europe — the United Kingdom and France; but among other countries, Russia appears to have a great future before her in regard to the iron industry.

Russia is a country extremely rich not only in coal but also in iron ore. Besides the well-known district of Krivai-Rog, which alone supplied three-fourths of the total production of ore before the war (9.5 million tons), that country also possesses an equally rich district in the Ural Mountains.

A considerable development of the iron industry had also taken place in the same district.

The production of iron during the war and down to 1917 increased in Russia except during the year 1915, when a fairly marked decline is to be observed. But, since the Revolution, production has decreased very considerably.

In 1920 (nine months of production) the production of iron ore fell to slightly over 110,000 tons.

The production of iron in Krivai-Rog was nil. It must not be forgotten that this district is not in Russia properly so-called, but in the Ukraine, where political conditions are less suitable.

The civil war, which was more acute in this district, naturally inflicted serious injury on production generally.

In the Ural basin, which is not, however, in Russia properly so-called, production was not brought entirely to a standstill, although it fell to one-tenth of the production before the war.

We observe the same decrease in the production of manganese, a substance essential in the manufacture of iron. Russia was one of the richest countries in manganese, and this product was also to be found in the Ukraine. In 1913 the production of manganese amounted to nearly 300,000 tons, and in 1920 to not quite 4,000 tons[1].

17. We will first examine the special foreign trade of France (including Alsace-Lorraine since 1919).

SPECIAL FOREIGN TRADE[2]

(Thousands of metric tons)

		1913	1918	1919	1920 (provisional)
Iron Ore	Imports	1,410	119	304	404
	Exports	10,066	68	1,997	4,407
	Difference	— 8,656	+51	—1,693	—4,003
Cast Iron Iron and Steel (including slag)	Imports	203	1,962	1,360	1,026
	Exports	1,008	145	367	1,359
	Difference	— 805	+1,917	+ 993	— 333
Cast Iron (residue from processes of casting and refining and "spiegel")	Imports	33	376	95	121
	Exports	100	7	130	297
	Difference	— 66	+ 369	—35	— 176

[1] *Ekon. Jizn*, November 13th, 1920; January 1st and February 27th, 1921.

[2] MINISTÈRE DU TRAVAIL: *Compte rendu des travaux au cours de l'année* 1920.

We see, therefore, that French imports of iron ore for 1919 and 1920 remain considerably below the imports for 1913, but above those for 1918. Alsace-Lorraine, when united with France, provided, as we have seen, a considerable quantity of iron ore, thus lessening the necessity for France to import this raw material.

In view of the increase in the export of iron ore in 1920, we may say that, after the reconstruction of the devastated districts, France will play an important part amongst the countries which export iron ore.

The imports of cast iron, iron and steel are, as we see, decreasing, although they still exceed the imports for 1913.

The exports of these substances, on the other hand, are increasing, and are even beginning to exceed the exports for 1913.

The data furnished above tend to demonstrate once more the importance to France of the Lorraine Basin.

French iron ore is exported principally to Belgium. During the month of January 1919 France exported 2.1 thousand tons; in the same month of 1920 she exported more than 100 thousand tons, and in January 1921 nearly 250 thousand. Since 1921 France has begun to export iron ore to Germany (nearly 25.4 thousand tons during January 1921).

18. The United Kingdom exports little iron ore, but its exports of cast iron are fairly large.

In 1919, however, the export of every kind of cast iron was considerably less than that of 1918 (357,000 tons against 483,000). We have seen that the exports of English cast iron during the war were chiefly effected to France, and that the export of this product was even greater than before the war.

In 1919 the export of cast iron to France decreased by more than 83 % as compared with the year 1918, and by more than 90% as compared with the year 1916 — the year in which the export of English cast iron to France was greatest. It should, however, be noted that the amount of cast iron exported in 1919 to all countries only decreased by 25 % as compared with the year 1918. This is explained by the considerable increase in exports to several neutral countries. Export to Sweden, for instance, amounted in 1917 to nearly 13,000 tons, as against rather more than a thousand in 1918; to Norway, 7,000, as against 300 tons; to Denmark, 8,000, as against 655 in 1917 (none in 1918); to the Netherlands, 15,000 tons, as against 11 tons; to Switzerland, nearly 4,000 tons, as against 160, etc.

We must also take into consideration the resumption of export to Belgium, the fairly considerable increase to Italy, and also to Japan and the United States.

In 1920 the export of all kinds of English cast iron greatly increased (nearly 580,000 tons as against 357,000 in 1919). Export to France remained stationary. On the other hand a considerable increase in the export of English cast iron to Belgium may be noted.

Export to Italy is also on the increase as well as to neutral countries and countries overseas. We may also note a revival in the export of English cast iron to Russia, which, however, still remains inferior to that of 1913.

There is a considerable increase in the export of all kinds of iron and steel, raw and manufactured, in 1919, as compared with 1918, but the total export is still inferior to that of the years prior to 1918. In France, the export figures are twice and a-half less than in 1918, although it is still greater than the amount exported in 1913.

The increase in the export of all kinds of iron and steel from 1918 to 1919 is due to the increased export to European neutral countries and to certain overseas countries.

A considerable rise may also be noted in the export of all kinds of iron and steel in 1920.

The economic crisis, but in particular the miners' strike, greatly affected the production of, and trade in, iron in the United Kingdom in 1921.

The monthly output of coal, cast iron and raw steel for the first half of 1921 is given below[1]:

	(Thousands of metric tons)		
	Coal	Cast Iron	Raw Steel
January	18,854[2]	653	501
February	17,661[2]	471	491
March	16,712[2]	392	365
April	60	61	69
May	60	14	6
June	60	1	2

Exports also greatly diminished while imports increased.

19. The United States increased their export of iron ore in 1920, but this increase is relatively small as compared with that of the year 1919.

A slight increase is to be noted in 1919 in the export of all kinds of cast iron as compared with the year 1918, but in 1920 a marked decrease is already noticeable. The most striking decrease in the export of American cast iron is in the case of Italy. Exports to the United Kingdom decreased by about one-third as compared with 1919. Finally, we must note the resumption of the export of American cast iron to Belgium.

A fairly marked decrease generally in the export of iron and steel is to be noticed in 1919 and 1920. The decrease in the case of the United Kingdom is very considerable. In 1918 the United States exported about 650,000 tons of steel bars to the United Kingdom, but in 1920 the export of this product did not amount to more than about 133,000 tons. The greatest decrease, however, is observed in the case of France; from an amount of 681,000 tons of steel bars exported in 1918, the American export to France fell in 1919 to rather more than 77,000 tons, and fell still further in 1920 to a little over 3,000 tons.

Export to Italy has likewise undergone a considerable decrease, dropping from 210,000 tons of steel bars in 1918 to rather more than 50,000 tons in 1919, and to 21,000 tons in 1920.

Speaking generally, therefore, a considerable decrease in the export of American iron to Europe after the war, and especially during the year 1920, is to be observed. Since the consumption of iron after the war very naturally considerably decreased, it was no longer necessary to have recourse to the United States for supplies of iron on a great scale.

20. The decrease in American export to Europe observable in 1920 was accentuated by the industrial crisis which was then general. It is very likely that American export in 1921 will show no increase as compared with 1920. The production of iron in the United States is decreasing. The trade in cast iron and in iron ore is undergoing a period of depression. Prices continue to fall. The same decrease in the production of iron, accentuated by other special circumstances, has, moreover, been noted in France and the United Kingdom, in the first six months of the year 1921. We give below a table of the monthly production of cast iron and raw steel in the United States during the first half-year of 1921:

		(Thousands of metric tons)		
		Coal	Cast Iron[3]	Raw Steel
January	1921	43,267	2,456	2,659
February	,,	34,984	1,969	2,111
March	,,	34,299	1,622	1,896
April	,,	31,993	1,210	1,465
May	,,	37,048	1,240	1,528
June	,,	37,784	1,082	1,211

[1] League of Nations: *Monthly Bulletin of Statistics*, No. 7.

[2] Four weeks.

[3] Incomplete figures of the "Survey of Current Business". See: League of Nations, *Monthly Bulletin of Statistics*, No. 7.

If the production of cast iron and raw steel for the second half-year does not considerably exceed that of the first, then the output of the United States in 1921 will be about 19 million tons of cast iron and 21 million tons of raw steel, — *i.e.*, about half the output of 1920. Even taking into consideration the fact that the figures in the above table with regard to cast iron and steel do not represent 16 % of the total production of the United States, the decline remains none the less striking.

IV.

SUMMARY AND CONCLUSIONS

I.

The question of iron is closely connected with that of coal and iron ore. Before the war the iron industry of the United States, the United Kingdom and Germany had been very extensively developed, thanks to the preponderance of their coal and iron ore supplies.

France and Belgium — the former being rich in iron ore and the latter in coal — were also able to develop their iron industry by obtaining the necessary supplies of coal and iron ore respectively from neighbouring countries.

II.

With regard to Europe, the production of iron in Germany had been enormously developed before the war and had surpassed that of the United Kingdom. The United States, however, held first place; the production of iron ore in that country was more than double that of Germany. In Europe two countries — the United Kingdom and Germany — supplied the rest with iron. The export of iron from the United States to Europe was negligible.

III.

The United Kingdom exported mainly iron and steel. The quantity of cast iron exported was much less, though it was greater than the amount of iron ore exported. The United Kingdom imported a great deal of iron ore — nearly one-half of her production.

IV.

Germany also imported a large quantity of ore (nearly 40 % of her production in 1913) from Sweden, France and Spain. German exports mainly consisted of iron steel; the amount exported in 1913 was rather more than that exported by the United Kingdom.

V.

France exported a considerable quantity of ore (rather less than 50 % of her production), almost all of which went to Germany and Belgium. She exported nearly four times as much iron ore as Germany, and the proportion was still larger as compared with the United Kingdom. In regard, however, to the export of iron and steel, she could not compete with those two countries.

VI.

Belgium was not rich in iron ore. She imported a great deal, especially from France. She also imported cast iron, since her production was not sufficient for her requirements. Belgium exported a very small quantity of her iron and steel.

VII.

Austria-Hungary had greatly developed her iron industry and this necessitated the importation of a considerable quantity of ore. She also increased her importation of cast iron and iron. The remaining States were for the most part importing countries, but mention must be made of Sweden on account of the high reputation enjoyed by her steel.

VIII.

During the war an enormous amount of iron was used for war material. Germany occupied the richest mines of Northern France. She was therefore in a position to satisfy more or less readily her own requirements in iron.

In France the production of ore during the war fell to hardly more than 1.7 millions in 1918, as against 22 millions in 1913. Production also diminished in the United Kingdom, as also in Sweden and Spain.

The United States, on the other hand, after a reduction in 1914, greatly increased her production of ore.

Speaking generally, the amount of iron ore available throughout the world during the war would appear to have decreased.

IX.

In spite of the great decrease in the production of cast iron in Europe (slight in the case if the United Kingdom, but very strongly marked in the other great producing countries), it does not appear that the world's production of cast iron fell off to any marked extent during the war. This was due to increased production in the United States, which became the great source of supply for the Allies during the war.

Moreover, the production of steel during the war increased greatly in the United Kingdom and other countries, but declined to a marked degree in Germany, France and Belgium.

X.

