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W H E A T S T U D I E S

OF THE

FOOD RESEARCH INSTITUTE

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EX-EUROPEAN TRADE IN WHEAT AND FLOUR

E X-EUROPEAN imports of wheat and flour are becoming increasingly important. Between 1909-13 and 1921-26, the average annual volume of ex-European trade increased by some 45 million bushels, or 50 to 60 per cent, while European trade increased only about 30 million bushels, or not much more than 5 per cent. Growth of the Asiatic trade accounted for most of the increase in ex-European takings. Further growth is likely: there are few ex-European areas where domestic wheat production shows promise of obviating the need for imports; and per capita consumption of wheat is apparently increasing in most of these countries. Within a decade or so the ex-European trade may amount to as much as a fourth of the international trade, as contrasted with an eighth before the war.

European imports have always consisted chiefly of wheat, ex-European imports chiefly of flour. In the post-war period, the flour trade of ex-Europe was almost as large as that of Europe. But flour tends to become a smaller fraction of the trade in wheat and flour combined, since several important importing countries now protect their domestic milling industries. The United States remains the chief source of ex-European supplies of wheat and flour, but has become relatively less important with the more rapid expansion in the

exports of Australia and Canada.

The ex-European demand appears to be rather less elastic than is commonly supposed. Year-to-year variations in the volume of trade have been large in post-war years. They appear to have been due, however, quite as much to fluctuations in the Chinese wheat crop and to a general upward trend of wheat consumption as to variations in wheat prices and concomitant substitution of other cereals for wheat.

> STANFORD UNIVERSITY, CALIFORNIA August 1928

WHEAT STUDIES

OF THE

FOOD RESEARCH INSTITUTE

The central feature of the series is a periodic analysis of the world wheat situation, with special reference to the outlook for supplies, requirements, trade, and prices. Each volume includes a comprehensive review of the preceding crop year, and three surveys of current developments at intervals of about four months. These issues contain a careful selection of relevant statistical material, presented in detail in appendix tables for reference purposes, and in summary form in text tables and charts.

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The series is designed to serve the needs of all serious students of the wheat market, in business, government, and academic circles, by summarizing and interpreting basic facts and presenting current developments in due perspective. The special studies are written not merely for students of the wheat market, but as well for various groups of readers who are especially concerned with the fields discussed.

Volumes I-III are now available, bound in red buckram, at \$10.00 each. The ten issues of Volume IV will be published monthly from November 1927 to September 1928, except in April 1928. Ordinarily each issue will reach subscribers in North America early in the month designated. The subscription price for the volume, including a temporary binder, is \$10.00. Individual issues may also be purchased separately. Orders, subscriptions, and other communications should be addressed to Food Research Institute, Stanford University, California, or, for Great Britain, to P. S. King & Son, Ltd., Orchard House, 14, Great Smith Street, Westminster, S.W. 1, London.

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FOOD RESEARCH INSTITUTE

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The Food Research Institute was established at Stanford University in 1921 jointly by the Carnegie Corporation of New York and the Trustees of Leland Stanford Junior University, for research in the production, distribution, and consumption of food.

EX-EUROPEAN TRADE IN WHEAT AND FLOUR

This study treats of the wheat and flour trade of net importing countries outside of Europe, with special reference to its volume before and since the war, the sources of imports, and the outlook for expansion. Some consideration is given to variations in the volume from year to year.

The subject has heretofore received little analysis, chiefly because timely and inclusive statistics are difficult to obtain and because European countries constitute a group of importers so much more important than the non-European. Nevertheless, ex-European trade is by no means unim-

portant. It has increased substantially since the five years before the Great War. In the post-war years 1921–26 ex-Europe imported, on the average, over 125 million bushels a year; about 17 per cent of the world's net exports of wheat and flour was shipped to ex-European countries; and their takings of flour exports have been almost as large as

Europe's. Their demand is accordingly a significant factor in determining world wheat prices. The nature of this demand, the extent and causes of changes in it from year to year, and the trend in different countries and regions, all have a material bearing on the world wheat position and outlook. Moreover, differences among the numerous ex-European countries, in wheat production, consumption, and importation, are of interest in themselves.

We use the term ex-European importing countries to include, so far as the data permit, all countries lying outside of Europe which have been net importers of wheat and flour combined in any year of the prewar or post-war periods studied. The prewar period is defined to include the five calendar years 1909–13 (or the crop years 1909–10 to 1913–14), since data are more readily available for these years than for others and since there seems no good reason to select a different period. The postwar period is usually treated as including

the six calendar years 1921–26, occasionally the five crop years 1922–23 to 1926–27.

For convenience we have treated as parts of Europe Iceland, the Azores, and ordinarily the Canary Islands and that part of modern Greece lying in Asia Minor; and Asiatic Russia cannot be treated otherwise since Russian statistics include Asiatic Russia. All other countries outside of Europe are ex-European, but not all, of course, are ex-European net importing countries. The absence of statistical data for some countries—Afghanistan, Thibet, Mongolia, Eastern Turkestan, Arabia, Georgia, Azerbaijan,

Turkey in Asia, Abyssinia—does not permit one to determine their status. Several ex-European countries are net exporters, not net importers, of wheat and flour. Morocco, Chile, and Uruguay, as well as Canada, the United States, Argentina, and Australia, are always net exporters; accordingly their imports (though imports of the

United States from Canada may be of large volume) do not lie within the scope of this study. Most other ex-European countries for which data are available are consistently net importers, but there are exceptions. Eritrea (an Italian possession in Africa), Persia, Irak, China, and New Zealand have been net importers in some years, net exporters in others; and Algeria, Tunis, and India are usually net exporters, but each has been a net importer in one year of the period studied. In these cases we have included the country in our totals of net imports only in the years in which it was a net importer. The list of ex-European net importing countries does not remain the same from year to year.

A general view of ex-European trade cannot well be obtained either by successive consideration of statistics of over 130 individual countries, or merely by study of summations of the trade of all. Hence we have compiled subtotals showing the trade of each continental group of countries.

 Several arbitrary distinctions have been made in this process; Curaçao and Trinidad and Tobago, for example, often regarded as a part of South America, have been treated as parts of Central America. In obtaining totals of exports to continental groupings, it has not always been possible to follow the lines of demarcation employed in grouping statistics of net imports, but the resulting errors seem of small importance.

Out of the detail of this study several salient points emerge. Evidence of several sorts suggests that the volume of ex-European trade increased between the pre-war and post-war periods by 50 to 60 per cent, while European trade increased by some 5 to 6 per cent. In absolute figures, ex-European trade increased about 45 million bushels, European trade about 30 million. But the ex-European flour trade, which constituted about 65 per cent of the total trade in wheat and flour before the war, has not grown so rapidly as the wheat trade. The tendency throughout the world to encourage domestic milling of wheat, by tariff regulations and otherwise, has been effective in ex-Europe as well as Europe. Notable examples among ex-European countries are Japan, Brazil, and South Africa.

The United States was the principal source of ex-European imports both before and after the war. Argentina was next in importance before the war, but after the war was surpassed by Australia and by Canada. The considerable exports from Europe to ex-Europe before the war became negligible thereafter. Ordinarily the movement of wheat and flour from exporting countries is to those importing countries most accessible to them; but special circumstances, such as preferential tariffs and

demand for particular types of wheat, may give rise to exceptions. There are few large importing countries of ex-Europe whose trade is monopolized by any single exporting country.

Before the war, South American countries imported more wheat and flour than any other continental group; African and North American countries were next in importance. But the trade of Asiatic countries showed the greatest growth, and this group surpassed others in importance after the war. Of the several groups, only the North American showed a greater increase in flour than in wheat imports. The increase in imports shown by most countries has apparently been due not only to increasing population, but also to increasing per capita consumption of wheat. The evidence suggests the likelihood of further increases except in western Asia and northern Africa, where domestic production of wheat may increase sufficiently to take care of probable increases in consumption.

Variations in the annual volume of ex-European trade have been large chiefly because of variations in the takings of China and Japan. On the whole, annual variations in ex-European trade seem to be explained by fluctuations in the Chinese wheat crops and by the upward trend of consumption as much as by changes in wheat prices and concomitant substitution of other cereals for wheat. Hence the ex-European demand appears to be rather more inelastic than is commonly supposed. On the basis of data and conclusions developed in this study, it seems feasible to forecast ex-European "requirements" or probable takings somewhat more satisfactorily than has hitherto been possible.

I. DATA AND METHODS

Available data on the movement of wheat and flour in ex-European trade are diverse in character, and on inspection show certain discrepancies. Hence some explanation of the data and methods used in the present study is called for. With detailed and accurate statistics of the trade of any one country, it is not difficult to measure and describe that trade. This could readily be done for all countries by groups or subgroups if each country were consistently either a net exporter or a net importer both of wheat and of flour, and if adequately detailed trade statistics (comparably compiled) were available for each. Under such circumstances it would be easy to separate net exporters from net importers, and to reach totals of net exports and net imports which might reasonably be expected to balance on the average over periods of

years, though not, of course, in any particular year because imports are recorded at least several weeks later than exports. These circumstances, however, do not hold; more or less serious deficiencies appear in all types of available data, and it is impossible to reduce the different types to a strictly comparable basis.

THREE TYPES OF DATA

The data hereafter employed are of three Broomhall's records of overseas shipments to ex-European destinations, as reported in his Corn Trade News; official statistics of net imports of numerous countries as reported in the Yearbooks of the International Institute of Agriculture, supplemented in some instances by data directly from official trade reports of particular countries; and official statistics of exports as reported in trade reports of net exporting countries. Net import data are uniformly recorded on the calendar year basis. Broomhall's shipments are for crop years August-July, but can be put approximately on a calendar year basis. Net export data are in most instances compiled either on the calendar year or the crop year (July-June) basis, though Indian exports are on the basis of an April-March crop year, while complete data for the United States cannot be obtained by July-June years in the post-war period.

The most familiar annual summations of ex-European trade hitherto compiled are those of Broomhall. One purpose of this study is to check these totals so far as possible by summations of net imports and of exports. But an altogether accurate check of annual calendar year figures cannot be obtained. Broomhall's data cannot be recomputed to a calendar year basis with precision, since he records only weekly shipments, and a new week is not begun on January 1 of each year. Indian exports by destinations must remain on an April-March year; and United States and Canadian exports in the pre-war period must remain on a July-June year. Yet since India ordinarily ships little wheat in January-March, and there is no occasion to examine annual variations in the total volume of trade during pre-war years, the differences

in bases of compilation are not of major significance. Similarly it is impossible to place export data from all exporting countries, by destinations, on an identical crop year basis. Broomhall's data are for an August-July year, though they could be put approximately upon a July-June basis. For official exports, more data can be obtained for July-June years than for August-July years. But Indian exports must remain on an April-March year. Chilean exports appear on a calendar year basis, and can be adjusted only roughly to a crop year basis. And United States exports for postwar crop years are incomplete with respect to detailed record of destinations.

DEFICIENCIES OF DATA

For other reasons, no single type of data is altogether satisfactory.

Net import statistics are incomplete in two respects: the International Institute gives no figures whatever for certain countries;1 and for some countries figures are not available for all years. Total net imports would be swelled somewhat if data were available for Thibet, Mongolia, Eastern Turkestan, Hongkong, Wei-hai-wei, Kwantung, Siam, Alaska, Honduras, the Danish West Indies, the Virgin Islands, and several islands of Oceania. These countries and dependencies, with the possible exception of the first three, are clearly net importers of wheat and flour combined. Turkey in Asia, Afghanistan, Armenia, Abysinnia, Georgia, and Azerbaijan, for which data are not available, may be either net importers or net exporters; the facts are not clear. Nevertheless the deficiencies of data cannot be great; they are probably less significant, for example, than the omission of the wheat crops of Asia Minor and China from summations intended to show world wheat production. The fact that import statistics of some countries in some years are lacking has necessitated a few estimates; but these are neither numerous nor notably uncertain. On the whole net import statistics give a more detailed

¹ Since this organization apparently compiles data from all countries able to furnish them, we assume that figures cannot be secured from countries not reporting.

statement of the volume of ex-European trade in wheat and flour than can be secured from any other data; but total net imports for ex-Europe as a whole or for continental subgroups must be regarded as understatements of the facts.

A further difficulty with import data lies in the fact that, unless the labor of compilation is to be excessive, one must employ 1909-13 averages already computed by the International Institute of Agriculture. In some instances this renders pre-war and post-war averages not strictly comparable. Our calculations of post-war averages of total net imports, for countries which shift from a net importing to a net exporting position, involve the averaging of figures applicable only to the years in which the countries in question were net importers; we ignore net exports because it is desirable to reach summations of net imports in particular years. The International Institute pre-war averages, however, are apparently compiled by adding together the net imports of wheat and of flour separately for all years when there were net imports, then subtracting the net exports of wheat and of flour for all years when there were net exports, and finally averaging the difference. Thus China was a net exporter of wheat in each of the five years 1909-13, a net importer of flour in 1911-13, but a net exporter of flour in 1909-10 to an extent which made her a net exporter of wheat and flour combined in these two years. According to the calculations by the methods used by the International Institute, China was a net importer of less than half a million bushels of wheat and flour combined for the period 1909-13, whereas according to the alternative method she was a net importer of 1.9 million bushels. But instances of this sort are too few to make appreciable differences in pre-war averages, and for convenience we have employed the readily available figures of the International Institute. The number of ex-European countries for which 1909-13 averages of imports are available much exceeds the number for which annual data can be secured in the International Yearbooks of Agricultural Statistics.

Except for measurement of the total volume of trade and for analysis of annual

fluctuations, we have made no use of Broomhall's data. Shipments are at best only preliminary approximations to actual exports; they are apparently secured through official channels, but are not corrected and revised to accord with final official statements. Shipments do not include all exports made by rail or river; this, however, is unimportant with respect to ex-European trade since little wheat moves overland. Furthermore, shipments from particular exporting countries to particular ex-European destinations are not given in detail; and adequate separation of total annual shipments by destination is not feasible. Broomhall groups together, for example, shipments to the East Indies, the West Indies, Central America, and Venezuela. Finally, no distinction is made between shipments of wheat and shipments of flour. Partly in order to secure a check upon the accuracy of Broomhall's data, it has seemed preferable to analyze available official statistics of exporting countries.

The principal exporters of wheat and flour to non-European destinations, both before and after the war, have been the United States, Canada, Argentina, Australia, India, and Chile. Nevertheless ex-European countries draw some of their supplies from other sources. Uruguay always exports to Brazil. Some European net importing countries, notably Great Britain, France, Germany, and Italy, export flour to their dependencies outside of Europe, and to other countries. Before the war, Roumania, Hungary, Bulgaria, and Russia exported wheat and flour to Egypt and other ex-European countries, though this movement was apparently negligible in post-war years. Eritrea, New Zealand, Mesopotamia, and China have been net exporters of wheat and flour (combined) to ex-Europe in some vears.

In general it has seemed desirable to attempt summations, by countries of destination, only of the exports of the first six countries named, though we have included such large items as the exports of China to ex-Europe in 1921 and of Australia to India in 1922. Thus our totals of exports to ex-Europe destinations must be somewhat too low. A further cause of understatement lies in the fact that exports of India and

Australia "to orders" have not been included, though some of these may have reached ex-European destinations.1 Again. it has been impossible to determine when certain small exports designated "to other countries" have passed to Europe or to ex-Europe. Thus both import and export data result in understatements of the volume of ex-European trade; and, since Broomhall's data yield figures lower than import and export data, these too understate the volume. Discrepancies between the several sorts of data cannot be reconciled satisfactorily in all instances. In general, however, the broad facts seem to be supported by each type of evidence; and these facts are of sufficient interest to warrant neglect of minor contradictions and uncertainties.

TRADE IN WHEAT AND TRADE IN FLOUR

An ex-European net importing country is a country which showed a surplus of imports over exports of wheat and flour combined. Net import statistics ordinarily show, for each country, the amount of wheat imported, the amount of wheat exported, the amount of flour imported, and the amount of flour exported. Some countries in some years are net exporters of wheat, net importers of flour, and net importers of the two combined; or net importers of wheat, net exporters of flour, and

again net importers of wheat and flour combined. Thus China in 1909-13 was a net exporter of 3.6 million bushels of wheat annually, a net importer of 3.9 million bushels of flour as wheat, and hence a net importer of wheat and flour combined of .3 million bushels. Japan in 1926 was a net importer of 25.8 million bushels of wheat, a net exporter of 4.9 million bushels of flour as wheat, and hence a net importer of 20.9 million bushels of wheat and flour combined. The fact that such instances occur gives rise to some difficulty in separating total ex-European net imports of wheat and flour combined, as we have computed these totals, into wheat on the one hand and flour on the other.

We have added together the combined wheat and flour totals for each country, because this study deals chiefly with the total wheat and flour trade. But in order to show the relative importance of ex-European flour trade, we have obtained each country's net import of flour alone. The sum of ex-European net imports of flour subtracted from the sum of net imports of wheat and flour combined will not yield the same figure for net imports of wheat as would be obtained by adding each country's net import of wheat alone.2 This difficulty, however, is unimportant in connection with statistics of exports to ex-Europe.

II. THE TOTAL VOLUME OF TRADE

Students of the world wheat situation are accustomed, in the course of analyses designed to throw light upon the probable level of world wheat prices during an oncoming crop year, to set estimates of world

¹Large shipments are made from Argentina to orders, but these shipments presumably go almost entirely to Europe.

² Suppose, for example, that country A was a net exporter of 5 million bushels of wheat, and a net importer of 10 million bushels of flour as wheat; country B was a net importer of 10 million bushels of wheat and 10 million bushels of flour as wheat; and country C was a net importer of 20 million bushels of wheat but a net exporter of 8 million bushels of flour as wheat. By our method, total net imports of flour were 20 million bushels, and total net imports of wheat were 30 million bushels; or 50 million bushels in all. But if each country's net position is taken separately, then total net imports were (10-5) + (10+10) + (20-8), or 37 million bushels.

wheat export surpluses against estimates of world wheat import "requirements." When the margin between export surpluses and import requirements is unusually large, prices may be expected to prove relatively low; and conversely. This approach to the problem of forecasting prices is far from perfect, especially since it has often involved confusion between what may be called "necessary" or "customary" import requirements and the actual shipments or exports which are recorded after the price situation has had its effect upon the movement of wheat and flour in international trade. Nevertheless greater precision in measuring probable "customary" import requirements and probable export surpluses, and hence the size of the margin between the two, would contribute somewhat to the accuracy of price forecasting. More needs to be known of trends in production and utilization of wheat in all countries if export surpluses and import requirements are to be measured with greater approach to precision.

The demand for wheat in non-European countries is necessarily a part of the world demand or "requirement." Trade statistics seem to provide the best approach to a study of this ex-European demand. It is desirable to ascertain what countries import wheat and from what sources; where there is evidence of increasing or decreasing importation and what are its causes; and how large the total volume of trade has been and promises to be. The general growth of trade between the pre-war and post-war periods is logically the first subject requiring consideration.

EVIDENCE OF INCREASED VOLUME OF TRADE

Three different measures of the growth of international trade in wheat and flour as wheat are shown in Table 1, in terms of pre-war and post-war averages. The first series shows net imports of the net importing countries of the world, of Europe, and of ex-Europe, as reported in detail but not in total by the International Institute of Agriculture. The second shows total net exports of the net exporting countries of the world, exports (usually net) known to have been destined to net importing countries of ex-Europe, and a residuum presumably exported to European net importing countries. The third shows Broomhall's data for shipments (chiefly by sea) in total, to Europe, and to ex-Europe.

If data were available for all countries, one would expect world total net exports slightly to exceed world total net imports, partly because some goods are lost in transit, partly because there is ordinarily more incentive to understate or to avoid reporting imports than exports, and partly because, with imports reported some weeks later than exports, annual growth of trade would cause the average annual net exports of a given period to exceed the average annual net imports. But the excess of net exports over net imports shown in Table 1,

averaging about 40 million bushels in both the pre-war and post-war periods, unquestionably reflects in addition material incompleteness of data for net importing countries; and the comparison is complicated by other factors mentioned below.

Similarly the total of overseas shipments might be expected to fall below total net exports, first because such shipments do not include much wheat and flour shipped by rail and river, as for example across the Russian frontier to Poland and Germany, or up the Danube or by rail from Hungary to neighboring countries, or from the United States to Mexico; and also because preliminary reports of trade, on which weekly shipments data are necessarily based, usually give smaller and less complete figures than final trade reports. These factors largely account for the fact that total shipments fall substantially below total net exports; and the decrease in the difference, from 61 million bushels in pre-war period to only 48 million in the post-war period, is probably due largely to improvement in the shipments data.

Net export data seem to represent the world volume of trade most accurately, since they are more complete than net import data and, unlike shipments data, are built up from final official reports. The increase of 11.4 per cent shown by net export data is, however, probably too low. The pre-war figure is somewhat too high for comparison with the post-war because some wheat and flour shipped into parts of the present territory of post-war Poland, Czecho-Slovakia, Lithuania, Esthonia, and Latvia were not recorded as exports from any source in pre-war years, while they are so recorded in post-war years. Changes in boundaries of eastern European countries present the chief difficulty in attempting to compare pre-war and post-war volumes of international trade in wheat and flour. They have resulted in an increase of the list of net importing countries, while cutting down the territory of Russia, Hungary, and Bulgaria, and increasing the territory of Roumania and Jugo-Slavia; and adjustments of pre-war trade statistics to a basis comparable with the post-war are not at present feasible. Moreover, New Zealand was a net exporting country in the pre-war

period, but a net importing country (on the average) in the post-war period; but her net exports are not included in our figures. The real increase in the total volcomparison with pre-war shipments or post-war net exports of net exporting countries, because the post-war shipments figure includes 14.4 million bushels shipped from

TABLE 1.—AVERAGE ANNUAL NET IMPORTS, NET EXPORTS, AND SHIPMENTS OF WHEAT (INCLUDING FLOUR AS WHEAT): TOTAL, TO EUROPE, AND TO EX-EUROPE, 1909-13 AND 1921-26*

(Wittin ousness)									
	Total			Europe	Curope		Ex-Europe		
	Net imports of	Net exports to	Broom- hall's shipments	Net imports of	Net exports to	Broom- hall's shipments	Net Imports of	Net exports to	Broom- hall's shipments
1909–13 average 1921–26 average Absolute increase Percentage increase	$\begin{array}{c} (1) \\ 625^a \\ 702^a \\ 77 \\ 12.3 \end{array}$	(2) 665 ^b 741° 76 11.4	(3) 604 ^a 693 ^a 89 14.6	(4) 545° 575′ 30 5.5	(5) 585° 615° 30 5.1	526 ⁴ 588 ⁴ 62 11.8	(7) 80 ^h 127 ^t 47 58.8	(8) 80 ^j 126 ^k 46 57.5	(9) 78 ^d 105 ^d 27 34.6

^{*} Except as stated in following notes, figures are summarized from data in International Yearbooks of Agricultural Statistics and Broomhall's Corn Trade News. Pre-war averages of net imports and net exports compiled from less complete data than post-war averages.

a Column 4 plus column 7.