The amount of iron exported by European countries decreased very greatly because the belligerents had to retain the greatest possible amount of iron for their own use.

During the war European countries had recourse to the United States, which became the principal source of the Allies' supplies of iron and steel. They could not, however, import as much as they wished, on account of the submarine war and the entry into the war of the United States, which was therefore forced to increase its own consumption. Neutral countries also obtained supplies from the United States, owing to the impossibility of importing from European countries.

With regard to the export of English iron to France, it should be noted that, whereas the United Kingdom appreciably reduced her export of iron to neutral countries, she increased the amount exported to France.

XI.

In 1919 a diminution in the world production of cast iron and steel is to be noted as a result of the reduction in the quantity used for war material. In 1920 a general increase in production took place.

XII.

Thanks to the restoration of Alsace-Lorraine and to her control over the Saar, France has greatly increased her productive capacity as regards iron. On the other hand, Germany, by reason of the loss of the Lorraine Basin, could now produce only one-fifth of her pre-war output.

XIII.

France has become very rich in iron but is still relatively poor in coal, whereas Germany is still very rich in coal, in spite of the loss of the Saar, but very poor in iron. Co-operation between these two countries would therefore appear advisable.

XIV.

It seems probable that France will hold an important position in Europe for the production of iron. Of other European countries, it should be noted that Russia, which is extremely rich in iron and coal, may have a great future before her.

XV.

The European iron trade, after undergoing a period of depression in 1919, once more increased in 1920.

In particular a great increase in French exports of cast iron, iron and steel is to be noted. French exports for 1920 actually exceeded those of 1913. This increase in exports was doubtless due to the increased production of iron consequent upon the reunion of the Lorraine Basin to France.

XVI.

Exports of American iron to Europe are decreasing rapidly. On the conclusion of the war it was no longer necessary, in view of the falling off in consumption, for the belligerent European countries to have recourse to the United States to the same extent as during the war. The industrial crisis which overtook the whole world about the middle of 1920 also affected the production of, and trade in, iron.

A noteworthy feature of the first half of 1921 is the marked decline in the production of iron in the United States, the United Kingdom and France. In the United Kingdom the effects of the crisis were reinforced by the miners' strike which reduced production to a very low figure. In the case of France, the special difficulties connected with her iron production must also be borne in mind.

American exports to Europe have still further declined, and world trade is passing through a period of depression.

VII. STATEMENT OF THE POSITION CONCERNING

CHEMICAL MANURES

PREPARED BY

DOCTOR SLOUTSKI AND PROFESSOR VINCI.

SUMMARY

I.

II.

III.

IV.

Chemical Manures

I.

POSITION BEFORE THE WAR.

1. There are three classes of manures used in the improvement of land:

(1) Organic manures, especially dung — the only fertiliser used for many centuries.

(2) Natural chemical manures, due to the discovery, in the second half of the 19th century, of natural wealth, such as Chilian nitrate, etc.

(3) Chemical manures synthetically prepared, particularly by the use of the nitrogen in the air — processes representing the latest stage in the history of fertilisers.

Before the war, natural chemical manures were largely used, especially in Western Europe, and they were most important from the point of view of international trade.

Chemical manures, natural and prepared, may be divided into three classes:

(*a*) Nitrogenous manures; (*b*) Phosphate manures; (*c*) Potash manures.

The principal *nitrogenous* manures are:

(*a*) Nitrate of soda; (*b*) Sulphate of ammonia; (*c*) Cyanamide of calcium; (*d*) Nitrate of lime.

The principal *phosphate* manures are:

(*a*) Phosphates; (*b*) Hyperphosphate of lime; (*c*) Bones and hyperphosphate of bones; (*d*) Basic slag.

The *potash manures* are the various potash salts, natural (kainite, etc.) and prepared (chloride and potassium sulphate).

2. *Nitrate of soda* is one of the most important fertilisers. It is found in caliche, of which there are important deposits in South America, especially in Chile. Nitrate is also found, but in negligible quantity, in the United States, in Egypt and in a few other countries.

Chilian caliche contains 15 to 65 % of nitrate of soda and a very small amount of nitrate of potash. It also contains, in different proportions, sulphate of soda, lime, magnesia and some other salts.

The production of nitrate of soda in Chile began about 1810. Very rudimentary plant was used, which nevertheless produced about 1,000 tons a year. In 70 years' time, when the value of nitrate became known to Europe, the production increased enormously, and in 1878 amounted to about 100,000 tons. In 1890 it reached 1,000,000 tons. The development of production continued, as the following table shows:

CHILE'S PRODUCTION OF NITRATE [1]

(In thousands of metric tons and in round figures)

1909	2,111
1910	2,465
1911	2,522
1912	2,587
1913	2,773

[1] The Statistics for the periods before and during the war are taken, unless otherwise stated, from the *International Year Book of Agricultural Statistics* 1917-18 (Rome 1920).

Chile exported almost the whole of her nitrate.

The nitrate industry was the most important in the country. The Chilian Government levied an export duty on nitrate, which produced half of the total revenue of the Chilian Treasury. If to this is added the revenue from the concession of saltpetre deposits, it may be said that Chile's wealth was based upon this industry. There is a whole series of legislative measures dealing with the concession of deposits, sales by auction, etc. Speaking generally, it may be said that there are deposits belonging to private persons, according to the old Peruvian law in force before the Chile-Peru-Bolivian war of 1879 to 1883, upon which no fiscal duty is levied, and concessions granted by the State which are burdened with fiscal duties.

3. *Sulphate of ammonia* belongs also to the class of nitrogenous manures, and is manufactured by saturating ammonia with sulphuric acid. Ammonia is found in ammoniacal water obtained from sewage matter, in pit coal heated in a closed receptacle, in coal schist, bones, etc.

Different processes exist for the distillation of ammonia and for the manufacture of the sulphate.

We see therefore that the raw material used for the production of sulphate of ammonia can be obtained in all the countries which possess gasworks, blastfurnaces, schist deposits, sewers. It may be said that this raw material is abundantly found in all countries which have a well-developed mining and metallurgical industry.

Accordingly, it is not surprising to find Germany, the United Kingdom and the United States at the head of the list of producers of sulphate of ammonia. Until 1911 the United Kingdom held the first place as producer of sulphate of ammonia, but after that year the United Kingdom yielded her place to the German Empire.

In 1900, the United Kingdom's production was about 64 % above that of Germany. In 1910, the production of these two countries was almost the same, and, in 1911, Germany produced more than the United Kingdom.

The following table shows the production of sulphate of ammonia in the different countries of the world from 1909 to 1913:

Production of Sulphate of Ammonia

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
Europe:					
United Kingdom[1].	354.7	373.5	391.1	394.2	438.9
Germany.	330.5	373.0	418.0	492.0	549.0
France.	53.6	57.3	62.0	69.1	74.5
Belgium	34.6	35.6	40.7	43.7	48.6
Austria-Hungary .	27.0	28.6	30.3	32.9	35.0
Spain	10.0	9.0	12.0	12.0	15.0
Italy.	6.9	7.2	8.7	11.1	13.4
Netherlands. . . .	5.0	5.3	6.0	7.0	7.0
Denmark.	2.0	2.0	2.0	2.4	2.8
Sweden.	1.4	1.4	1.3	1.3	1.4
Russia.	?	?	0.5	4.0	13.8
America:					
United States. . .	66.6	105.1	115.2	149.7	176.9
Asia:					
Japan	0.8	1.1	3.9	7.3	8.0
Oceania:					
Australia.	3.5	3.5	2.9	3.0	5.5
Total (in round figures).	897.0	1003.0	1095.0	1230.0	1390.0

[1] The figures given refer to the total production of ammonia reckoned in sulphate.

This table shows the large production of sulphate of ammonia in Germany and the United Kingdom, which together were responsible in 1913 for more than 70 % of the total world production. Outside Europe, the United States alone produced a more or less considerable quantity of sulphate of ammonia.

We may, moreover, note the progress made by Russia in the production of sulphate of ammonia.

4. *Cyanamide of calcium* is obtained by the action of nitrogen on calcium carbide. Before the war, cyanamide was little used as a fertiliser. The industrial production of cyanamide only began about 1908, thanks to the invention of the Frank Furnace.

In Europe, Germany was the country producing the largest quantity of cyanamide before the war, as is shown in the table given below:

PRODUCTION OF CYANAMIDE OF CALCIUM

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
Europe:					
Germany	5.5	11.5	22.5	22.0	24.0
Italy	5.3	3.7	4.5	10.3[1]	15.0
Norway	0.7	4.3	13.2	13.9	22.1
France	?	1.0	1.5	5.0	7.5
Sweden	?	?	0.6	6.0	18.4
Switzerland	?	?	?	6.0	7.5
Austria-Hungary	?	?	2.0	4.5	7.5
America:					
United States (and Canada)	?	?	8.0	32.0	48.0
Asia:					
Japan	?	?	2.3	5.2	7.0

This table shows us the considerable progress made in the production of cyanamide during the five years which preceded the war. As may be seen, all countries have developed their production.

Germany, however, still remains the principal European producer of cyanamide.

Oustide Europe, we note that the United States and Canada, from 8,000 tons in 1911, reached a production 48,000 tons in 1913, nearly equalling the German production.

5. *Nitrate of lime* is the last nitrogenous product employed in agriculture. The production of nitrate of lime by various synthetic processes was concentrated in Norway before the war. Here is a table of production of nitrate of lime in that country.

PRODUCTION OF NITRATE OF LIME IN NORWAY

(In thousands of metric tons)

1909	12.0
1910	18.6
1911	13.1
1912	36.5
1913	73.2

We note, then, that, from 1909 to 1913, the production of nitrate of lime in Norway increased by six times. We must note the extraordinary increase in 1912 compared with the falling off in 1911; the production in 1913 is double that of 1912.

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[1] According to the *Federazione Italiana dei Consorzi Agrari*, Italy produced 8,000 tons of cyanamide of calcium in 1912.

6. *Phosphate manures* are valuable for agricultural purposes owing to the phosphoric acid which they contain.

Deposits of *natural phosphates* are found in many countries. In Europe, *France* possesses the most important deposits; they are situated in the departments of the Somme and the Oise. France is the largest producer of natural phosphates in Europe.

It must be noted, however, that, on account of their poor quality, almost the whole of these phosphates are used locally. The second place among European producers belongs to Belgium.

Before the war, these two countries produced almost all the natural phosphates in Europe. The rest was furnished by Russia. Spain and Norway only produced a negligible quantity.

The output of the *United States* is the greatest in the world. Tunis alone has an output comparable with that of the United States.