Summation of 1909-13 average net imports of all reporting countries of Europe, plus an allowance for the changed boundaries and list of countries of eastern Europe.

/ Six-year average of the sum of annual calendar year net imports of all reporting European countries. Includes net imports of Russia in 1921, 1922, and 1925.

/ Column 2 minus column 8.

h Summation of 1909-13 average net imports of all reporting ex-European countries, with a few estimates. No data available for a few countries. Six-year average of the sum of annual calendar year net imports of all reporting ex-European countries. Includes

'Six-year average of the sum of annual calendar year net imports of all reporting ex-European countries. Includes net imports of India, Algeria, and Tunis in 1922.

'Five-year average of the sum of calendar year exports (usually net) of Australia, Argentina, and Chile, of July-June exports of the United States and Canada, and of April-March exports of India by sea to ex-European net importing countries, plus a rough estimate of 7 million bushels presumably exported to ex-European net importing countries from European countries, chiefly Russia and the Danube countries. Does not include exports to ex-Europe from French North Africa, New Zealand, Uruguay, Eritrea, or countries of Asia Minor. Data from official trade reports of the countries mentioned, in part through J. A. Le Clere, International Trade in Wheat and Wheat Flour (U.S. Department of Commerce, Trade Promotion Series No. 10), 1925. Precise distribution of exports to ex-European net importing as distinguished from net exporting countries is not always feasible.

* Six-year average of the sum of calendar year exports (usually net) of Australia, Argentina, Canada, the United States.

k Six-year average of the sum of calendar year exports (usually net) of Australia, Argentina, Canada, the United States, and Chile, and of April-March exports of India by sea, to ex-European net importing countries. Includes exports of Australia to India in 1922, and of China to various countries in 1921. Does not include exports to ex-Europe from western European countries, French North Africa, New Zealand, Uruguay, Eritrea, countries of Asia Minor, Russia, Bulgaria, Jugo-Slavia, or Hungary. Data from official trade statistics of the countries mentioned. Precise distribution not always

feasible.

ume of trade as shown by net export data has probably been nearer to 13 than to 11.4 per cent.

If, as seems reasonable to suppose, Broomhall's service has gained in efficiency, especially in recent years, the shipments figures were perhaps less complete for the pre-war than for the post-war period, and the percentage increase in the total volume of trade as shown by these data may be too large. Moreover, average annual shipments in post-war years are too large for Germany (a net importer) chiefly to European net importing countries in 1925–26.

GREATER INCREASE IN EX-EUROPEAN TRADE

The data summarized in Table 1, in spite of their defects, indicate clearly that ex-European trade has increased relatively more than European between the pre-war and post-war periods. According to these data, net imports of non-European countries and net exports to ex-European destinations have increased over 55 per cent, as

^a Column 4 plus column 7.

Summations of annual average net exports during 1909-13 from the United States, Canada, Argentina, Australia, India, Chile, Algeria, Morocco, Serbia, Roumania, Hungary, Bulgaria, and Russia. Does not include small reported net exports from New Zealand, Uruguay, and Eritrea, or unreported net exports from Asia Minor.

Six-year average of the sum of annual calendar year net exports from the United States, Canada, Argentina, Australia, India, Chile, Algeria, Morocco, Tunis, Roumania, Hungary, Bulgaria, Jugo-Slavia, and Russia. Includes net exports of China in 1921, and of Albania, Spain, Lithuania, and Poland in years when these countries were small net exporters. Does not include small net exports from New Zealand, Uruguay, Irak, Persia, and Eritrea in any year. India, Tunis, Algeria, and Russia have not been net exporters in every one of the years 1921-26.

Figures for August-July years adjusted to a calendar year basis and averaged. Includes shipments from Australia to India; from various countries to northern African net exporting countries; and 14.4 million bushels from Germany, chiefly to European net importing countries, in 1925-26.

Summation of 1909-13 average net imports of all reporting countries of Europe, plus an allowance for the changed

contrasted with an increase of less than 6 per cent for Europe. The reasonably close concordance shown by net import and net export statistics seems not to be accidental, though, on account of the absence of adjustments for changes in the boundaries of eastern European countries, the figure for pre-war net exports to Europe seems too high, and the percentage increase too low. Again, total net imports of and net exports to ex-Europe in the pre-war period are slightly too low for comparison with postwar figures on account of the manner in which Chinese annual data are handled for the pre-war period, so that the increase in ex-European trade is slightly exaggerated by both sets of data.

Broomhall's data show an increase of only 35 per cent in shipments to ex-European destinations and an increase in shipments to Europe of nearly 12 per cent. The divergence between this showing and that of the trade statistics is considerable. In the absence of detailed information on the manner in which shipments data are compiled, only tentative explanations of the discrepancies can be suggested. Probably the major explanation is that total shipments and shipments to Europe were farther below the truth in the pre-war period. It is also possible that some wheat and flour which actually went to ex-Europe in the post-war period was recorded as shipped to Europe. Finally, the inclusion of shipments from Germany to other European countries in 1925-26 results in a post-war figure for shipments to Europe slightly too large for comparison with the pre-war figure. Hence the increase of European trade shown by Broomhall's shipments data is presumably too large, the increase of ex-European trade too small.

On the whole one may conclude that European takings of imported wheat and flour combined increased not much more than 5 per cent between the pre-war and the post-war periods, while ex-European trade increased 50 to 60 per cent. If similar rates of increase should continue, annual

average net exports to Europe in 1932-37 might be expected to approximate 645-675 million bushels, while net exports to ex-Europe might reach 190-200 million. This would mean that ex-European trade would constitute nearly a fourth of the total world trade, as against about one-sixth in 1921-26 and one-eighth in 1909-13. In so far as growth of trade reflects growth of demand. it seems clear that ex-European demand for wheat and flour has grown more rapidly than European over the past fifteen years, and has increased in relative importance. A continuance of this increase seems of sufficient potential importance to justify an examination of circumstances under which it may occur. This subject, involving consideration of trends in consumption in different countries, is best considered in subsequent sections.

Net import and net export data alike show that general growth of ex-European trade between the pre-war and post-war periods has occurred in each continental group of countries. The increases shown have been as follows, in million bushels:

Net importing countries of	Increase in net imports of	
North and Central America	4.7	6.5
South America	5.8	1.9
Asia	35.1	33.5
Africa	0.2	3.3
Oceania	1.5	1.4
Total	47.3	46.6

The more or less substantial discrepancies between the two sorts of data are of minor significance here; even with necessary qualifications it appears that by far the greater part of the general increase in trade has been due to an increase in the trade of Asiatic countries, principally China and Japan.

VOLUME OF TRADE IN FLOUR

World trade in wheat of course comprises trade both in wheat grain and in wheat flour. An approximate summary view of the importance of net imports of flour, relative to the combined total may be obtained from Chart 1 and Table 1 (p. 313).² The import trade of European countries includes much more wheat grain than flour,

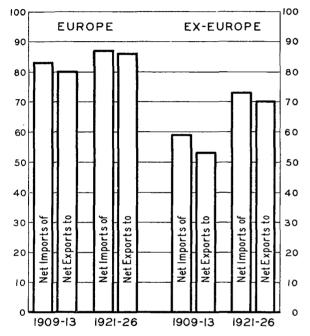
¹ See above, p. 310.

² Under the method we have used, as explained above, net imports of wheat grain cannot be obtained precisely by subtracting net flour imports from total net imports.

while the ex-European trade consists quite as much of flour as of wheat. The trade of Europe before the war consisted of flour only to the extent of about 15 per cent; but flour comprised over 65 per cent of the ex-European trade. Between the pre-war and the post-war periods, as appears from

CHART 1.—PRE-WAR AND POST-WAR ANNUAL VOL-UME OF TRADE IN FLOUR (AS WHEAT) OF EUROPE AND EX-EUROPE*

(Million bushels)



*Net imports summarized chiefly from data of International Institute of Agriculture; net exports summarized from official trade statistics, in part as shown in Appendix Tables I-XV. Includes some estimates.

the chart, the growth of European trade in flour was small, whereas the ex-European flour trade showed a considerable increase, certainly over 20 per cent. Hence in the post-war period the flour trade of Europe constituted about the same proportion of total trade as before the war. But flour formed a smaller proportion of the ex-European trade; the increase of 14 million bushels as measured by net imports of flour in terms of wheat was less than onethird of the increase of 47 million bushels in net imports of wheat and flour combined.

The large proportion of flour in the ex-European wheat trade is due to several facts. Many ex-European countries lie in the tropical zone, do not raise wheat, and hence have no domestic milling industries, so that wheat must be imported already milled. Most of these countries, moreover, are industrially not so far advanced as European countries, and conditions have not been favorable for the rapid development of a milling industry even if wheat was raised domestically. Many have only an inconsiderable animal husbandry, and hence little use for wheat offals. The tendency throughout the world, however, has been to encourage domestic milling of wheat by preferential tariffs and otherwise. As a result net importing countries in many parts of the world tend to import proportionately less flour and more wheat. One may reasonably expect this tendency to operate in the future; ex-European flour imports may continue to expand in absolute quantities, but the proportion of flour in the total wheat trade may be expected to contract as various importing countries further develop their domestic milling industries and import wheat instead of flour. Such changes, however, must occur more slowly where industrialization lags than where it is already far advanced. Consequently ex-European countries will perhaps provide quite as wide a market for flour as European countries, or even a wider one, in years to come; but it will probably prove increasingly difficult to induce importers to purchase flour rather than wheat.

III. SOURCES OF EXPORTS TO EX-EUROPE

A GENERAL VIEW

A broad view of the relative importance of the principal sources of wheat and flour

Data for intervening years, 1914-20, would show for both Europe and ex-Europe that trade in flour was larger in relation to trade in wheat than was true in either the pre-war or the post-war periods.

exported to ex-European net importing countries is given in Table 2 (p. 316). The United States has been the most important single source of supplies, providing somewhat over one-third of the total. Argentina exported the second largest amount in prewar years, but in post-war years Australian

and Canadian exports have been larger than the Argentine. Australia, third in importance as a source of ex-European supplies before the war, has ranked second thereafter. India has never been a heavy exporter to ex-Europe, though before the

Table 2.—Net Exports of Wheat and Flour as Wheat to ex-European Net Importing Countries from Principal Exporters, Annually, 1909–13 and 1921–26*

(Million bushels)

		ı				i	
		United	Can-	Argen-	Aus-		
Year	Total	States	ada	tina	tralia	Indiaa	Chile
1909	55.7	26.2	4.0	14.0	8.8	2.0	0.7
1910	65.8	30.8	4.7	17.1	10.0	2.1	1.0
1911	75.1	37.9	4.7	17.8	11.4	3.0	0.3
1912	80.1	41.5	5.4	19.2	9.5	3.6	0.9
1913	86.9	37.1 ^b	7.0	21.2	16.5	4.4	0.8
Average							
1909–13	79.7°	34.7	5.1	17.9	11.3	3.0	0.7
1921	104.6^{d}	44.4	6.1	14.1	19.7	3.7	1.5
			- 1				
1922	$112.6^{\circ}{}'$	48.5'	12.8	18.0	30.0^{o}	2.5	0.7
1923	135.4	64.3	19.8	18.0	29.2	2.9	1.2
1924	154.4	54.1	28.6	21.3	39.6	7.4	3.3
1925	115.3	36.7	22.5	19.1	34.2	1.5^{g}	1.4
1926	135.6	51.4	30.6	16.4	33.5	2.70	1.0
Average	ĺ					[:	
1921-26	126.3	49.9	20.1	17.8	31.0	3.4	1.5
					}	1	

^{*} Summarized from data in official trade reports of the countries mentioned. See Appendix Tables I-XV. Totals and averages include estimates as noted below.

war she shipped nearly as much as Canada. Chile's exports have always been small. The totals also include exports to ex-European countries from China in 1921, but not from New Zealand, Uruguay, Eritrea, and a few exporters still less important in any year. The movement from these minor exporters, except on special occasions, has been small in both periods, and is discussed briefly below.¹

The table includes in the pre-war average an allowance for shipments of flour from western European countries and of wheat and flour from the Danube countries and Russia. So far as can be ascertained, these exports in pre-war years were little smaller than the combined exports of Canada. India, and Chile to ex-Europe, so that Europe ranked next to Australia as a source of ex-European supplies. The movement from Europe to ex-Europe practically stopped during the war, as Russian and Danubian exports declined or even ceased in some years; and there has been no considerable resumption of this trade. During and immediately after the war, European countries in general had to bend every effort toward securing adequate domestic supplies, and shipping restrictions contributed heavily to cut down the export movement from Europe; hence European countries largely lost ex-European markets to the overseas exporting countries which had maintained or increased their production and exports. Since the war, the recovery of Europe has been slow, and the overseas exporting countries have largely retained their hold on the flour export trade.