The production of natural phosphates throughout the world for the five years preceding the war, is given in the following table:—

PRODUCTION OF NATURAL PHOSPHATES

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
Europe:					
France	397.9	333.5	312.2	330.0	335.0
Belgium	205.3	202.9	196.8	203.1	219 4
Russia	21.5	25.1	25.7	25.0	25.0
Spain	1.4	2.8	3.5	3.3	3.5
Norway	1.4	0.7	0.9	1.2	0.7
America:					
United States	2,503.2	2,724.8	3,260.0	3,231.6	3,161.1
W. and Dutch Indies	27.2	31.4	18.6	20.4	34.8
French Guiana	9.0	6.8	7.2	7.0	3.2
Canada	1.0	1.5	0.6	0.2	0.4
Asia:					
Christmas Islands	198.0	310.6	250.0	159.5	152.4
Japan	3.8	1.0	2.3	7.9	19. 0
Africa:					
Tunis	1,223.5	1,286.3	1,446.6	2,057.5	2,170.5
Algeria	351.5	319.1	332.9	388.5	461.0
Egypt	1.0	2.4	6.4	70.0	104.5
Oceania:					
Ocean Is. and Nauru Is.	197.9	310.6	250.0	300.0	250.0
Angaur	9.0	45.0	41.0	60.0	90.0
S. Australia	3.8	5.3	5.9	6.2	6.0
Makatea	?	?	12.0	40.0	82.0
Total (in round figures)	5,156.4	5,609.8	6,181.2	6,911.4	7,118.5

From this table it will be seen that in 1913 the United States were responsible for nearly 45 % of the world's production and Tunis for a little more than 30 %. These two countries thus accounted for 75 % of the world's output in 1913. The increase in the world's production in 1913, as compared with 1909, is about 38 %.

The greatest reserves of natural phosphates, estimated at 10 milliards 520 million tons, are found in the United States. These reserves have scarcely been touched. The Federal Government attaches very high importance to its phosphate reserves as being a product extremely important for the development of the agriculture of that country. The United States Government does not readily grant concessions for working the phosphate deposits, being desirous of avoiding the exhaustion of national reserves through exportation.

In South Carolina, for example, a falling off in the output of phosphates may be noted. This is due, it is alleged, not to the exhaustion of the deposits, but rather to the difficulties arising out of the concessions system.

Nevertheless, the output of phosphates in the United States has been increasing. From 519,000 tons in 1890, the output reached 3,161,100 tons in 1913.

France, as we have seen, holds the first place in Europe as a producer of phosphates. It appears that the known supplies are being exhausted. At any rate, a decline in output may be noticed in comparison with 1909. It should also be noted that French phosphate is regarded as a poor product and that its greatest use is to enrich basic slag obtained from ore containing little phosphorus.

The reserves in Belgium do not appear to be as considerable as those in France. As regards Russia, she possesses deposits, especially in the heart of the country, but these have not yet been developed.

Northern Africa possesses remarkably rich supplies. Tunis, as the previous table shows, was able to develop the working of these supplies much more rapidly than Algeria. It appears that Morocco also possesses great phosphate reserves [1].

In Asia, Christmas Island a British possession in Malaysia has important reserves, and although its output is small, it is the most considerable Asiatic producer. The earths are very rich in phosphates (78 %, sometimes 85 %).

Japan, as was shown, has only recently begun to work her deposits, which are very limited; her earths are exceedingly rich (about 75 %).

As for Oceania, reference may be made to Ocean Island, which is a British possession in the East Pacific. It has deposits of high value (78 to 90 %), the working of which was begun only in 1901. The reserves are estimated at 50 millions of tons.

Makatea Island, a French colony, possesses earths giving a rich yield (85 %); the exploitation only began in 1910-1911, and the table given above records the progress made.

Finally, the Nauru and Angaur Islands (former German colonies) have also rich deposits, giving an average yield of 80 %.

7. *Hyperphosphates of lime* are produced by the action of sulphuric acid on mineral phosphates. Superphosphate of lime is distinguished from natural phosphates by its solubility and by its higher content of phosphoric acid, which, in the trade, determines the selling price.

The world's production of hyperphosphates of lime from 1909-1913 is given in the following table:

PRODUCTION OF HYPERPHOSPHATE OF LIME
(In thousands of metric tons)

Country	1909	1910	1911	1912	1913
Europe:					
France. . .	1,641.6	1,634.4	1,750.0	1,950.0	1,920.0
Germany. .	1,267.2	1,353.6	1,540.8	1,718.4	1,818.7
Italy. . . .	936.6	1,050.0	944.3	1,018.8	972.3
Gt. Britain .	807.3	757.0	810.0	840.0	820.0
Belgium . .	349.2	394.2	420.0	450.0	450.0
Austria-Hungary .	299.0	347.1	367.3	397.3	400.0
Spain . . .	156.6	208.8	220.0	210.0	225.0
Sweden . .	102.5	167.1	184.9	168.5	184.3
Russia . . .	64.8	88.2	174.4	205.2	?
Denmark. .	29.7	50.4	?	?	90.0
Portugal . .	?	?	?	?	126.0
America:					
United States	1,089.6	?	?	?	3,248.0
Oceania:					
Australia. .	?	?	?	?	36.8

[1] See *Le Phosphate*, April 15th and May 1st, 1921.

It will be noticed that France formerly held first place in the world as regards the output of hyperphosphate of lime. Just before the outbreak of war, however, the United States, which possess deposits exceedingly rich in natural phosphates, became the greatest producer in the world. We must not omit some mention of Holland's production, for which we have no data.

8. In addition to hyperphosphates of lime, we may mention *bones* and *bone hyperphosphates* used as manures. Bones, after being cleaned, yield a powder which contains valuable substances, and is employed as a fertiliser. Bone hyperphosphate is the product obtained from a mixture of diluted sulphuric acid and bone dust. As a result of the comparatively insignificant quantity of raw material and the rather high cost of manufacture, the use of this fertiliser in agriculture is not very extensive.

9. *Basic slag* is the last important phosphate product employed in agriculture as a manure.

The slag, or residue resulting from the conversion of pig iron into steel, in cases where the pig iron is derived from iron ore containing phosphorus, may be employed in agriculture as a fertiliser, in consequence of the phosphorus which it contains.

The extensive use of this fertiliser dates from 1878, when the Thomas and Gilchrist process for removing the phosphorus was perfected.

The following table shows the production of basic slag in the various countries:

PRODUCTION OF BASIC SLAG

(In thousands of metric tons)

Country	1909	1910	1911	1912	1913
Germany [1] .	1,879.0	2,007.0	2,160.0	2,110.0	2,250.0
Luxemburg.	[2]	[2]	[2]	253.0	250.0[3]
France. . .	463.0	534.0	602.0	679.0	730.0[3]
Belgium . .	335.0	488.0	471.1	534.0	655.0
United Kingdom.	255.5	260.0	270.0	300.0	404.0
Austria-Hungary .	69.6	78.1	85.3	94.7	50.8
Russia . . .	—	—	—	16.0	49.0
Sweden . .	6.9	12.3	12.7	15.0	18.3
Total (in round figures) [3]	3,009.0	3,379.0	3,601.0	4,002.0	4,407.0

This table shows the preponderance of Germany in the production of basic slag. This is not to be wondered at, in view of the progress of the iron industry in Germany ; and particularly the production in the Lorraine Basin of pig iron remarkable for the uniformity of its content of phosphorus, which makes it possible to use the slag after a simple crushing process.

10. *Potash salts* are largely used for agricultural purposes. In industry, potash is only used for the preparation of explosives and of salts necessary for paint, pharmaceutical products, etc. It has been replaced by soda in the manufacture of glass and crystals. It may, therefore, be said that the greater portion of potash is used for agricultural purposes.

There are few known deposits of potash salts.

The most extensive deposits occur in Germany (the Stassfurt deposits). But in view of the discovery of deposits of potash in Upper Alsace, in Catalonia and in

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[1] Including Luxemburg for the first three years.
[2] Quantity included in the figures for Germany.
[3] Estimate.

some other regions, the Stassfurt deposits are likely to lose their predominant importance.

The salt springs in Upper Alsace are found in the districts South of Colmar. The potash deposits in Upper Alsace were discovered in 1904, while the potash salt deposits in Catalonia were discovered as late as 1913. Mention may be made of less important deposits in the Dahlak Islands, in Galicia, the United States, Tunis, Russia, etc.

Production of Potash Salts in Germany

(In millions of metric tons of pure potash and in round figures)

1880 [1]	0.07
1890 [1]	0.12
1900 [1]	0.30
1909	0.68
1910	0.86
1911	0.94
1912	1.01
1913	1.11

Before the war, Germany produced nearly all the potash consumed in the world. 95 % of the German production came from the Stassfurt mines and 5 % from Alsace. It will be shown that during and after the war some other countries also began to increase their production of potash.

The production of potash in Germany was not always uncontrolled. On May 5th, 1910, a *cartel* of potash producers was created, which was protected and supervised by the German Government. The reason for this Government intervention was the competition between the various German mines. The remarkable development of the Stassfurt deposits brought about a veritable fever of over-production resulting in a fall in the price of potash. The German Government intervened in order to put a stop to over-production and to limit the sale of potash products. The *cartel* was administered by a committee of seven members, of whom four represented the Mining Association, and three, including the president, represented the State. In case of any dispute, the president could appeal to the Reichstag. In order to be able to sell his products the owner of a potash deposit must become a member of the *cartel*. The *cartel* committee fixed annually the quantity of each class of salts to be sold in Germany and abroad. It also fixed the prices of each class, which differed according as it was destined for the home or for the foreign market.

11. *The trade in manures.* The table given below will show the export of nitrates *from Chile* for the five years preceding the war, and also the stocks available on December 31st of each year, as compared with the production.

Production and Export of Nitrate from Chile

(In thousands of metric tons)

	1909	1910	1911	1912	1913
Production	2,111	2,465	2,522	2,587	2,773
Export	2,133	2,339	2,451	2,494	2,740
Stocks available on December 31st . . .	1,546	1,630	1,695	1,620	1,772

Before the war, Germany was the greatest importer of nitrate from Chile, and was also the greatest consumer of this product. The United States came next,

[1] Report of the Interior United States Geological Survey, *Potash in* 1919, Washington, 1920.

then France, Belgium, the Netherlands, the United Kingdom, and a few other countries [1].

(Thousands of metric tons)

Country	Quantity	Percentage
Germany	835	32.7
United States	590	23.1
France	322	12.6
Belgium	318[2]	12.4
The Netherlands	203[2]	7.9
United Kingdom	130	5.1
Italy	50	1.9
Egypt	25	1.0
Spain	15	0.6
Other countries	67	2.7
Total	2,555	100.0

The Chilian Government levied certain export duties on the exported nitrate, which constituted more than 50 % of the revenues of Chile

The high price of nitrate of soda from Chile was due partly to the levy of an export duty and partly to the imperfections of the process of extracting and treating the ore of nitrate and the unsatisfactory means of transport and lading.

12. It has been shown that, of the two largest producers of sulphate of ammonia, Germany was first in 1913 and the United Kingdom second.

Below are given tables showing the imports and exports of sulphates of ammonia in a few countries from 1909 to 1913:—

Imports of Sulphate of Ammonia in the Principal Countries

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
Europe:					
Germany	58.1	30.4	24.5	23.1	34.6
The Netherlands	33.1	31.0	29.2	39.3	31.2
France	25.8	26.2	21.8	22.9	23.0
Italy	18.9	20.7	20.3	21.2	21.7
Belgium	17.2	16.2	8.7	20.0	17.7
America:					
United States	38.9	83.7	85.8	54.0	59.2
Asia:					
Japan	42.2	69.4	74.2	84.6	111.5

Exports of Sulphate of Ammonia from the Principal Countries

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
United Kingdom	268.4	288.2	295.8	289.6	328.2
Germany	58.7	73.0	74.4	57.3	75.9
Austria-Hungary	19.2	21.9	20.0	20.8	23.8
Belgium	11.0	13.6	16.9	17.9	16.4
The Netherlands	7.4	23.5	23.9	31.3	18.7
Denmark	—	2.5	2.3	2.7	2.8
France	0.9	0.8	1.3	2.0	1.2

We may now state the stocks in the above-mentioned countries.