The relative growth of ex-European trade among the five leading exporters has apparently depended partly upon relative increases in wheat production and in domestic milling industries, and partly upon the accessibility of ex-European markets where importation has increased most considerably. Australia, Canada, and the United States are all able to ship wheat and/or flour to the Orient because of the operation of established shipping routes; and in each of these countries increases in wheat production and milling output have been pronounced. In Argentina wheat production has increased quite as much as in Australia; but the increase in the exportable surplus of flour has been very small, and costs of shipment to the Orient are relatively high in the absence of established trade routes. Argentine trade even with her best ex-European customer, Brazil, has suffered from competition of the United States and Canada, whose large exportable surpluses

a Crop years beginning April of the year indicated.

b Crop year beginning July of the year indicated.
 c Includes estimate of 7 million bushels shipped from Europe.

d Includes 15,295 thousand bushels shipped from China to ex-European countries.

^{*}Includes 6,960 thousand bushels exported from Australia to India.

Includes 1,606 thousand bushels shipped from United States to Algeria and Tunis.

g Estimated.

¹ See below, p. 325.

² The sum of 1909-13 exports from these regions to ex-European net importing countries is about 5 million bushels. This does not include Russian exports of 6.9 million bushels to "other countries," some of which were probably ex-European net importing countries. We have estimated the exports from Europe to ex-Europe at 7 million bushels.

that country.1

Australian exports to ex-Europe have increased more in absolute terms than the exports of any other country or region. This is due to growth in trade with Egypt, since the Asiatic trade of Australia did not grow more notably than that of the United States or Canada. Before the war, most of the world's exports to Egypt passed across the Mediterranean from several European countries. With the practical cessation of these exports, Australia largely secured the market. The United States, Canada, and Argentina could not compete effectively. chiefly because the established trade route for Australian exports to Europe passed through the Suez Canal, while the routes from Argentina, Canada, and the United States do not. Direct shipments from these countries could be made only at relatively high freight rates unless return cargoes were assured. India, though she ships through the Suez Canal, had too little wheat to spare in several of the post-war years.

The movement of wheat and flour from exporting countries for the most part follows the lines of least resistance. A given exporting country ships wheat to those importing countries lying nearest or most accessible to it; conversely, an importing country obtains supplies (other things being equal) from the source able to ship at the lowest cost of transportation. Chilean wheat moves only to the ex-European importing countries of South America. Argentine wheat moves to South American countries and Africa, not to Asia, North and Central America, or Oceania. Australian wheat moves to Asia, Oceania, and Africa,

¹ The following data, showing increases or decreases between the pre-war and post-war periods in average annual exports to ex-Europe, wheat production, and total net exports of flour, are pertinent to this para-graph. Data are from official sources. Total export and wheat production figures are derived from calendar year data; net exports of flour from crop year

Increases in exports to ex-Europe	Increases in wheat production	Increases in net exports of flour
(Million bushels)	(Million bushels)	(Thousand barrels)
Australia20	43	2,852
Canada15	176	6,229
United States 15	118	3,226
Argentina 0	59	121
India 1	-18	60

of flour have found an increasing outlet in not to North and Central America or South America. Canadian wheat moves only in small quantities to Oceania, Africa, and South America. Wheat from the United States does not move in large quantities to Oceania (aside from Hawaii), to Africa, or to South America. There are, of course, certain minor exceptions: thus Peru imports wheat from North America and Australia as well as from Chile, and other instances will be noted in subsequent pages.

A single exporting country is usually unable to monopolize the trade of any of the more important ex-European importing countries. Brazil obtains supplies not only from the nearest sources, Argentina and Uruguay, but also from the United States and Canada; the Orient deals largely with both Canada and the United States and with Australia; Egypt obtains her imports from all three of these sources and others. Thus proximity does not, in all instances, yield a decisive advantage; for transportation costs from several exporting countries to a given importing country may run about equal. Between Vancouver and Seattle or Portland, for example, there is no definite or constant shipping advantage in exporting wheat or flour to Japan. Even where there are normally inequalities, special circumstances like preferential duties, or demand for types of wheat and flour not available in the nearest source of export, may cause importing countries to obtain supplies from more distant sources. Thus preferential tariffs or their equivalent give the United States an advantage in Cuba, Hawaii, and the Philippines; and the system of preferential duties in the British Empire favors exports of Canada and Australia to certain British possessions. Furthermore, changes in freight rates and shipping conditions between different years and in wheat and flour prices and available supplies between different exporting countries in a given year presumably give rise to changes in the direction of the export movement.

MOVEMENT FROM THE UNITED STATES

Exports of wheat and flour combined from the United States to ex-European destinations, by continental groupings, are shown in Table 3.1 Exports to North and Central American and to Asiatic countries have comprised around four-fifths of the total in both periods; exports to South American countries make up most of the remaining fifth; countries of Africa and Oceania provide only small markets.

Table 3.—United States Exports of Wheat and Flour as Wheat to ex-European Destinations, Annually, 1909–14 and 1921–26*

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Year	Total	North and Central America	South America	Asia	Africa	Oceania
1909-10. 1910-11. 1911-12. 1912-13. 1913-14. Average 1909-14. 1921 1922 1924 1925 1926 Average	26,180 30,777 37,946 41,471 37,070 34,689 44,370 48,495° 64,315 54,145 36,710 51,428 49,910	14,521 12,421 14,548 15,027 13,480 13,999 16,669 16,291 19,233 19,596 16,043 18,735	4,398 5,592 6,003 5,982 6,066 5,608 5,278 4,233 4,070 5,554 6,253 11,448 6,139	5,818 11,435 16,074 16,821 15,514 13,133 18,710 23,411 38,190 26,566 11,353 17,118	792 607 503 2,776 1,096 1,155 3,031 3,753° 2,087 1,624 2,233 3,112 2,640	651 722 818 865 914 794 682 807 735 805 828 1,015

^{*}Summarized from data in Foreign Commerce and Navigation of the United States. Pre-war data are for crop years July-June. For details see Appendix Tables I-III.

The distribution of exports is shown in greater detail in Appendix Table I. China and the Japanese Empire have always been by far the most important markets among the Asiatic countries; exports to these two alone were nearly 90 per cent of the Asiatic total in pre-war years and 87 per cent in post-war years. Exports to the Philippines have comprised most of the remaining 10 per cent; exports to Ceylon, the Dutch East Indies, Indo-China, Siam, the Straits Settlements, and others amounted to less than 100 thousand bushels in 1909–13 and only about 550 thousand in 1921–26. Shipments

to Asiatic countries naturally pass almost entirely from the Pacific Coast, and consist predominantly of the soft wheat or soft wheat flour grown or milled in that region. The Pacific Coast region may be regarded as almost an isolated wheat-producing region. since rail freight rates are so high as ordinarily to restrict the movement of wheat to easterly markets of the United States; hence outlets for the exportable surplus must usually be sought in Europe, the Orient, the eastern and northern coasts of South America, and parts of Central America.² One might therefore expect United States exports to Asiatic countries to vary directly with the wheat crops of Washington, Oregon, and California. If the demand of Asiatic countries remained the same from year to year, they would tend to decrease their imports from the United States in years when wheat crops on the Pacific Coast were small and prices relatively higher than elsewhere, and would then obtain larger supplies from Canada and/or Australia. This would not hold for the Philippines; for the preference accorded to United States products would facilitate the imports of those products in all years except those when Seattle or Portland prices were above (say) Vancouver prices by more than enough to offset the lower charges on United States flour.

That there is some tendency for Pacific Coast crops and United States exports to China and Japan (but not to the Philippines) to vary together is shown by the following data, in million bushels:

Year	Pacific Coast crop ²	Exports to China, Japan ^b	Exports to Philippines ^b
1909-10	58.7 61.3 76.0 81.0 73.2	$egin{array}{c} 4.4 \\ 10.4 \\ 14.6 \\ 15.0 \\ 14.4 \\ \end{array}$	1.18 1.07 1.45 1.74 1.11
1921–22	92.0 66.3 104.2 46.7	23.3 20.2 43.9 7.7	1.57 2.21 2.75 2.77
1925–26	70.6 71.6	10.6 13.2	2.80 3.13

^a Summation of crops of Washington, Oregon, and California.

^a Includes exports of 1,606 thousand bushels to Algeria and Tunis.

¹ Some of the flour reported as exported from the United States, especially to the West Indies, is flour milled in bond from Canadian wheat.

² Recent alterations in rail rates, however, have made markets of the central United States more accessible; and shipments are also made via the Panama Canal.

^b July-June exports. These are smaller than calendar year exports. See below, pp. 339 f.

But the general relationships do not hold in all years; in 1922-23, for example, exports to China and Japan were much larger than in 1925-26 and 1926-27, though the crop was smaller in 1922 than in 1925 or 1926. In part this is explained by the fact that wheat prices in the Pacific Northwest were lower in 1922-23 than in the other two years, despite the smaller crop;1 and in 1925-26 the demand for soft wheat in central regions of the United States was sufficient to cause exceptional movement by rail from the Pacific Northwest. Annual variations in exports of the United States to China and Japan are of course influenced by fluctuations in the demand in those countries. Exports in 1909-10, 1910-11, and 1921-22 might have been larger had not China been in a position to export considerable quantities to Japan. But in general a large wheat crop in the Pacific region of the United States, ordinarily accompanied by low prices, may be expected to result in relatively large exports to Asiatic countries.

The Asiatic trade of the United States consisted predominantly of flour before the war; exports of flour as wheat averaged 10.8 million bushels, and exports of wheat as grain, 2.4 million. In the post-war period, however, flour exports averaged 13.1 million, wheat exports 9.4 million. The relatively larger growth of wheat exports is due chiefly to the development of the milling industry in Japan. Flour exports to Japan averaged 2.89 million in the pre-war period, but only .94 million in the post-war period; and from 1921 to 1926 annual exports of flour declined steadily from 1,844 thousand bushels to only 83 thousand. On the other hand, pre-war exports of wheat to Japan averaged only 2.34 million bushels, as against 7.22 million in the post-war period. The remaining increase in wheat grain exports is accounted for by China, to which exports averaged only 18 thousand bushels in the pre-war period, as compared with 2,124 thousand in the post-war period. Other Asiatic countries have always been only negligible markets for wheat as grain.

The net importing countries of North and Central America provided the largest mar-

ket for American wheat and flour in prewar years, but were outranked by Asiatic countries in the post-war period. Cuba, Mexico, Porto Rico, and Haiti have always been the most important individual markets; exports to this group comprised 58 per cent of the total in the pre-war period, 66 per cent in the post-war. Preferential tariffs encourage trade of the United States with Cuba; Porto Rico and Panama Canal Zone apply no duties; and proximity in general ought to favor the United States more than other exporters in the trade with the West Indies and Central American countries. Exports of the United States to the British West Indies and to Newfoundland have, however, declined from a prewar average of 2,562 thousand bushels to a post-war average of 1,181 thousand, on account of preferential duties favoring Canada. Exports from the United States move chiefly from Atlantic and gulf ports, but partly from Pacific ports and overland to Mexico. The Mexican trade consists chiefly of wheat; a little wheat is exported to the countries of continental Central America; other countries purchase only flour from the United States. Annual variations in total United States exports to North and Central American countries are small, and are accounted for chiefly by variations in exports to Mexico and to countries of continental Central America.

Exports from the United States to South American countries pass from Atlantic, gulf, and Pacific ports, the last supplying Peru and Ecuador particularly. Brazil has consistently been the most important market in South America; exports to Brazil averaged 47 per cent of total exports to South America in the pre-war period, 57 per cent in the post-war period. Peru and Venezuela rank next in importance. After these, British Guiana was the largest market in pre-war years, but preferential tariff arrangements have transferred this outlet to Canada. Over 92 per cent of the exports to South America consisted of flour in the pre-war period, and 78 per cent in the post-war period. Peru and Colombia are the only countries to which wheat as grain is consistently exported in fair quantities, though under special circumstances, as in 1921 and 1926, considerable quantities may

¹ See Table 13 below, p. 342.

be shipped to Brazil. Annual fluctuations in total exports from the United States to South American countries apparently depend less upon wheat crops or prices in the United States than upon production and prices in Argentina and Chile, and upon conditions affecting the demand of Brazil and Peru. Variations in exports to these countries, especially Brazil, account for the major variations in total annual exports from the United States to South America.

African countries have never provided important markets for United States wheat or flour; American exports to these destinations averaged 1.2 million bushels in the pre-war period, 2.6 million in the post-war period. The statistics are not altogether satisfactory because exports to Algeria and Tunis (usually net exporting countries) seem to be included within the official category "French Africa" until 1922, and appreciable exports of wheat as grain appear to have been made to these countries in 1912-13 and 1921. Egypt is the only African market of any importance, and variations in exports to Egypt largely account for variations in total exports to African destinations. No African net importing country provides a significant outlet for wheat as grain.

The small exports to Oceania are composed almost entirely of shipments of flour to Hawaii, where United States products enjoy tariff discrimination.

MOVEMENT FROM CANADA

A summary view of the export movement from Canada to net importing countries of ex-Europe is given in Table 4; details appear in Appendix Tables IV-VI. Before the war, North and Central American and African markets were of dominant importance; exports to these continental groups combined averaged 4.3 million bushels out of the 5.1 million shipped to all ex-European destinations. After the war Asiatic countries became by far the most important, with North and Central American second and South American third; exports

to African countries showed much smaller increases than to other groups (except Oceania, to which only negligible quantities have ever been shipped from Canada), and consequently fell from second place to fourth. Before the war less than a tenth of the total Canadian exports to ex-Europe consisted of wheat; after the war exports

Table 4.—Canadian Exports of Wheat and Flour as Wheat to ex-European Destinations, Annually, 1909-14 and 1921-26*

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Year	Total	North and Central America	South America	Asia	Africa	Oceania
1909-10.	3,954	2,436	160	176	1,178	4.5
1910-11.	4,669	3,434	228	91	906	10.3
1911-12.	4,707	3,200	230	320	943	14.0
1912-13.	5,433	2,965	302	598	1,568	.1
1913-14.	6,953	3,618	458	1,451	1,426	.3
Average 1909-14.	5,143	3,130	276	527	1,204	5.8
1921	6,095	4,032	766	501	796	.0
1922	12,814	5,589	1,247	5,075	903	.0
1923	19,773	6,974	2,133	8,939	1,727	.0
1924	28,603	6,389	1,916	18,654	1,644	.0
1925	22,486	5,440	1,524	14,169	1,352	1.3
1926	30,618	6,391	3,881	18,948	1,391	7.3
Average 1921-26.	20,065	5,802	1,911	11,048	1,302	1.4

^{*} Pre-war figures summarized from data in Sessional Papers, L, 378, 386, and are for crop years July-June. Post-war figures summarized from data in Monthly Report of the Trade of Canada. For details, see Appendix Tables IV-VI.

of wheat comprised nearly half of the total. Canadian exports of wheat and flour combined have nearly quadrupled between the two periods, the absolute increase being nearly 15 million bushels. So pronounced has been the expansion since the war that the exports of 1926 were nearly eight times as large as those of 1909-10. Aside from the general growth of ex-European demand, particularly in Asia, this increase has been due chiefly to the expansion of Canadian production of wheat and flour (particularly in regions accessible to Pacific ports), to the concomitant growth of shipping facilities on the Pacific Coast, and to the preferential tariff system which enabled Canada to gain certain markets at the expense of the United States.

The Asiatic trade is of major interest

¹ Since Algeria and Tunis were net exporting countries in these two years, exports to them from the United States ought not to be included in the total. In 1922, however, they were net importing countries, and United States exports are properly to be included.

since it has comprised over half the total in the post-war period. Japan and China have always been the principal individual markets in Asia; the Philippine trade is small in view of the preference given to United States products, and other countries are still less important. Before the war, when the province of Alberta was a comparatively small producer of wheat and facilities were not well developed for the movement of wheat from Alberta to Vancouver on the Pacific Coast or from Vancouver to the Orient, the United States obtained the bulk of the Oriental trade. Since the war Canadian exports to China and Japan have increased greatly, presumably in some part at the expense of the United States. Nearly three-fourths of the Canadian exports to the Orient in the postwar period have consisted of wheat as grain. Like the United States, Canada exported to China and Japan much more wheat as grain after the war than before; but unlike the United States, she has also exported more flour. Expansion of the Japanese milling industry has permitted only a small increase in exports of flour to Japan, though the increase of wheat exports has been large. China provided a larger outlet for both wheat and flour after the war than before. The larger proportion of wheat in Canadian than in United States exports to the Orient is perhaps due to the greater development of milling in Washington and Oregon than in British Columbia and Alberta; wheat is relatively more freely available for export to the Orient in Canada than in the United States and at times is presumably cheaper c.i.f. in Asia.1

Annual variations in Canadian exports to the Orient are apparently related to the size of the Alberta crop. The following figures show wheat production of Alberta, in million bushels, in comparison with total Canadian exports of wheat and flour to Asiatic countries, in thousand bushels:

Year July-June	Alberta crop	Canadian exports
1909-10 1910-11	 9.6	176
1910-11 1911-12	 $\begin{array}{c} 9.1 \\ 36.6 \end{array}$	$\begin{array}{c} 91 \\ 320 \end{array}$

¹ Japanese millers probably find increasing need of hard wheat for blending purposes.

Year July-June	Alberta crop	Canadian exports
1912–13 1913–14	 $\begin{matrix} 34.3 \\ 34.4 \end{matrix}$	598 1,451
1921-22 1922-23	 $53.0 \\ 65.0$	$\frac{3,992}{6,702}$
1923-24 $1924-25$	 144.8 61.3	19,235 $5,262$
$\substack{1925-26\\1926-27}$	 $98.0 \\ 114.0$	17,271 15,629

Since the war the concordance has been fairly close, though if it were more perfect exports in 1925–26 would not have exceeded exports in 1926–27. In 1925–26 Canada apparently obtained more than a normal share of the Oriental trade, because the Pacific Coast area of the United States was called upon to supply an abnormally heavy domestic demand for soft wheat, and consequently did not compete for the Oriental trade as actively as usual.

Newfoundland and the British West Indies, especially Trinidad and Tobago, have always been the most important markets for Canadian produce in North and Central America. Both of these extend preferential duties, which in part account for the increase in Canadian exports between the two periods; and Newfoundland is near at hand. Canada exports only negligible quantities to Mexico, for the United States is more favorably located. Since the war, in spite of tariffs favoring the United States, the Canadian trade with Cuba has approached a million bushels, about a seventh of the total exported to North and Central American countries. The trade with this group consists almost exclusively of flour. Annual variations in the volume of trade in post-war years have been small. The maximum deviation from the average. occurring in 1921, was 1.8 million bushels. For the immediate future, Canadian exports to North and Central American countries may reasonably be expected to range between 6 and 8 million bushels in any year. These shipments are made principally from the eastern coast.

Before the war, Canadian exports to South American countries averaged only 276 thousand bushels, which went almost entirely to British Guiana. Since the war, under the preferential tariff system, this trade with British Guiana has grown at the

expense of the United States. Markets have been found in Brazil, Peru, Venezuela, and other countries; and average annual exports to South America were nearly 2 million bushels in the post-war period. Exports to Brazil alone reached 1.9 million bushels in 1926, but this was largely due to the unusual circumstance of a crop of extraordinarily poor quality in Argentina. The South American trade consists principally of flour; but shipments of wheat as grain, in most years routed principally to Peru from Vancouver, have averaged 356 thousand bushels annually in the post-war period. Shipments of wheat have also been made in some years to Brazil and Venezuela, but other countries are markets only for flour shipped from the eastern coast of Canada. Except as disturbed by the unusually large shipments to Brazil in 1926, variations in annual exports are negligible.

Egypt and the Union of South Africa are the principal markets of Canada among the African countries. There has been some growth in the Egyptian trade but not in the South African; and the total has not exceeded 1.7 million bushels in any year of the periods considered. Trade with countries of Oceania, which are more readily accessible to Australia, has always been trifling.

MOVEMENT FROM AUSTRALIA

Australian exports to ex-European net importing countries, by continental groups, are shown in Table 5; details appear in Appendix Tables VII-IX. African countries constituted the most important market for Australia before the war, and became only slightly less important than Asiatic markets in the post-war period. Asiatic markets were second in importance before the war, and first thereafter. The smaller trade with South American countries has declined, but trade with Oceania has increased. North and Central American countries have never been markets in which Australia could compete with the United States and Canada. All Australian exports of wheat and flour pass from the southern, principally the southeastern, portion of the continent. Exports to Asiatic countries except India and Ceylon move up the east coast of Australia to various destinations in the Malay Archipelago, thence northward to Japan and China; exports to India and Ceylon move westward and northward across the Indian Ocean. The latter route is followed as far as Ceylon by exports to Egypt; from Ceylon the route passes westward to Aden, thence through the Red Sea and the Suez Canal. Exports to South Africa move directly westward from the south coast of

Table 5.—Australian Exports of Wheat and Flour as Wheat to ex-European Destinations, Annually, 1909–13 and 1921–26*

(Thousand	hushels)
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Calendar year	Total	South Americac	Asia	Africa	Oceania
1909	8,775 10,029 11,441 9,503 16,534	627 1,270 1,595 1,202 943	2,051 2,592 4,272 3,738 5,807	5,412 5,635 4,997 4,041 9,183	685 532 577 522 601
Average 1909-13	11,256	1,127	3,692	5,854	583
1921	19,651	0	3,746	15,347	558
1922	30,027	778	$19,059^{b}$	9,756	434
1923	29,231	87	15,026	13,635	483
1924	39,641	0	19,294	16,418	3,929
1925	34,181	1,519	14,373	15,068	3,221
1926	33,491	457	17,468	12,398	3,168
Average 1921-26	31,037	474	14,828	13,770	1,965

^{*} Pre-war figures summarized from data in Trade and Customs and Excise Revenue of the Commonwealth of Australia. Post-war figures summarized from data in Monthly Summary of Australian Statistics. For details, see Appendix Tables VII-IX.