[1] Ministry of Commerce, *General Report on French Industry*, Paris, 1918.

[2] Part of which went to Germany.

Stocks of Sulphate of Ammonia

(Thousands of metric tons)

Countries	1909	1910	1911	1912	1913
Europe:					
Germany.	329.9	330.4	368.1	457.8	507.8
United Kingdom .	86.3	85.3	95.3	104.6	110.7
France.	78.5	82.7	82.5	90.0	96.3
The Netherlands .	30.7	12.8	11.3	15.0	19.5
Italy.	25.8	27.9	29.0	32.3	35.1
Austria-Hungary .	7.8	6.7	10.3	12.1	11.2
Belgium	40.8	38.2	32.5	45.8	49.9

A comparison of the previous three tables with the table for production will show the situation of the different countries.

It will be observed at the outset that Great Britain is the principal exporter of sulphate of ammonia. It is the only one of the great producing countries which does not import any of this product.

The countries to which British sulphate of ammonia was chiefly exported in 1913 were as follows:—

Exports of Sulphate of Ammonia by Great Britain

(In metric tons)

Japan[1].	116,416
Spain	53,195
Java.	37,713
United States of America . . .	36,978
Germany.	9,538
France.	9,015
Canary Islands	8,631
Italy.	5,915
Belgium	5,252
Total (including other countries).	328,238

Germany has increased her production and has thus been able to reduce her imports and to increase her exports, which, however, still remain much inferior to those of Great Britain.

Exports of Sulphate of Ammonia from Germany in 1913

(In metric tons)

The Netherlands	18,195
Dutch Indies.	16,024
Belgium	15,775
France.	7,428
United States.	5,630
Italy.	3,551
Total (including other countries)	75,868

Germany imported, in 1913, 34,627 tons of sulphate of ammonia, of which 21,204 came from Austria-Hungary.

Austria-Hungary is essentially an exporting country, being almost in the same category as Great Britain. Her imports of sulphate of ammonia are negligible: 56 tons in 1913.

[1] Including Formosa and the territories held on lease in China.

Belgium had produced sufficient quantities of sulphate of ammonia for her own consumption, particularly during the years 1911, 1912 and 1913, though falling slightly short of that standard in 1912. She had, nevertheless, imported fairly large quantities of sulphate of ammonia, probably for the sake of certain economic advantages; her exports have increased since 1909 except for a slight falling off in 1913. Before the war practically the whole of her import came from Germany (11,079 tons in 1913), from Great Britain (5,051 tons) and from the Netherlands (1,405 tons).

Before the war, Belgium's export of sulphate of ammonia was principally to France (5,698 tons in 1913), to the Dutch Indies (5,486 tons) and to the Netherlands (2,049 tons). The remainder was despatched to a large number of other countries in Europe and outside Europe.

The exports of the other countries are negligible. The only one requiring notice is Denmark, who exports all the sulphate which she produces.

Among the importing countries we note France, who did not produce sufficient for her own consumption. In 1913, her imports amounted to more than 31 % of her production.

Italy also produces insufficient sulphate of ammonia. In 1913, she imported nearly 22,000 tons and had only produced a little more than 13,000 tons. The remaining European countries such as Spain, Russia, Sweden, etc. imported little sulphate of ammonia, as they produced enough for their home consumption.

Outside Europe, Japan and the United States are the chief importers of sulphate of ammonia.

The production of the United States was not sufficient for their own consumption. Although this production steadily increased during the five years preceding the war, there was at the same time an increase in the import. As the United States did not export sulphate, it may be said that before the war their consumption equalled production plus import. In 1909, then, consumption was about 105,000 tons; in 1913, 236,000. In 1913, the United States imported an amount equivalent to one-third of their production. Japan, which, before the war, produced an insignificant quantity of sulphate of ammonia, imported a considerable quantity. This country is the chief of all the importing States in the world; between 1909 and 1913, she almost tripled her import. By way of comparison, it should be observed that in 1913 the total imports of all the European countries were about 135,000 tons; in the same year Japan imported 111,500 tons.

13. The trade in cyanamide of calcium is of little importance.

In Europe, before the war, two countries exported a more or less considerable amount of cyanamide: Norway and Sweden. The export from the former country greatly increased between 1909 and 1913. In 1909, Norway exported only 752 tons; in 1913 more than 22,000 tons. Sweden only began to export cyanamide about 1912. In this year her exports were some 4,000 tons, and in the following year almost 17,000 tons. Germany also exported a certain quantity of cyanamide, which appears in the German statistics among the other synthetic nitrogenous manures.

Among the importing countries are the United States, who in 1912 began to import this product (7,248 tons in 1912 and 14,891 in 1913). The other countries imported relatively insignificant quantities of cyanamide; their statistics do not show any separate estimate of the quantities of this product imported.

14. Norway, the chief producer of nitrate of lime, is also the only country in the world which exports any considerable quantity of this product. She herself consumes little nitrate. In 1913, she exported 70,927 tons out of the 73,214 tons produced. Her consumption in 1917 was, however, greater than the difference between production and export: 5,500 tons. As this country does not import nitrate of lime, the balance required for consumption was taken out of stock.

The following table shows the production, export and consumption of nitrate of lime for Norway, from 1909 to 1913:

(In metric tons)

	1909	1910	1911	1912	1913
Production	11,953	18,569	13,152	36,468	73,214
Exports	9,422	13,531	9,805	51,701	70,927
Consumption	970	1,860	1,967	3,721	5,500

The Norwegian Nitrates Company controlled the sale of nitrate of lime. Before the war, this company had correspondents in all countries and it sold and delivered the product direct to its agents. The countries of Northern Europe and Germany absorbed the greater part of the Norwegian nitrate.

15. *Phosphate manures.* The following table shows the imports and exports of *natural phosphate* in the principal countries of the world from 1909 to 1913:

NATURAL PHOSPHATES — IMPORTS

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
Europe:					
France.	645.2	687.2	740.4	907.8	940.8
Germany.	663.4	723.3	833.3	902.8	928.8
United Kingdom	459.1	462.9	501.3	528.6	547.6
Italy.	478.2	422.7	479.0	466.1	529.8
Spain	82.7	106.7	163.6	176.2	254.5
Belgium	?	?	195.2	244.2	244.8
Austria-Hungary	172.9	192.1	172.5	175.8	203.0
Sweden.	75.1	66.9	91.4	81.6	123.2
The Netherlands	45.0	29.3	68.6	60.1	84.0
Denmark.	35.6	25.7	20.1	45.2	55.9
Russia.	23.2	24.9	29.0	47.4	53.6
America:					
United States.	12.1	—	—	—	—
Asia:					
Japan	71.1	168.2	230.3	284.7	331.3
Oceania:					
Australia.	51.1	107.3	87.4	99.8	162.6

NATURAL PHOSPHATES — EXPORTS

(In thousands of metric tons)

Europe:					
France.	47.6	44.4	31.4	22.1	21.1
Belgium	?	?	21.8	22.9	18.2
Germany.	5.4	5.0	10.6	7.0	6.9
Italy.	3.0	3.6	5.4	1.3	4.2
America:					
United States.	1036.9	1100.4	1266.6	1225.9	1388.4
Asia:					
Straits Settlements . . .	107.2	139.9	155.3	159.5	152.4
Africa:					
Tunis	1233.5	1293.2	1539.4	1910.2	1984.9
Algeria.	33.4	317.3	335.0	377.6	438.6
Egypt	?	2.2	5.0	52.1	64.2

In Europe, France occupied the first place in 1913 among the importers of natural phosphates. As, on the other hand, she did not export much phosphate in comparison with the amount produced, we see what an enormous supply of phosphate she had.

The following table shows her supply in 1913:

Production	335.0	thousands of metric tons
Import.	940.8	» »
Export.	21.1	» »
Consumption	1254.7	» »

The table of phosphate production has shown us the decrease in French output during the five years preceding the war. The import and export tables show the increase in import and the decrease in export during the same period. The greatest quantity of natural phosphate came from Tunis and Algeria. France also received a large quantity from Belgium and Germany.

The following table gives the import of phosphate into France in 1913 from the chief exporting countries:

Tunis	706.0	thousands of metric tons
United States.	111.6	» »
Algeria.	80.0	» »
Belgium	28.6	» »

Out of 941,000 tons imported, Tunis supplied 75 %. France exported her phosphate principally to Great Britain (10.2 thousands of tons in 1913) and Belgium (8.7).

Germany held the second place as importer of phosphate. As she produced no natural phosphate, Germany imported a large amount, which, in 1913, was almost equal to that imported by France. About 40 % of the imports came from the United States.

The United Kingdom and Italy are the last two countries which imported any considerable quantity of phosphate in 1913. They imported the greater part of their phosphate from Tunis and the United States.

Outside Europe, only Japan and Australia imported any considerable quantity of phosphate.

Among exporting countries we can only quote the United States and Tunis as of any importance. The exports of other countries, except Algeria, are comparatively negligible.

The United States, in 1913, produced 3.2 million tons of phosphate and exported 1.4 million in the same year, thus leaving 1.8 million tons for their own consumption.

The export from the United States was almost entirely to Europe.

Outside Europe, the United States exported only to Japan.

As regards Tunis, she exported the greater part of her phosphate to France; the United Kingdom and Italy were also important customers.

The table given below shows the stocks in 1913 and the contribution made by Algeria, Tunis, the United States and the Pacific Islands to the natural sulphate supplies of the principal countries in Europe [1]:

	Country of Origin:		
	Algeria and Tunis	United States	Pacific Islands
	(Metric tons)		
France.	794	135.5	—
United Kingdom	222	190	—
Germany.	307	392	150
Belgium	102	110	9.5
Italy.	466	101	—
Netherlands	110	190	15
Spain	160	67	3
Total (including the other countries)	2,345.5	1,305.5	313.5

[1] *General Report on French Industry*, etc.

16. The chief countries exporting hyperphosphate of lime before the war were the Netherlands, Belgium, Germany and France.

Below is a table of exports from the principal countries:

HYPERPHOSPHATE OF LIME — EXPORT

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
The Netherlands . . .	232.3	233.3	280.3	346.2	352.8
Belgium	348.3	346.1	329.8	314.7	318.9
Germany.	168.7	211.8	221.8	271.3	282.7
France.	227.8	258.1	250.0	169.6	145.2
United Kingdom . . .	143.7	155.0	162.0	90.3	64.5
Sweden	17.2	51.2	61.2	57.8	36.0
Austria-Hungary . . .	0.9	3.5	3.9	5.4	3.7
Asia:					
Japan	6.3	14.9	15.6	20.5	18.7
Africa:					
Algeria.	5.4	4.7	3.5	3.3	8.0
Tunis	—	—	—	—	1.3
Oceania:					
Australia [1]	12.0	13.2	10.2	9.3	13.1

Owing to lack of information, the Netherlands do not appear in the table showing the production of hyperphosphate before the war. But, as we see from the table given above, this country occupies the first place as an exporter and re-exporter.

Leaving the Netherlands out of account, there are three countries — Belgium, Germany and France — which exported a considerable quantity of hyperphosphates before the war.

The exports of Belgium and France are, as we see, on the decrease, whilst the German export is constantly increasing. The increase in German export in 1913 is about 70% as compared with 1909; the increase in production during the same period is 43 %. Belgium and France also increased their production, but in a lesser degree. We notice a very marked decrease of export in the case of the United Kingdom; more than 62 % decrease in 1913 as compared with 1909, although the production during the same period was slightly increased. We may therefore say that the United Kingdom, which did not import this product, uses more and more hyperphosphate at home, thus decreasing her export. Germany exported the greater part of her hyperphosphate to Russia.

Below is the table showing exports of hyperphosphate in 1913 to the chief importing countries:

(In thousands of metric tons)

Russia	108.9
Austria-Hungary .	68.0
Denmark.	43.5
Switzerland. . . .	15.2
Spain	9.9
The Netherlands .	5.3
Brazil	4.2

Before the war, Belgium exported the greater part of her hyperphosphate to France. In 1913, the quantity exported to France was one-third of the total export.

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[1] Including re-exports.

Below is the table of exports from Belgium to the principal importing countries in 1913:

(In thousands of metric tons)

France	103.2
The Netherlands	68.2
Great Britain	39.4
Germany	28.7
Spain	23.8
Italy	15.1
Denmark	10.4

Belgium exported the remainder to a great number of countries in different parts of the world.

The chief countries importing French hyperphosphate are: Spain (57.4 thousands of metric tons in 1913), Belgium (30.2), Italy (21), Portugal (11.8). In 1913, France exported 11.5 thousands of tons to her Colonies and Protectorates, 9.7 of which went to Algeria.

Out of 64.5 thousands of metric tons of hyperphosphate exported in 1913, the United Kingdom exported more than 27 thousands to her Possessions, 12.700 going to New Zealand. In Europe, the principal countries importing English hyperphosphate were: Denmark (more than 12,000 metric tons in 1913), Spain (6.7 thousand tons), Russia (4.8), France (4.2).

The following table shows the amounts of hyperphosphate of lime imported by the principal countries from 1909 to 1913:

HYPERPHOSPHATE OF LIME — IMPORTS

(In thousands of metric tons)

Countries	1909	1910	1911	1912	1913
Europe:					
The Netherlands	214.4	237.3	273.4	295.6	270.4
Russia	75.3	120.9	154.7	189.5	196.9
Spain [1]	177.4	237.3	258.6	161.0	150.2
Denmark	—	65.4	87.3	102.1	119.2
France	123.4	132.5	79.4	89.1	100.8
Austria-Hungary	67.4	65.4	62.2	79.5	75.2
Belgium	63.6	69.8	69.6	37.8	28.0
Germany	80.2	78.9	71.1	62.4	53.2
Africa:					
Union of South Africa	14.0	21.5	23.1	2.3	37.2
Algeria	19.7	25.4	36.3	28.2	18.2
Egypt	2.2	3.3	9.5	11.5	13.1
Oceania:					
Australia	38.5	60.8	63.8	49.2	27.1

Apart from the Netherlands, we see that there were four or five countries in Europe which before the war were large importers of hyperphosphates.

Among the importing countries we notice a marked increase in Russian import (236 % in 1913 as compared with 1909); Denmark's import has also increased.

On the other hand, Spain, France, Germany and Belgium have perceptibly diminished their imports. With regard to Germany, the decrease can be explained by the fact that this country has vastly increased her production — a fact which has enabled her to reduce her import and increase her export.

France, which has also increased her production, although in a lesser degree, has reduced her export, as we have seen, and has thus also been able to reduce her import. Belgium found herself in the same position. Spain was increasing her production and had been able to decrease her import; we have seen that this country exported no hyperphosphate.

[1] Including basic slag.

17. While Germany was, as we have seen, the greatest producer of basic slag, she also, before the war, held the first place as exporter, and Belgium held the second.

Below are given the tables of export and import of basic slag for the principal countries.

BASIC SLAG — EXPORT

(In thousands of metric tons)

	1909	1910	1911	1912	1913
Germany	360.9	415.6	499.4	663.0	713.9
Belgium	416.3	521.5	550.8	681.8	685.9
The Netherlands	57.8	101.6	128.7	154.8	197.8
United Kingdom	222.3	235.0	199.0	159.7	167.7

BASIC SLAG — IMPORT

(In thousands of metric tons)

	1909	1910	1911	1912	1913
The Netherlands	154.5	195.7	273.1	340.0	438.1
Germany	279.2	344.3	403.8	372.8	441.1
Austria-Hungary	153.7	145.7	145.5	203.5	212.8
Russia	97.4	131.4	139.6	185.1	186.4
Belgium	97.4	98.8	118.0	130.4	144.6
Italy	93.1	114.2	114.1	118.2	119.3
Switzerland	43.7	42.7	47.4	54.2	55.8
United Kingdom	15.5	16.9	23.0	50.1	52.0

Before the war, Germany was not only the largest producer of hyperphosphate, but also the largest exporter and consumer of this product.

In 1913 the	production	was	2,250	thousand	metric tons
»	import	»	441	»	»
»	export	»	714	»	»
»	stock	»	1,977	»	»

Thus, in 1913, Germany's stock was almost equal to the amount produced in the same year by four other important European producers: Belgium, France, United Kingdom and Luxemburg.

German export before the war was sent chiefly to the three following countries: Austria-Hungary, the Netherlands and Russia.

Switzerland, Italy, France and Belgium absorbed the rest.

Germany also imported a large quantity of basic slag, almost exclusively from Belgium (281,000 tons in 1913), and from France (141.3 thousands of tons).

In 1913, Belgium held the second place as an exporter, particularly as a re-exporter. While Germany only exported this product to European countries, Belgium exported to all parts of the world.

Almost half of her export went to Germany (more than 330,000 tons in 1913). The Netherlands (71.8 thousand tons), Great Britain (68,000), Russia (45,000), Italy (44,000), the United States (21,000) were amongst the principal customers of Belgium.

In 1913, Belgium imported 144.5 thousand tons of slag, of which 133.2 thousand came from France.

We can now tabulate Belgium's stock in 1913:

Production	655.0	thousand	metric tons
Import	144.6	»	»
Export	685.9	»	»
Stock	113.7	»	»

We see that Belgium exported even more than she produced.

The United Kingdom largely reduced her export of basic slag and increased her import. Out of 167.7 thousands of tons exported in 1913, 39.3 tons were sent to the British Possessions. In Europe, Russia (27.5 thousand tons), France (27), Italy (18.5), Sweden (13.8) and some other countries were in the same year regular customers of the United Kingdom.

In spite of the increase in her production and the decrease in her export, the United Kingdom increased her import. In 1913, this increase was 24 % as compared with the year 1909. Out of 52,000 metric tons imported in 1913, 47.7 thousand tons came from Belgium. Her stock in 1913 was:

Production	404	thousands of metric tons
Import.	52	» »
Export.	167.7	» »
Stock	288.3	» »

All the other countries, such as Austria-Hungary, Russia, etc., were importing countries, either not producing at all or not producing enough for home requirements.

18. As Germany was before the war almost the only country which produced potash salts, it is not surprising to see that this country was almost the sole exporter of what is called Stassfurt salt. Until 1914, the export of potash salts from Germany was on the increase. She retained about 50-60 % of her production for her own agricultural and industrial needs and exported the remainder.

Below is the table of exports from Germany during the five years preceding the war:

(In thousands of metric tons)

	1909	1910	1911	1912	1913
For Agriculture.	284.0	406.9	425.7	440.4	467.8
For Industry.	32.1	32.3	34.4	40.3	38.3
Total .	316.1	439.2	460.1	480.7	506.1

The United States, the greatest consumer of German potash salts, the Netherlands, the United Kingdom, Austria-Hungary and Sweden were Germany's most important customers.

II.

POSITION DURING THE WAR.

19. The war reduced the production of manures and disturbed the import and export trade.

Generally speaking, there was a falling off in European production and stock, which did a great deal of harm to agriculture. However, in a few neutral countries, as for example in *Norway* for *nitrate of lime*, and in *Chile* for *nitrate of soda*, we notice a fairly marked increase of output. *Spain* during the war also increased her output of *hyperphosphates of lime* and of some other chemical manures; *Sweden* also developed her manure industry. Outside Europe, we note that the United States and Japan considerably increased their output of sulphate of ammonia and to a certain extent of natural phosphates and hyperphosphates of lime.

We shall also note that the United States, which consumed a very large quantity of potash, imported almost exclusively from Germany, during the war developed her production of this manure on account of the interruption of the German export.

20. After a slight decrease in 1914 and a more marked decrease in 1915, Chile, during the last three years of the war, increased her production of nitrate of soda. The table below shows the production of nitrate of soda in Chile during the war:

(In thousands of metric tons)

1913.	2773.5
1914.	2464.4
1915.	1763.6
1916.	2914.5
1917.	3011.8
1918.	2875.9

It is not surprising to see a decrease in production in the year 1914-15. Before the war, Chile exported large quantities of nitrate to Europe. In 1913, European countries imported more than 2,000,000 tons of nitrate of soda. When the war broke out, the nitrate industries in Chile, disorganised by this event, considerably reduced their output, foreseeing that there would be a decrease in the export to Europe. But since 1916, as a result of a marked increase in the export to the United States, the Chilian industries have been able to resume their production of nitrate. We must observe that the nitrate served not only for agricultural purposes, but also for the manufacture of explosives.

Apart from the United States, Chile also found an important customer in Japan, which during the war considerably increased her import of nitrate.

Below is a table showing export of nitrate of soda from Chile during the war compared with her production.

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
Production . .	2,773.5	2,464.4	1,763.6	2,914.5	3,011.8	2,875.9
Export. . . .	2,740.0	1,847.6	2,031.0	2,991.8	2,787.4	2,930.7
Stock on 31st December .	1,772.2*	1,087.9*	789.7*	695.0*	882.6*	812.0

The export from Chile to Europe, as we have already said, decreased during the war. Countries like Germany, Austria, Belgium and Bulgaria completely ceased to import nitrate from 1915 onwards.

In 1914, the import of nitrate of soda by European countries was about 1,670 thousands of tons as compared with more than 2 million in 1913. In 1915, European import was about 656,000 tons; in 1916, there was an increase (864,000 tons), as a result of the increased importation into France; in 1917, there was again a decrease (724,000), while in 1918 the total was only 363,000.

Amongst European countries which perceptibly reduced their import of nitrate we must mention the United Kingdom and the Netherlands.

Below is the table showing the import into these countries during the war:

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
United Kingdom	143.2	174.7	133.6	21.2	1.2	0.3
The Netherlands	203.6	149.8	50.9	60.9	55.8	1.1

France reduced her import of nitrate in the years 1914-1915 and 1918 as compared with 1913. On the other hand, she was able considerably to increase her imports in 1916 and 1917, in spite of the increased activity in submarine warfare.

Below are the French imports during the war:

(Thousands of metric tons)

1913.	322.1
1914.	297.2
1915.	254.0
1916.	540.7
1917.	453.7
1918.	238.4

* On the Chilian coast only.

The average import during the war was 356.8, which is higher than in 1913.