Australia. Small shipments to Peru move eastward and northward across the Pacific.

Before the war, the Union of South Africa was the principal market among African countries; exports to all other countries averaged only 1.39 million bushels out of a total of 5.85 million. After the war Egypt became much more important than the Union of South Africa, and exports to Egypt averaged 9.25 million bushels as against 3.97 million to the Union of South Africa and 556 thousand to all other African countries. The increase in trade with Egypt, as we have seen, resulted from the decline of European exports to that country, and cir-

^a Exports reported to Peru only.
^b Includes 6,960 thousand bushels exported to India.

¹ See above, p. 317.

cumstances which enabled Australia to enter and retain the market. The trade of the Union of South Africa has always been retained chiefly by Australia, despite the shorter distance from Argentina. Established trade routes exist between South Africa and Australia, but not between South Africa and Argentina, largely as a result of historical accident involving English trade with Australia via the Cape of Good Hope before the opening of the Suez Canal. Australia also enjoys tariff discrimination. In post-war years three-fourths of the trade of Australia with Egypt has consisted of flour; South Africa, however, has always been a market for wheat as grain, largely because duties are relatively higher on flour than on wheat.

Before the war, Australian exports to Asiatic countries averaged only 3.69 million bushels. The Dutch East Indies and the Philippine Islands were the most important markets, and shipments to them averaged 2.20 million. Shipments to China and Japan were small, always below 1.5 million bushels, and averaged only 545 thousand. After the war, exports to all Asiatic destinations increased to an average of 14.83 million bushels. The only Asiatic country to which smaller shipments were made in the postwar than in the pre-war period was the Philippine Islands. The most noteworthy increase was in shipments to Japan, which averaged 7.23 million bushels in post-war years as against only .35 million in the prewar period; Japan displaced the Dutch East Indies as the most important market for Australia among the Asiatic countries. The Dutch East Indies, however, remained second in importance, shipments to this destination averaging 2.31 million bushels. Australia is able to compete in this region of hot moist climates chiefly because of her proximity and more regular communication, but in part, perhaps, because Australian flour can be manufactured from the exceptionally dry Australian wheat in such a manner that the flour is of lower moisture content than that of most other exporting countries, and hence keeps better. Trade with China, though larger than in pre-war years, has not grown so notably as trade with Japan; pre-war shipments to China averaged .19 million bushels, post-war shipments only 1.48 million. Thus China in post-war years has obtained her supplies almost entirely from the United States and Canada; while Japanese supplies have been secured to about as large an extent from Australia as from the United States and Canada. The Oriental trade of Australia consisted almost exclusively of flour before the war; but since the war, Japan and China have provided markets for wheat grain to such an extent that over 60 per cent of the total Australian exports to Asiatic countries have been composed of wheat grain.

In some years India is an important outlet for Australian wheat. The figures in Table 5 include Australian exports to India only in 1922, when India was a net importer of wheat and flour combined. By calendar years, total exports of wheat including flour from Australia to India have been as follows, in thousand bushels:

1921	 8,171	1924	 19
			 134
1923	 16	1926	 1,277

By July-June years, the data are as follows, also in thousand bushels:

India was a net importer in the period July-June 1921-22 to a greater extent than in the calendar year 1922, and she was not a net importer in the calendar year 1921; hence average post-war net exports from Australia to Asiatic (and to all ex-European) net importing countries would appear larger on the crop year than on the calendar year basis. Exports from Australia to India occur in volume only in years when the Indian crop is notably short. Thus the Indian crop of 1921, harvested in March-May, was only 250 million bushels; and Australia was called upon for wheat chiefly during the months of October-March 1921-22. Shipments from Australia to India were negligible in the next three crop years, when the Indian crop ranged from 361 to 372 million bushels. In the following two crop years the Indian crop was of moderate size, 331 million bushels in 1925 and 325

¹Whether or not Australian millers actually export a flour of exceptionally low moisture content to the East Indies is not known to the writer.

million in 1926, and exports from Australia to India were 1.4 and 2.6 million bushels respectively; but in these years India was not a net importing country. The small exports of Australia to other Asiatic countries than India in the calendar year 1921, some 3.75 million bushels as compared with 8.17 million exported to India and an average of 14.83 to all Asiatic countries for the postwar period, cannot be regarded as evidence that India is a preferred market among the ex-European countries. China (Manchuria) was able to export wheat in 1921, so that Japan imported from China rather than from Australia or other sources. In the calendar year 1922, when Australian exports to India were 6.96 million bushels, exports to Japan were not appreciably below average.

In the pre-war period, when New Zealand was consistently a net exporter of wheat, Australia exported only negligible quantities to that country, and total exports to countries of Oceania averaged only about half a million bushels. During the last three years of the post-war period, however, New Zealand became a net importer, and exports from Australia to New Zealand rose to over 2.5 million bushels, so that average post-war exports to countries of Oceania rose to 1.97 million.

The only South American country to which Australian exports pass is Peru, and the quantities, averaging 1.13 million bushels in the pre-war period, .47 million in the post-war period, have never been large. That any exports whatever are made is somewhat surprising in view of the proximity of Peru to Canada, the United States, Chile, and even Argentina; but there exists an established trade from Peru to Australia permitting wheat from Australia to Peru to be handled almost as ballast.

MOVEMENT FROM ARGENTINA

Practically all of Argentina's exports of wheat and flour to ex-European countries pass to other South American countries, especially Brazil. Details are given in Appendix Tables X-XII. Apparently no exports have ever been made to distant Oceania, and never more than 75 thousand

bushels to Asia. Trifling shipments have passed to Cuba and Mexico in occasional Exports to African destinations, chiefly the Union of South Africa, exceeded half a million bushels only in 1925. Of total average pre-war exports to ex-European countries of 17.86 million bushels, 17.42 million went to Brazil and .37 million to other South American countries; and average post-war exports to Brazil totaled 16.42 million as against 1.01 million to other South American countries and .38 million to other ex-European countries. After Brazil, Paraguay is Argentina's principal South American market. These two countries, like Argentina, lie on the eastern coast of South America, and are thus nearer to Argentina than to any other source of supply. But Argentina has no advantage over the United States and Canada in supplying Colombia, Venezuela, and other countries in the northern portion of the continent, and is at a positive disadvantage as compared with these exporters and Chile in shipping to Peru and other importing countries on the west coast of South America.

Among the four major exporters to ex-Europe, Argentina alone has failed to increase her trade between the pre-war and the post-war periods. She has been unable to share in the growing trade with the Orient because of her distance from Asia. Moreover, she has lost, for the time being at least, a proportion of the trade with Brazil. This loss has occurred chiefly in the flour trade. Argentine exports have always consisted predominantly of wheat; her milling industry is not so well developed as those of the United States, Canada, and Australia. Before the war, Argentina exported annually some 5.37 million bushels of flour as wheat to Brazil; after the war, the figure fell to 3.00 million. Wheat grain exports did not decline, but rose from 12.05 to 13.41 million bushels. However, United States and Canadian exports of flour to Brazil increased only slightly, though exports of wheat, like those of Argentina, increased considerably. Higher Brazilian duties on flour than on wheat appear to have been the cause of Argentina's loss in flour exports. But some of the gain in United States and Canadian trade in flour

¹ See also Table 2, p. 316.

and wheat combined is due to the fact that the Argentine wheat crop harvested in December-March 1925-26 was of extraordinarily poor quality; consequently, her wheat and flour were not preferred in Brazil to the usual degree during the calendar year 1926.

MOVEMENT FROM MINOR EXPORTERS

India, Chile, China, Uruguay, Irak, Persia, Syria and Lebanon, Eritrea, and New Zealand are countries which usually or occasionally export some wheat and/or flour to ex-European destinations. Of Eritrea and New Zealand nothing need be said, for their contributions to the total exports to ex-European destinations have always been negligible. Of Irak, Persia, and Syria and Lebanon nothing can be said because data are not available showing the distribution of their occasional exports between Europe and ex-Europe. The omission of Irak may be of some significance because her net exports exceeded 3.5 million bushels in 1923, and a fair proportion of these may have gone to ex-Europe.

India (see Table 2, p. 316, and Appendix Tables XIII-XV) exported, on the average, about 3 million bushels of wheat and flour a year to ex-Europe in the pre-war period, and only slightly more in the postwar period. Exports move only to Asiatic and African countries, and principally to western Asia and British Africa, especially Egypt. Egypt is the largest single market. Exports from India to ex-Europe consist chiefly of flour; wheat exports to ex-Europe averaged less than half a million bushels in 1909–13, and not much more in the postwar period. In 1924-25, however, when the Australian crop was small and the Indian crop large, the largest exports of wheat as grain recorded in the two periods were made to Egypt; but the total amounted only to 2.23 million bushels. In this year India's total exports to ex-Europe, 7.4 million bushels, were larger than in any other year of the two periods; the high figures reflect two fine crops in succession, the coincidence

of a small Australian and a large Indian crop, and much higher international prices in 1924–25 than in 1923–24. In the Indian crop year 1922–23, when the country was a net importer of wheat and flour, exports to ex-European destinations continued, though in somewhat smaller quantities than usual.

Chile (see Table 2, p. 316) exported only some .74 million bushels to ex-European countries in the pre-war period, and 1.50 million in the post-war period. The principal markets are Peru and Bolivia; shipments to Ecuador and Brazil have not reached 50 thousand bushels in any year. Annual fluctuations in Chilean exports depend principally upon the size of the domestic crop; in some years the crop scarcely suffices for domestic requirements, while in others, like 1924, a good crop permits exports of 3 million bushels or more. Exports consist chiefly of wheat as grain. Exports to Peru and Bolivia are made even in years when Chile is forced to import some wheat, as in 1922.

China has been a net exporter of wheat and flour combined only in a few years, 1909, 1910, and 1921. Throughout the prewar period she was a net exporter of wheat as grain; in 1909 and 1910 she was also a net exporter of flour, but in 1911–13 net imports of flour exceeded net exports of wheat as grain. Net exports totaled 2.3 million bushels in 1909 and 5.3 million in 1910. In 1921 also, following a war-time expansion of wheat production, China was a net exporter of wheat and flour, to the extent of 15.3 million bushels. Japan, western Asiatic countries, and Siberia were the leading ex-European markets in this year.

Uruguay is consistently a net exporter both of wheat and of flour; in some years her total net exports to all destinations exceed 5 million bushels. Data are not available, however, for distributing these exports between European and ex-European countries. Perhaps 2 million bushels are exported to Brazil and Paraguay, principally the former, in years when the Uruguayan crop is large; these two countries are the only important ex-European markets. Exports of wheat as grain are much larger than exports of flour.