A large part of the imported nitrate was used for the manufacture of explosives, and it should be noted that the sale and purchase of nitrate were centralised by the Allied and Chilian Governments during the war in a "Nitrate of Soda Executive".

We stated that during the war Chile exported the larger part of her nitrate to the United States.

Below is a table of the imports of the United States during the war:

(Thousands of metric tons)

1913.	635.9
1914.	550.4
1915.	704.6
1916.	1238.0
1917.	1568.0
1918.	1874.8

In 1913, the United States imported nearly 636,000 tons, and the European countries put together, during the same year, more than 2 millions. In 1918, the United States imported five times more than all the European countries put together.

21. The European production of sulphate of ammonia decreased during the war. The two countries Germany and the United Kingdom, which before the war produced between them about 70 % of the world-output, perceptibly reduced their production during the war.

Below is a table of the production of these two countries during the war:

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
Germany.	549.0	488.6[1]	341.3	341.3	281.6	262.7
United Kingdom[2]. .	438.9	432.8	445.0	432.8	250.0	262.1

These figures must not, however, be regarded as authentic.

In 1918, European production was about 565,000 tons, as compared with more than 1.2 millions in 1913. Thus there was a decrease of more than 50 %.

The export of sulphate of ammonia also decreased in a very large proportion on account of the marked decrease of the exports of the United Kingdom, which before the war was responsible for 70 % of the total European export.

Below are exports of the United Kingdom during the war:

(In thousands of metric tons)

1913.	328.2
1914.	318.4
1915.	298.6
1916.	263.5
1917.	64.0
1918.	19.5

The very considerable decrease in British exports is explained not only by the decrease in production, but also by the increasing difficulty of exporting to Japan, which before the war was the chief customer of the United Kingdom. In 1913, the United Kingdom exported to Japan 116.4 thousand metric tons of sulphate of ammonia, 35% of the total export; in 1914, the export amounted to 89.2 thousand metric tons; in 1915, to a little over 10 thousand tons; in 1916, 9 thousand; in 1917, 4 thousand; in 1918, nil.

The difficulty of exporting and importing during the war, together with the necessity of increasing the fertility of the soil, resulted in an increase in the United Kingdom in the use of fertilisers such as sulphate of ammonia and basic slag.

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[1] Total sales effected by l'Union de vente.

[2] Total production of ammonia calculated in sulphate.

Before the war, Germany occupied the second place among the exporters of sulphate of ammonia, although her export was much lower than that of the United Kingdom.

During the war, owing to the decrease in her production and to the blockade, the export of sulphate of ammonia was stopped.

In Europe, the Netherlands and Sweden, especially the former, were the only countries which increased their imports. Even for the Netherlands the increase was in the year 1914 and 1915 only. In 1917, the import was 2.7 thousand tons as against 31.2 in 1913.

Outside Europe, Japan, the largest importer, showed a great decrease during the war: in 1914, 105.6 thousand tons as against 111.5 in 1913; in 1915, 19.9; in 1916, 7.2; in 1917, 15.1 and in 1918, 1.1.

The United States, which occupied the second place amongst importing countries, diminished their imports of sulphate of ammonia during the war, except in 1914, when the import rose to 75.3 thousand metric tons (59.2 in 1913).

In 1915, import amounted to 33 thousand tons; in 1916, 13.2; in 1917, 7.4 and in 1918, 3.0.

22. The import and export of cyanamide of calcium and nitrate of lime considerably decreased during the war.

Even before the war, trade in these products was on a small scale. The largest pre-war importer (Germany) ceased to import these products during the war. France, on the contrary, has considerably increased her import of these products, although the quantity imported during the war was poorer than in 1913, in which year the import may be considered as exceptional in comparison with the preceding years.

With regard to export, we note a considerable decrease in that of Norway, except for the year 1914.

We give below the Norwegian exports during the war compared with its production and consumption:

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
Production . .	73.2	80.0	80.0	80.0	80.0	130.0
Export. . . .	70.9	75.2	38.6	46.0	35.9	50.0
Consumption.	5.5	6.0	8.0	50.0	50.0	80.0

A considerable decrease in the Norwegian export is observed. The increase in production and decrease in export contributed towards the increase in consumption, which, as is evident from the table, is extremely large.

This increase, moreover, is due to the necessity of intensifying the production of the soil on account of the difficulty in importing foodstuffs.

23. In Europe, omitting Russia with regard to which statistics are lacking, Spain alone was able not only to maintain her production of natural phosphates, but even considerably to increase it. The quantities, however, are negligible.

Outside Europe, the United States, which before the war occupied the first place as producers of phosphates, reduced their production during the war. The average production during the war was about 2,363,000 metric tons (3,161,100 in 1913).

The decrease is marked, but cannot be compared with the decrease in export. Before the war, the United States exported a large part of her phosphates, almost all to Europe. During the war, in face of the difficulty of exporting to Europe, the United States began to look for customers amongst their neighbours. In 1917-1918, exports to Europe amounted to 123,000 metric tons as against about 1.4 millions in 1913-1914. The average yearly export to Europe during the war, from 1914-15 to 1917-18, was 218,000 metric tons.

The heaviest decline has to be recorded in the case of France and Italy, especially the latter.

Exports to the United Kingdom also underwent a decline, although in a lesser degree.

An increase in the exports to Spain for the years 1916-17 and 1917-18 may be noted.

The United States, in view of this unavoidable falling off of exports to Europe, increased its exports to Canada. Before the war, Canada received an insignificant quantity of American phosphates. In 1917-18, exports were more than 14,000. Nearly the same quantity was sent to Cuba, which before the war received no phosphate from the United States.

On the other hand, we have to record a discontinuance of American export to Japan. The United States exported to that country in 1913-14 more than 89,000 metric tons. Moreover, Japan reduced all round her imports of phosphate during the war, but thanks to the increase in output, she was able to make good in part the decline in imports.

The output and import of natural phosphate in the case of Japan, during the war, is shown in the following table:

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
Output	19.0	38.3	57.7	114.8	121.6	?
Imports . . .	331.3	285.1	135.8	99.7	155.4	89.5
Stock	350.3	323.4	193.5	214.5	277.0	?

As Japan exports no phosphate, her supply may be regarded as equal to her production and her imports.

It may be said that Japan is beginning also to become an important producer of phosphate. The sudden rise from 19.0 thousands of metric tons in 1913 to 121.6 in 1917 is extraordinary. For purposes of comparison, it may be said that, in 1913, France and Belgium, two of the most important producing countries in Europe, produced, the former 335,000 tons, and the latter 219.4 thousands.

Tunis and Algeria perceptibly diminished their output during the war.

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
Tunis . . .	2,170.5	1,388.2	1,384.4	1,695.3	999.3	819.0
Algeria. . .	461.0	355.1	225.9	389.2 [1]	202.5 [1]	234.8

The exports of these two countries are also declining.

	1913	1914	1915	1916	1917	1918
Tunis . . .	1,984.9	1,427.2	1,114.1	1,034.7	612.4	938.1
Algeria. . .	438.6	355.1	225.9	389.2	234.8	198.5

Before the war, France imported from Tunis the larger portion of her phosphate manures. In 1913, she imported from Tunis more than 706,000 tons out of a total import of about 941,000. She imported from Tunis more than 35 % of that country's total export. From Algeria, she imported in 1913 more than 80,000 tons, representing about 18 % of the total Algerian export.

During the war, on account of transport difficulties, France cut down her imports of phosphates from Tunis. In 1916, for example, she imported from Tunis only 251.4 thousands of tons, which represents a little more than 24 % of the total Tunisian export, and from Algeria 233 thousand tons. In 1917, the imports of phosphates amounted to 134.8 thousands of tons, of which 82.7 came from Tunis and 36.7 from Algeria.

In these circumstances, France has decided to reserve for herself a certain percentage of the quantity produced by her colonies and to ration the remainder among the other European countries. It should be particularly noted that certain agreements have been reached between France and Italy.

The imports of phosphates from the United States have also suffered a very marked decline for the same reasons. The year 1917 was, in a very special sense,

[1] Export.

disastrous of importing countries on account of the intensified submarine campaign. Considerable differences may be noticed between the years 1916 and 1917.

Denmark, which in 1916 imported 108.9 thousands of tons, imported in 1917 only 8.4; Spain dropped from 288.3 to 130.4; France from 285.9 to 134.8, the United Kingdom from 338.7 to 281.1; Italy from 434.7 to 230.2, and Sweden from 86.0 to 1.8. In 1918, on the contrary, an increase may be noted in the case of all these countries except *France*.

24. *Hyperphosphate of lime*, the production of which depends on natural phosphate, has been affected by the same changes as phosphate of lime.

The production of hyperphosphate during the war by the leading producing countries is shown in the following table.

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
France.	1,920.0	1,600.0	600.0	350.0	243.0	412.0
Italy.	972.3	924.7	912.9	867.7	289.0	480.0
United-Kingdom. . .	820.0	?	685.0	631.5	495.0	584.0
Spain	225.0	220.0	194.2	315.2	210.6 [1]	?
The Netherlands	?	350.0	100.0	40.0	?	?

The output of Germany, Austria-Hungary and Belgium is unknown to us.

The decline in the production and imports compelled the exporting countries to cut down their exports as well. During the last three years of the war, the exports of this product became negligible. France, which in 1913 exported 145.2 thousands of tons, exported only 2.9 thousands of tons in 1918. The United Kingdom, which in 1913 exported 64.5 thousands of tons, exported in 1918 only 2.5 thousands.

Outside Europe, Tunis, which until 1913 neither manufactured nor exported any hyperphosphate, began to export this commodity in 1913, and during the war increased her exports. But already in 1918 this export fell to zero. It may be noted that Australia also increased her exports of hyperphosphate during the war.

The fall in the output of hyperphosphate was caused not only by the decline in the production of natural phosphate, but also by the lack of sulphuric acid, which was in very great demand during the war for the manufacture of explosives.

The United Kingdom, however, made the most successful attempt among the Allied Powers to keep up the manufacture of hyperphosphate.

25. Germany, France, Belgium and the United Kingdom were the most important producers of basic slag before the war.

During the war, the iron industry underwent a marked extension. Accordingly, it is not surprising to see that in certain countries the output of basic slag has been practically maintained or even increased; in other countries, the out put hasfallen off, but to a comparatively small extent.

Germany, which held the Lorraine Basin, of which the iron ores are famous for their content of phosphorus, was able to produce during the war a sufficient quantity of slag for her farmers.

In 1913, Germany produced 2,250 thousands of tons of slag (not including Luxemburg, which alone produced 250,000).

The output of slag during the war (including Luxemburg) is given in the following table:

(In thousands of metric tons)

1913.	2,500.0
1914.	2,067.0
1915.	1,632.0
1916.	1,914.0
1917.	1,823.0
1918.	1,476.0

[1] First nine months.

Germany almost entirely ceased exporting this manure during the war, except perhaps for certain quantities to some of the countries of Central Europe.

The United Kingdom was able not only to maintain its output of slag but even to increase it.

From 404,000 metric tons in 1913, an advance was made in 1914 to 480,000, in 1915 to 495,000, in 1916 to 508,000, in 1917 to 575,000 and finally in 1918 to 590,000 metric tons.

From 1915 onwards, the United Kingdom has imported nothing, and has considerably reduced her exports, passing from 167.2 thousands of tons in 1913 to 134.4 in 1914, 119.2 in 1915, 39.2 in 1916, 1.8 in 1917 and 1.1 in 1918.

Thus, in spite of the cessation of import, the United Kingdom has been able to increase its stock of basic slag.

This increase has made good, in part, the shortage of other manures.

No data are yet available as to the production of slag in France, but it may be presumed that during the war this was negligible, as a result of the destruction or occupation of the factories of the north.

26. Potash salts, as we have seen, are produced almost exclusively by Germany. During the war, that country consumed a considerable amount of these salts.

During the first three years of the war, the German production of potash salts decreased a little, but from 1917 the production increased, and in 1918 it almost reached the 1913 level.

The production of potash salts during the war was as follows:

(In thousands of metric tons; pure potash)

1913	1,110.4
1914	904.0
1915	680.0
1916	883.7
1917	989.6
1918	1,056.1

The amount produced was employed not only for agriculture, but also for industry. The quantity supplied to industry, however, was very small compared to that supplied to agriculture.

The export of potash salts naturally decreased very greatly during the war. Such quantities as were exported went to a few countries in Central Europe. On the other hand, the amount of potash salts supplied to German agriculture and industry steadily increased.

The following table shows the export of potash salts compared with the consumption in the country itself:

(In thousands of metric tons)

	1913	1914	1915	1916	1917	1918
Supplies to German agriculture and industry	604.3	537.8	560.8	726.7	834.4	918.6
Supplies to other countries	506.1	366.2	119.2	157.0	155.2	137.5
Grand totals	1110.4	904.0	680.1	883.7	989.6	1056.1

III.

POSITION AFTER THE WAR.

27. It is rather difficult to consider in detail the trade in, and, above all, the world production of, the different manures in the post-war period. We must therefore give merely a general outline of the question of the principal fertilisers after the war, using the few documents, mostly official, which are in our possession.

28. *Potash manures.* In Europe, one of the interesting questions is that of potash manures, the production of which is concentrated in Germany and Alsace.

In the first months of 1919, 3 to 6 thousand tons of potash per week were sent from Alsace into France. But the deposits in Alsace are capable of very considerable development. In view of the rich deposits at Stassfurt, Germany had no need to develop unduly the productivity of Alsace; it is known that the production of potash in Germany kept pace with the demand. But the separation of Alsace from Germany will no doubt allow France to develop the production of Alsatian potash and to make a breach, as it were, in the practical monopoly which Germany held before or during the war.

France's ability to deliver her potash at prices lower than those of the Stassfurt salts must also be noted. The potash salts in Alsace lend themselves to a much simpler treatment than is the case with the Stassfurt salts, which involve long and expensive processes; further, the conditions themselves for the extraction of potash are better in Alsace than at Stassfurt, where the potash deposits are not as even as those in Alsace [1].

Alsatian potash was in great request in 1920, not only in France, but also in England and in the United States, which gave large orders to France.

But the world-wide economic crisis since the beginning of 1921 has to a great extent prevented the rapid fulfilment of these contracts, and as a consequence the production of potash in Alsace has decreased.

In any case, although Germany remains the largest potash producer, thanks to its deposits at Stassfurt, and although the "Kalisyndicat" is still very powerful, the production of Alsatian potash can certainly be regarded as a serious factor in competition with German potash.

Germany had always fostered her potash industry, and did not cease after the war to encourage an industry which, before the war, had brought her such large profits.

The *Reichsanzeiger* of December 2nd, 1919, published a decree of November 28th of the same year on the composition of the Imperial Council on Potash and the Potash Boards, in accordance with the law of July 18th, 1919, on the nationalisation of the potash industry. The Imperial Council on potash (Reichskalirat) includes delegates of the employers and workers, representatives of the Federal States and of the Directors of the "Deutscher Kalisyndicat", etc. The principal Boards are: the Board of Control, in the Potash Industry, the Board of Appeal in potash questions and the Technical Agricultural Board on Potash.

It is therefore clear what a complex organisation was created for the protection of the potash industry in Germany. It must not be thought, however, that the potash industry in Germany is a State industry; the German State does not produce, but controls the production.

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[1] *Nitrates, Phosphates, Potash*, by R. de Bonard, Paris, 1920.

The production is in the hands of a Syndicate called "The German Potash Syndicate, Limited Liability Company". The governing and administrative Councils of this Syndicate are composed of delegates chosen from the lists drawn up by the Imperial Council on Potash.

Production considerably decreased immediately after the war. This was due, to a great extent, to the chaos caused by the fatal termination of the war and by the Revolution [1]. The decrease in the production of potash has influenced the consumption of this manure in Germany. In 1918, Germany used 918,000 tons of potash, of which 821,600 tons were used for agricultural purposes; in 1919, she only used about 609,000 tons in agriculture. The diminution in German territory, as a consequence of the loss of Alsace-Lorraine, must, it is true, be taken into consideration; but, even so, the decrease is still notable. In 1920, consumption was rather higher — 636,000 metric tons.

The world supply in 1913 amounted, according to the Kalisyndicat, to 1,110,000 tons in round figures, and in 1919 to 812,000 tons. A considerable decrease took place in the United States (nearly 250,000 tons in 1913 and 70,000 tons in 1919) and also in Austria-Hungary (28,000 tons and 2,000 tons) and in the United Kingdom (29,000 tons and 10,000 tons). The decrease of consumption in the Netherlands is relatively small (43,000 tons and 30,000 tons), and the consumption in countries such as Denmark and Norway has even considerably increased, as these countries were able to import potash more or less easily both during and after the war.

We must note that France, which before the war consumed very little potash (about 40,000 tons), consumed 250,000 tons after the war (probably in the year 1919-20) [2].

The potash deposits worked in Catalonia (Spain) should also be noticed. The discovery of potash in this district dates only from 1913-14. Concessions granted by the Government are held mainly by Germans. The French and Spanish also control a few concessions.

The deposits in Catalonia have apparently a great future. They are very regular and near the surface. The port of Barcelona, which is close at hand, and the railways which connect these deposits with the most highly cultivated districts of the West of Spain and the South of France afford excellent outlets for the potash salts of Catalonia. Catalonian potash will thus also be able to compete with German potash.

Finally, we must note that the Spanish Government, by a decree dated July 1st, 1914, subjected to State control the production and sale of salts obtained from any concessions which may subsequently be granted.

Outside Europe, the United States are the most important consumers of potash, being second only to Germany. In the beginning of 1919, the United States passed through a critical period as regards the potash industry. During the war, this industry was able to develop, thanks to the difficulty of importing from Germany and the high price of potash. But after the war — as early as November 1918 — the price fell so low that the possibility of bringing cheap potash from Alsace and Germany was contemplated, and in 1919 production decreased.

American producers asked Congress to pass laws protecting the national potash industry, but no law of this nature has yet been introduced.

The following table shows the production of pure potash in the United States in 1919 compared with the war years [3]:

(In thousands of metric tons)

1915.	0.9
1916.	8.8
1917.	29.6
1918.	49.7
1919.	27.9

[1] *Die Ernährung der Pflanze*, published by the KALISYNDICAT, February and March, 1921.
[2] *Rapport général sur l'industrie française*, etc.
[3] *Potash in* 1919. Washington, 1920.

During the war, and especially from 1916, the import of potash to the United States came almost completely to a standstill, and since before the war the United States imported almost 291,000 metric tons from Germany in 1913–14, the amount produced was evidently not sufficient to cover the deficit in supply due to the cessation of imports.

In 1919, the amount of potash imported for use in agriculture was rather more than 115,000 metric tons. It is to be noted that potash was imported into the United States in 1919 not only from Germany, as was the case before the war, but also from France, Belgium and the Netherlands. (In the case of these last countries it was probably a case of re-export.)

In 1919, the United States did not receive the amount of potash which they had expected to obtain from Alsace and from Germany on account of the difficulties connected with transport and the unfavourable conditions for working the deposits in Alsace, etc.

France, which before the war exported no potash for agriculture, has begun exporting this fertiliser from Alsace and holds the second place in the list of countries from which the United States obtained potash.

At present, the United States is endeavouring, in spite of European competition, to intensify her potash production. The production of potash is greatest in Nebraska, which could produce more than 200,000 tons of earth per year (50,000 tons of pure potash). It is thought, however (U. S. Geological Survey, No. 347), that the reserves in this region are not considerable. Larger reserves are found in California.

In other districts, as, for example, in Georgia and New Jersey, rich reserves of potash exist in a condition of potential development. In any case it may be presumed that the reserves in Nebraska, California, Wyoming, Georgia, etc., could satisfy the requirements of the countries for centuries to come. The minutes of the Ways and Means Committee of 1919 show clearly how great is America's desire to escape from dependence on Germany — her principal source of potash supply.

In order to protect the national potash industry, a producers syndicate — the United States Potash Corporation — was formed in November 1919.

29. As has been shown, the two most important producers of phosphates are, in the first place, the United States and, in the second place, Tunis.

The United States have been able, since the war, to increase their production of phosphates. It is true that in 1919 there was a decrease in production as compared with the preceding year, but in 1920 there was a sudden rise, which increased the production by one million tons as compared with the year 1913.

A table of the production of phosphates in 1919 and 1920, as compared with that of 1913 to 1918, is given below:

(In thousands of metric tons)

1913.	3,161.1
1918.	2,530.7
1919.	2,275.6
1920.	4,169.7

In spite of the extraordinary increase in the production of phosphates, the export of this product, though greater than during the war, has not reached the 1913 level.

(In thousands of metric tons)

	Production	Export	Ratio of export to production
1913.	3,161.1	1,388.4	44%
1918.	2,530.7	146.2	6%
1919.	2,275.6	384.8	17%
1920.	4,169.7	1,087.1	26%

In 1918, the United States began to export hyperphosphate, and this export increased considerably in the following years. As compared with 7,000 tons in 1918,

the United States in 1919 exported more than 88,000 metric tons; in 1920, there was a slight falling off to a little over 82,000 tons.

The United States have thus become exporters of this product. It is true that the quantity exported is small in comparison with the pre-war exports of European countries, such as Belgium, the Netherlands (which probably re-exported) and Germany, but among the countries which exported hyperphosphate in 1919 and 1920, the United States come first. A table of the exports of hyperphosphate from the principal producing countries is given below [1]:

(In thousands of metric tons)

Countries	1913	1918	1919	1920
United Kingdom	64.5	2.5	4.0	11.8
Australia	11.9	35.0	17.3	?
France	145.2	2.9	?	?
Sweden	36.0	?	11.0	42.4
Algiers	7.9	13.2	14.4	?
Tunis	1.3	0.02	?	?
United States	?	7.0	88.2	82.3
Japan	18.7	6.7	?	?

30. The phosphate industry in Tunis has not returned to pre-war conditions. The production, as well as the export, is lower than in 1913, but higher than in 1918.

Data with regard to the export of phosphates from Tunis are given below:

(In thousands of metric tons)

1913	1,985
1918	938
1919	1,130
1920	1,480

It would be interesting to make a comparison between the years 1919 and 1920 and the year 1913 with regard to the countries to which Tunisian phosphate was exported.

Of 1,985 thousands of tons which were exported in 1913, France and Italy received the largest share: France 690,000 tons and Italy 458,000 tons. Great Britain received only 181,000 tons and Germany 185,000; the other countries together, 467,000.