¹ Although the Australian crop harvested in December-February 1923-24 is regarded as the crop of 1923, and the Indian crop harvested in March-June 1924 as the crop of 1924, these are the crops which competed and to which reference is made above.

IV. DISTRIBUTION OF NET IMPORTS

A GENERAL VIEW

In the present section we shall deal with net import statistics, particularly with prewar and post-war averages for different countries and groups of countries. In so far as the meager data permit, it will be desirable to analyze trends in the consumption of wheat, with the object of determining whether or not increases or decreases in trade shown by averages are likely to continue in the near future. Annual data for post-war years are given in Tables 6–12; but consideration of the factors governing fluctuations in the annual volume of trade is reserved for the following section, and can best be treated by reference to statistics of crop year exports to ex-Europe.

A distribution of the net imports of ex-European countries by continental groups is given in Table 6. In the pre-war period

Table 6.—General Distribution of ex-European Net Imports of Wheat and Flour as Wheat, Pre-War and Post-War*

(Thous and	bushels)
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Calendar year	Total	North and Central America	South America	Asia	Africa	Oceania
Ave. 1909–13	79,884	17,539	27,370	14,800	18,845	1,330
1921 1922	85,259 110,078	20,134 20,264	23,305 29,082	24,611 45,694°	15,730 13,882	1,479 1,156
1923	126,362	24,252	31,032	50,565	19,306	1,207
1924 1925	162,994 128,037	23,967 $21,164$	$38,761 \\ 36,614$	73,200 $42,822$	$\begin{vmatrix} 22,165 \\ 23,429 \end{vmatrix}$	4,90 1 4,008
1926	150,448	23,373	40,269	62,644	19,826	4,336
	127,197	22,193	33,177	49,923	19,056	2,848

^{*}Summarized from data of International Institute of Agriculture. See Tables 8-12 for detailed lists of countries within continental groupings. The figures given include our estimates of imports of individual countries in particular years. Pre-war averages are not always for the five years 1909-13. Metric quintals of wheat converted to bushels at 3,67431 bushels per quintal; metric quintals of flour converted to bushels of wheat at 5.24902 bushels (a 70 per cent extraction) per quintal.

South American countries imported more wheat and flour than any other continental group, some 27.4 million bushels out of a total of 79.9 million. African countries, and North and Central American countries, with 18.8 and 17.5 million bushels respectively,

were next in importance; Asiatic countries ranked fourth. Oceania imported less than 1.5 million bushels. In the post-war period the Asiatic group became the most important; South America took second place, North and Central America third, Africa fourth, and Oceania fifth. In so far as growth of imports reflects growth of demand, it is clear that the significant increases in demand have occurred in Asia, South America, and North and Central America.

In general, the increase in demand has apparently been more noteworthy with respect to wheat than to flour. Table 7

Table 7.—General Distribution of ex-European Net Imports of Flour as Wheat, Pre-War and Post-War*

(Thousand bushels)

Calendar Year	Total	North and Central America	South America	Asia	Africa	Oceania
Average 1909-13.	59,091	15,471	12,046	14,873	15,344	1,357
1921 1922 1923 1924 1925 1926	51,715 63,149 76,565 88,980 72,590 84,455	17,472 18,744 22,110 22,273 19,551 20,253	6,627 10,404 9,487 14,949 13,653 17,577	12,820 21,900 29,568 34,651 21,409 28,367	13,677 11,021 14,283 15,857 16,304 15,690	1,119 1,080 1,117 1,250 1,673 2,568
1921-26.	72,909	20,067	12,116	24,786	14,472	1,468

^{*} See Table 6 for sources and qualifying notes.

shows net imports of flour by continental groupings. There has been no increase or no appreciable increase in the flour imports of South America, Africa, or Oceania. The increase in Asiatic flour imports appears to have been considerably less than the increase in wheat imports. The general policy throughout the world to encourage domestic milling by relatively higher duties on flour than on wheat has apparently achieved a considerable measure of success in ex-European countries. Only North and Central America—a group composed largely of tropical or semi-tropical countries where wheat is neither grown nor milled-has shown an increase in flour imports greater than in wheat imports.

The increase in annual average net im-

^a Includes 2,510 thousand bushels of imports into India.

ports of ex-Europe between two periods so distant from each other as 1909-13 and 1921-26 must be due to such fundamental influences as long-time trends in wheat production, in population growth, and in per capita consumption of wheat. It is impossible to analyze each of these factors for each ex-European country or for each continental group; the data are fragmentary. Yet a reasoned guess at the future trend of ex-European trade in wheat and flour cannot be formulated without some attempt to comprehend trends in wheat production and consumption in ex-European countries. The unqualified data of Table 6 suggest that total ex-European trade has increased at the rate of 3.6-3.9 million bushels per year; if this rate of increase were maintained, ex-European trade would on the average exceed 170 million bushels annually in 1933-37, a period as distant from 1921-26 as 1921-26 is from 1909-13. But the historical rate of increase has differed greatly between different countries; and before one can reasonably conclude that similar rates of increase are likely to continue in the future, it is desirable to examine the wheat situation in particular regions in further detail.

IMPORTS OF ASIA

Table 8 (p. 328) shows Asiatic net imports of wheat and flour combined, distributed among the various important importing countries. All countries or groups of countries except the group designated "others" have increased their net imports considerably between the pre-war and the post-war periods. Even this single decline in imports is open to question. Among the several specific countries listed in the group designated "others," only French India and the Federated Malay States had smaller imports in the post-war than in the pre-war period; and since the imports of French India are negligible, the apparent decline in the imports of the Federated Malay States accounts almost entirely for the decline in the imports of the group "other countries." In view of the fact that imports have increased in every other Malayan country, the figures for the Federated Malay States may reasonably be questioned. A decline

probably did not occur; but whether the pre-war figures are too high or the post-war figures too low is not clear.¹ One may reasonably conclude that among the net importing countries of Asia there is no group which failed to show an increase in net imports between the pre-war and the post-war periods.

Japan and China are the countries where the increase was most noteworthy; the increase in net imports of these two countries was 31.4 million bushels, as against an increase of 35.1 million in all Asiatic countries and of 47.3 in all ex-European countries. Hence these are the countries where the wheat situation deserves most detailed analysis.

Yet the increase in the combined imports of other Asiatic regions has not been negligible, and may be considered first. On the assumptions that the Federated Malay States have in fact increased their imports in the same proportion as the Dutch East Indies, and that the post-war trade figures are correct, total net imports of the Asiatic countries which produce no wheat have increased from 6 to 9.6 million bushels, or 60 per cent. The trade of these non-wheat producing countries2 consists almost entirely of flour. Rice is the staple cereal food; wheat is imported in part for the European population to consume in the form of bread, in part for the native population to consume in the form of noodles or dumplings. There is no statistical evidence that wheat tends strongly to displace rice in the diet. In the Philippines, for example, the per capita disappearance of wheat has increased from 12 pounds per annum in 1909-13 to 18 pounds in 1921-26, while the per capita disappearance of rice has increased from 246 to 383 pounds. In the

¹ Another reason for questioning the accuracy of the reported net imports of the Federated Malay States lies in the fact that the net import of flour in 1921 is given as 321,774 quintals in the International Yearbook of Agricultural Statistics, 1909 to 1921, but as 80,090 quintals in the Yearbook of 1922, without explanatory notes. It seems more reasonable to suppose that there has been a change in the basis of the statistics than that there has been a decline in net imports.

² The list includes Ceylon, the Dutch East Indies, the Philippine Islands, Indo-China, French India, Portuguese India, British Borneo, the Straits Settlements, the Federated Malay States, and the Protected Malay States. No data are available for Siam.

Dutch East Indies, the trifling per capita disappearance of wheat increased from 2.5 to 3.1 pounds, while disappearance of rice increased from 234 to 239 pounds. In Ceylon, disappearance of wheat increased from 7 to 11 pounds, while disappearance of rice decreased from 319 to 316 pounds.1

If these countries are typical of their class, increased importation and consumption of wheat flour in the non-wheat-producing and rice-consuming countries of living. Nevertheless it is reasonable to assume that wheat will hold its subordinate place in the diet, and that imports will increase at about the same rate as in recent years. There is presumably room for still further increases in per capita consumption both of wheat and of rice, before reaching the stage of decreasing consumption of cereals with increasing substitution of sugar, meats, and vegetables. Population also will probably continue to increase;

TABLE 8.—NET IMPORTS OF WHEAT AND FLOUR AS WHEAT INTO ASIATIC IMPORTING COUNTRIES, PRE-WAR AND POST-WAR*

(Thousand	herahala 1
i i nousana	DUSHELSI

Calendar Year	Total	Japanese Empireª	Chinab	Philippines	Dutch East Indies	Western Asia•	Indo-China	Ceylon	Others reported ^a
Average 1909-13	14,800	4,854	417	1,832	1,747	1,824	508	523	3,095
1921	24,611	12,591°	r	4,701	2,210	2,251	652	778	1,428
1922	$45,694^{o}$	23,761	8,968	2,204	2,209	3,119	673	643	1,607
1923	50,565	18,861	22,499	2,760	2,299	629	840	737	1,940
1924	73,200	28,960	31,765	3,274	2,672	2,512	1,010	857	2,150
1925	42,822	16,879	9,193	3,654	2,798	6,152	927	858	2,361
1926	62,644	24,048	22,760	3,517	3,334	4,518	1,000	960	2,507
Average 1921-26	49,923	20,850	15,864	3,352	2,587	3,197	850	805	1,999

^{*} See Table 6 for sources and qualifying notes.

Asia appears to have been an incidental factor in a general increase in per capita cereal consumption, which itself represents an improvement in the standard of living. Dietary habits change slowly, especially in Asia. Consequently one cannot expect any sudden increase in wheat consumption in the rice-consuming countries; for the next few decades rice consumption will probably continue to expand quite as rapidly as wheat consumption wherever there is further possibility of raising the standard of

¹ The per capita disappearance figures employed in this study are obtained by dividing the pre-war and post-war averages of domestic production plus net imports by estimated population in the middle of each period. Per capita disappearance may be regarded as a very rough indication of per capita consumption for food, though no account is taken of the use of crops for seed, feed, or industry. Since the figures are in part based in many instances on very rough estimates of population and production, they must be used with caution.

and, since these countries cannot produce wheat, imports of flour will probably increase with the population growth alone. Furthermore, the trade figures for recent years (see Table 8) suggest that flour consumption there is not greatly affected by changes in wheat prices; imports do not fall off sharply in years of high wheat prices like 1925. So far as the meager data are trustworthy, it seems reasonable to anticipate for the immediate future a rate of increase in imports averaging around 5 per cent annually in the non-wheat-producing countries of Asia, Asia Minor, and the Arabian Peninsula.

This increase in flour trade will presumably be supplied chiefly by Japan and Australia. Both countries are relatively near at hand and are able to furnish regular shipments in small lots, an important matter in securing the trade of countries with

a Japan, Chosen (Korea), and Formosa.
b Includes Macao, but not Hongkong or Kwantung, or other foreign possessions or leased territories.
Palestine, Syria, Lebanon, Cyprus, Aden, Irak, Persia.
French India, Portuguese India, British Borneo, Straits Settlements, Federated Malay States, Protected Malay States.