The table of exports for the years 1919 and 1920 supplied by the Central Chamber of Agriculture and Commerce of the Protectorate is as follows:

(Thousands of tons in round figures)

	1919	1920
France	484	792
Italy	335	368
England	242	143
Spain	37	25
Portugal	18	26
Austria	—	5
Czecho-Slovakia	—	10
Poland	—	12
Total (including other countries)	1,130	1,480

In 1913, France received nearly 35 % of the total Tunisian export. In 1919, the quantity imported was nearly 43 % of the total Tunisian export, and in 1920 nearly 54 %. It will be seen, therefore, that the share of France in the consumption of the Tunisian phosphate manures is constantly increasing.

[1] *Imperial Mineral Resources Bureau*, London, 1921. For some countries, the figures given are different from those shown in the *International Year Book of Agricultural Statistics*.

The French Government has drawn up each year a place for the distribution of the Tunisian phosphate export, determining at the same time the amount to be exported to France.

Italy's share has recently been increased on condition that Italy shall send workmen to Tunis to assist in production.

With regard to phosphates, it should be noted that the United Kingdom, Australia and New Zealand have recently signed a convention to work the phosphates in the Island of Nauru; mandated territory (formerly a German colony).

Under this Convention phosphates from this Island will in the first place be sent to the three signatory countries; any surplus may be exported, but at a price higher than the home price [1].

31. Nitrates, as we have already said, are used not only as manure, but also for the manufacture of nitric acid and explosives. This explains the scarcity of this product in certain countries during the war.

It is true that nitrate obtained by synthetic processes was competing more and more with Chilian nitrate.

Before the war, Germany was the greatest producer of synthetic nitrate.

We have no complete information with regard to the production of synthetic nitrates, but it can be said that it is insufficient to compete with Chilian nitrates. We can only add that the intensive production in Germany during the war was due to the fact that that country had to meet the deficiency caused by the impossibility of importing nitrate from Chile.

32. Besides Chile, mention must be made of some other countries which produce nitrate of soda, and of India, which produces nitrate of potash. But their production cannot be compared with that of Chile, whose known reserves are estimated, according to the "Chile Nitrate Committee's Report" at more than 245 million tons.

During the war, Chile's nitrate production was, except in 1914 and 1915, greater than that of 1913. In 1919, we note a very great reduction, but already in 1920 a large increase can be observed, although production was less than in 1913 [2].

(Thousands of metric tons)

1913	2,773
1918	2,876
1919	1,672
1920 [3]	2,509

The decrease in the production for 1919 is due, according to the report of the president of the "Producers of Nitrates Association", not only to the disorganisation of the world's trade arising from sudden cessation of the war, but also to the absorption of the large stocks which were held by the belligerent countries.

The export of nitrate from Chile has fluctuated with its production, the lowest being in 1919. In 1920, the export was greater than production, greater even than in 1913 [4].

(Thousands of metric tons)

1913	2,740.0
1918	2,930.7
1919	933.4
1920	2,790.7

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[1] International Chamber of Commerce, First Congress, London, 1921: *Matières premières* Brochure No. 7, Paris.

[2] The figures for 1919 and 1920 are taken from the Imperial Mineral Resources Bureau: *The Mineral Industry of the British Empire and Foreign Countries*, London, 1921.

[3] Provisional data.

[4] The figures for 1919 and 1920 are taken from *The Mineral Industry of the British Empire and Foreign Countries*, London, 1921.

In the fiscal year 1919-1920, the United States imported 921 thousands of metric tons of nitrate — a total less than in the preceding year, but, even so, greater than in 1913, when the United States imported only 636,000 metric tons.

France also consumed a large amount of nitrate of soda, but she also reduced her imports in 1919 and 1920. In 1919, she only imported 166,000 tons — half of the amount which she imported in 1913; in 1920, the import was greater — rather more than 260,000 tons.

The United Kingdom imported nearly 150,000 metric tons, thus exceeding her 1913 import, which amounted to 143,200 metric tons.

Among European countries, the United Kingdom — with the exception of the Netherlands — is the only country which has been able not only to import the same quantity of nitrate of soda as in 1913, but even to exceed it.

33. The year 1921 was marked by a new crisis of nitrate. At the beginning of the year, the Association of Nitrate Producers recommended a limitation of output in Chile, owing to the decrease in the demand. This crisis continued throughout the year.

The stoppage of exportation has resulted in new labour troubles as well as in a crisis in the exchange.

This latter crisis is easily understood in view of the fact that the nitrate industry is the only exporting industry in this country.

IV.

SUMMARY AND CONCLUSIONS

1

Before the war, nitrate of soda or Chilian nitrate was one of the most important manures. In view of the ever-growing success of this fertiliser, its production increased enormously during the fifty years preceding the war. Chile supplied the whole world and this industry constituted her principal source of revenue, the government levying an export duty. Almost the total production was exported, chiefly to Germany and the United States.

Sulphate of ammonia, which is also classed under nitrogenous manures, is produced in countries where the mining and metal industries are developed, as the waste products of these industries supply the raw material for the manufacture of sulphate of ammonia.

Before the war, Germany occupied the first place in the production of sulphate of ammonia, the second place being held by the United Kingdom. Germany, however, exported less on account of her greater consumption.

Cyanamide of calcium was not much used before the war as a manure, although its world production was considerable. Germany occupied the first, and Norway the second place as European producers. Outside Europe, the United States were the greatest producers, and they were also the greatest importers.

Nitrate of lime is the last important nitrogenous product, and its production centres in Norway. Its use in agriculture spread more and more and thus stimulated it, which greatly increased in the years immediately preceding the war. A Norwegian association with agents in all parts of the world controlled the sale of nitrate of lime. Most of it was absorbed by the North European countries and by Germany.

II.

Phosphate manures are extremely valuable in agriculture. The United States and Tunis produced the greater part of the world's phosphate, and exported large quantities to all parts of the world.

France and Belgium were responsible for almost the whole European production of phosphate, but they also imported; France, in particular, imported from Tunis, owing to the inferior quality of French phosphate. Mention should also be made of Algeria and some of the Pacific Islands, particularly the Nauru Islands.

The greatest reserves are in the United States; the Federal Government grants concessions for the exploitation of phosphates. It appears that Morocco also has large phosphate reserves.

Hyperphosphates of lime and basic slag are the last two important phosphate manures. Before the war, many countries produced hyperphosphates. Up to 1913, the principal producers were France, Germany, Italy and the United Kingdom; but in 1913, the United States became the greatest producers.

Basic slag was produced in greatest quantity in Germany, which owned the Lorraine Basin, where the iron ore is remarkable for the great uniformity of its phosphate content.

III.

Potash manures were manufactured exclusively by Germany, whose salts of potash at Stassfurt are so well known. Alsace owns rich deposits, but before the war Alsace was responsible for only an insignificant part of Germany's production.

The production of potash in Germany was in the hands of a *cartel* supervised and protected by the State.

Being almost the sole producer of potash manures, Germany was practically the only exporter of this product, reserving about 50 % to 60 % of her production for her own consumption. The largest amount was sent to the United States, the greatest consumers.

IV.

The war has very considerably altered the position as regards production as well as the flow of import and export of manures. The United States, Japan and Chile have, generally speaking, increased their production, as have also certain neutral countries in Europe; but on the whole, world production, and even more so European stocks, appear diminished.

In the years 1914 and 1915, Chile, affected by the adverse situation, reduced her production; in the following years, however, she increased it owing to the development of the export trade to the United States and Japan.

Nitrate of soda was used to a very large extent during the war in the manufacture of explosives.

We note a great decrease in the production of sulphate of ammonia by the great pre-war producing countries: Germany and the United Kingdom. The United Kingdom, which chiefly exported to Japan, has decreased its export of sulphate of ammonia and increased its consumption.

Norway has increased her production of nitrate of lime to a very great extent, and has, on the other hand, decreased her export. Her consumption has risen considerably.

The United States have reduced their production of phosphates and also to a very much greater extent their export, particularly to Europe. On the other hand, the United States have been able to develop the export trade with Canada and Cuba. The export to Japan has greatly diminished owing to the fact that Japan has herself begun to intensify her production.

Both the production and the exports of Tunis and Algeria are rapidly diminishing. Accordingly, France has reserved a percentage of her colonial production

for her own use, and distributed the rest among the other countries. Agreements have been entered into with Italy.

Hyperphosphate of lime followed much the same course as natural phosphates: a decrease both in production and export. The decrease in production was due not only to the scarcity of the most important raw material — natural phosphates — but also to the scarcity of sulphuric acid, which was used for the manufacture of explosives.

Thanks to the development of the iron industry, basic slag has been largely used in agriculture during the war. The United Kingdom has even increased production.

France probably had to decrease her output on account of the occupation of her factories in the north.

The trade in slag stopped almost completely during the war. The United Kingdom exported only very small quantities.

Germany has not much reduced her production of potash salts. On the other hand, export was very slight, and consignments were only sent to a few countries in Central Europe. Germany largely increased her own consumption. The United States, which were the largest consumers of German potash, have begun to work their own, inferior, deposits.

V.

One of the interesting questions concerning chemical manures in Europe after the war is that of potash manures.

France, having recovered possession of Alsace, may largely develop the potash industry in that region, which possesses rich reserves, and thus put an end to the monopoly exercised by Germany.

Germany continues to devote much attention to her potash industry. In 1919, an Imperial Council on Potash (Reichskalirat) was created, including delegates from workmen and employers as well as delegates from the management of the " Deutsche Kalisyndikat ".

The production as well as the consumption of potash in Germany has decreased since the war. Nevertheless, the German consumption remains four times greater than that of all the other countries put together.

It should be noted that there are deposits of potash in Spain (Catalonia) which, when developed, may also compete with Germany. In 1914, the Spanish Government put the production and sale of potash under State control.

In the United States we notice a marked tendency in favour of protecting the national potash industry.

To protect its potash industry a syndicate (the " United States Potash Corporation ") was formed in 1919.

VI.

The United States have also been able to develop their output of phosphates since the war, but, in spite of important increases in production, the American export, although larger than that of the years during the war, has not reached the figure for 1913.

The phosphate industry in Tunis has not returned to pre-war conditions, although the production and export in 1920 were larger than those in 1918.

We note the large share of Tunisian exports received by France. In 1913, export to France was 35 % of the total Tunisian export; in 1920 nearly 54 %.

The French Government each year draws up a list allocating the Tunisian export of potash. Italy's share has recently been increased on condition that she shall send workmen to Tunis to assist in production.

It should be remarked that the United Kingdom, Australia and New Zealand have signed a convention to work the phosphates in the Island of Nauru (Pacific; mandated territory which was formerly a German colony).

It has been settled that the phosphates from this island shall in the first place be consigned to the above three countries, that any excess may be exported, but at a price higher than the home price.

VII.

The production of and trade in nitrate underwent a crisis after the war. In 1919, the crisis was largely due to the disorganisation of the world's commerce and also to the existence of large stocks of nitrate in the Allied countries. In 1920, there was an increase in the production and export of nitrate. The export in 1920 was slightly greater than in 1913.

In 1921, we are witnessing a recurrence of the crisis, with a consequent fall in prices and with disastrous effects on the Chilian exchange.

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