Japan only. Net exports of 15,335 thousand bushels; ignored in striking average of net imports for the period.
Includes 2,510 thousand bushels for India.

a humid tropical climate. Both can supply soft flour of the type suitable for noodles. Australian flour is said to keep somewhat better than other flours, and is consequently preferred to some extent.¹

In the countries of western Asia the problem is more complex. Here wheat is produced in large volume, and flour in the form of hard bread and pastes is the staple cereal food. On the whole the area imports more flour than wheat, but the situation varies from country to country and from year to year. Moreover, the detailed trade data are decidedly incomplete; and for several countries data on wheat production and even population are not available. With data so unsatisfactory, calculations of per capita disappearance of wheat and other cereals are not feasible. Western Asia, however, is generally regarded as an area which is underpopulated with respect to its agricultural resources. Much land is thought to be suitable for crop production, and existing methods of cultivation are most primitive. It seems likely that agricultural production has not yet recovered even to the level of pre-war years. A decade or two of peace, with recovery and improvement of agriculture and industry, and extension of transportation facilities, might involve such expansion of wheat production that the area might consistently export wheat in fair quantities. Too little is known of present and past conditions to justify more than a guess; but on the whole there seems little prospect that the wheat and flour imports of the post-war period will be further increased or even maintained.

JAPAN AND CHINA

Net imports of wheat and flour into the Japanese Empire have increased from 4.9 million bushels in 1909–13 to 20.9 million in 1921–26. Japan has consistently imported more wheat than flour. The domestic milling industry has been encouraged by the imposition of duties favoring the importation of wheat; and the policy has been so successful that Japan became a net exporter

of flour in 1925 and 1926. The policy involves expansion of the milling industry only in Japan, not in Chosen (Korea) or Formosa. The market for flour in Formosa is retained by Japanese millers through the high duty on foreign flour. Chosen sends wheat to Japan, but imports flour thence. Similarly Japan imports wheat from north Manchuria when the crop permits, and exports flour to south Manchuria and various points in China proper. The proximity of Japan to China, with the existence of established means of communication, places Japan in a favored situation for securing the flour trade of China. Unless the milling industry in China overtakes the Japanese, it seems probable that the Chinese flour import trade will pass more and more largely into the hands of Japanese millers.

Between the pre-war and the post-war periods, Japan increased not only her net imports of wheat and flour, but also her domestic production of wheat, from 32 to 38.6 million bushels. The per capita disappearance of wheat increased from 30 to 46 pounds. Wheat is consumed in some part in the form of bread, but probably in larger part in the form of noodles. Native wheat is soft, and suitable only to provide the soft flour satisfactory for noodles. There is probably a tendency for wheat to play an increasingly important part in the Japanese diet, especially in the form of bread. But the statistical evidence does not suggest that wheat tends to displace rice; per capita disappearance of rice increased from 385 to 434 pounds between the pre-war and the post-war periods, a much larger absolute increase than occurred with respect to wheat. This is striking if, as is said to be the case, wheat flour is usually cheaper than polished rice per unit of weight. Japanese preference for rice is not likely to be altered for many years to come. Nevertheless the mass of the population seems not to be undernourished; the deficiency apparently lies in the lack of protein in the diet, not in insufficient starch.2 Per capita consumption of wheat may continue to increase. in the future perhaps at the expense of The bread-eating habit is already further developed in Japan than in any other country of eastern Asia, parts of

¹ See Northwestern Miller, April 18, 1928, CLIV, 237.

² See Shozo Toda, "The Actual Consumption of Food in Japan," Japan Medical World, February 15, 1927, VII, 41-45; also Edgerton Charles Grey, "Has Japan Enough to Eat?" Asia, April 1928, XXVIII, 274-79, 339-42.

China perhaps excepted. With continuing industrial prosperity, increasing adoption of European customs, and governmental efforts directed toward decreasing the consumption of rice, the diet of Japan may become more diversified. Wheat seems likely to be the article chiefly substituted for rice.

It is not altogether certain, however, that net imports of wheat must increase even if population and per capita consumption increase. There is apparently room for some further expansion of domestic wheat production in the more northerly regions, especially the island of Yezo (Hokkaido), perhaps also in Chosen. But the cultivation of new land in Yezo appears to proceed slowly, and wheat acreage in Japan and Chosen has tended to decline rather than to increase since the war. Increased consumption will probably be met more by increased net imports than by increased domestic production. How all of the influences will work out cannot be forseen. One may reasonably expect no decline in Japanese consumption or importation of wheat from the level reached in 1921-26. On the other hand, so marked an increase as occurred between 1909-13 and 1921-26 is doubtful over an equivalent length of time; for a considerable part of the recorded increases in consumption and net imports was presumably due to the exceptional advance in Japanese prosperity caused indirectly by the war. Japan may well hold her gains and indeed continue them, though perhaps at a less rapid rate. Between 1921-26 and 1933-38 an increase of 50 or even 100 per cent in Japanese net imports of wheat and flour would not be surprising; but an increase of 330 per cent, such as occurred between 1909–13 and 1921–26, seems unlikely. Whatever the increase, it will probably take the form of wheat grain.

The Chinese situation is much more difficult to evaluate. China is known to rank among the large wheat-producing countries of the world; but there are no approximately reliable statistics of production.¹ Authorities are not agreed even upon the population. Consequently no reliable estimates can be made of per capita consumption, and one cannot ascertain whether there has been an increase or a decrease between the pre-war and post-war periods. All that is known from statistical data is that there has been an increase in net imports from .4 million bushels² to 15.9 million. The general impression of observers seems to be that wheat consumption per capita in China tends to increase; but this may be true of some sections and not of others.

China is by no means a unit with respect to wheat production and consumption. Production seems to be concentrated chiefly in the eastern provinces of China which lie north of the Yangtze River—in Hupeh, Anhwei, Kiangsu, Honan, Shangtung, and Chihli. A good deal is also grown in northern Manchuria. Very little is grown in the southeastern provinces of China such as Chekiang, Fukien, Kiangsi, Kwantung, and Kwansi, and in the southwestern and northwestern provinces wheat production appears to be only scattering. Some notion of the distribution of wheat production may be obtained from the location of cities which are the leading milling centers. Of these Shanghai and Wusih are in Kiangsu; Tsinan is in Shantung; Tientsin is in Chili; Hankow is in Hupeh; Harbin and Changchun are in Manchuria. There are less important centers in Shansi, Honan, Szechwan, Hunan, Anhwei, and Yunnan.3

With respect to wheat consumption, China falls into two broad divisions following in general the distribution of wheat and rice production. South of the Yangtze, wheat is not a large factor in the diet. Rice is by far the dominant cereal crop both in production and consumption; and in this area wheat seems unlikely to become of any appreciable importance. Even in Hupeh, which is a large producer of wheat lying north of the Yangtze, rice is the pre-

¹ How ideas vary regarding Chinese wheat production may be seen from the fact that Mr. Julean Arnold, United States commercial attache at Peking, stated in 1922 that "the amount must be upward of 100,000,000 bushels" (U.S. Department of Commerce, Trade Information Bulletin No. 5, March 1922), while the Goode-Baker Series of Economic Wall Maps gives the average annual production in 1918–20 as 536 million.

² By another method of calculation, however, the pre-war figure is 1.9 million. See above, p. 310.

³ See D. K. Lieu, "China's Industrial Development," Chinese Economic Journal, July 1927, I, 663 f; cf. "Flour Mills in China," ibid., June 1928, II, 533-41.

ferred food. Hupeh produces more than three times as much rice as wheat,1 and though rice is imported into the province in large quantities, wheat exports to other provinces or abroad are said to make up about a half of the total moving from all provinces.² Hence rice appears to be the preferred cereal food in Hupeh, as in the provinces south of the Yangtze. In Szechwan, which also lies immediately north of the Yangtze, very little wheat is said to be grown in most parts of the great agricultural plain, and rice is the main article of

To the north, however, where the climate is dryer and colder, wheat is apparently an important article in the diet, while rice is subordinated. Yet wheat is not the staple cereal food of the bulk of the population. It appears to occupy a middle ground between the millets (including kaoliang) and maize on the one hand, and rice on the other. In general the peasants and laborers consume millets, kaoliang, and maize; the middle classes consume wheat flour; the distinctly well-to-do consume rice. Prices of these cereals per 1,000 calories appear to run in about the same relationships, with rice above wheat and the millets and maize below it. Of course habits of consumption must vary from region to region, but in general these relationships appear to hold.4 Apparently wheat is nowhere extensively consumed in China in the form of yeastleavened fine white bread. Coarse, hard, dark bread is made, especially for rural consumption, and there is a large consumption of noodles and dumplings.

Whether or not Chinese net imports of wheat and flour will increase in the future as they have done between the pre-war and post-war periods depends chiefly upon establishment of internal peace, growth of general prosperity, and upon the trend of domestic wheat production. There can be little doubt that the laboring and farming classes of northern China would prefer wheat to the millets and maize as the staple cereal food if they could afford it. If the political situation finally clears up so that internal development can proceed unhampered, then the general level of Chinese prosperity may be raised and wheat may be much more in demand.

It is impossible to foresee whether or not an increase in demand could be met by an increase in domestic production; for too little is known either of uncultivated areas suitable for wheat production or of the position which wheat occupies with respect to other crops. Methods of cultivation are primitive and transportation lacking. In northern Manchuria, now a surplus wheatproducing region, production of wheat in recent years has not increased so rapidly as production of beans, kaoliang, Italian millet, corn, or other cereals, despite a continuous increase in area under cultivation due to immigration from more southerly provinces.⁵ A sharp decline in north Man-

"Agriculture in Hupeh," Chinese Economic Journal, February 1927, I, 166. The annual crop of rice is given as 60.5 million piculs, of wheat and barley combined as 20 million.

² Friedrich Otte, "Sketch of Chinese Agricultural Policy," ibid., May 1928, II, 370.

² H. D. Brown and Li Min Liang, "A Survey of 50 Farms on the Chengtu Plain, Szechwan," ibid., January 1928, II, 45.

'The following quotations, all of which mention wheat consumption in northern provinces of China, are pertinent:

"The daily food for a farm hand consists of 2 catties of wheat flour in the summer and autumn and 2½ catties of millet and maize for the rest of the year."—"Tehchow, an Important Town of Northern Shantung," ibid., August 1927,

I, 759.

"The staple food of the rural population is kaoliang and maize, varied occasionally with wheat flour in summer

"The staple food of the local population of the poorer classes is maize, kaoliang, and millet. Only the well-to-do use wheat flour."

"The staple food of the local population is kaoliang and maize for the peasants and wheat flour for the city dwellers."—"Three Towns in Southeastern Chihli," *ibid.*, November 1927, I, 983, 986, 989.

"Rice and machine-milled wheat flour are the staple classes, while manual laborers generally consider these as luxuries. Their usual food is millet, 'millet flour,' and corn flour."—"Retail Prices in Peking in 1926," ibid., April 1927,

"The staple food of the rural population consists chiefly of millet, maize, Kaoliang, and beans, while the well-to-do classes in the city generally eat wheat flour."—"Huantan, an Agricultural Center of Chihli," ibid., May 1927, I, 472.

"The inhabitants of Shihchiachwang are living on a and madriants of simethachwang are flying on a much higher economic plane than those in neighboring districts. For daily food, the well-to-do consume rice, the middle class, wheat flour, and the poorer classes, millet."— "Three Towns on the Peking-Hankow Railway," *ibid.*, June 1927, I, 563.

"Peking workmen eat cereals of the coarser kinds, corn and millet being the most popular."—Ta Chen, "Retail Prices in Peking," *ibid.*, June 1927, I, 594.

"As cash crops wheat and soy beans are somewhat in competition, while kaoliang and millet are grown for farm and local consumption."—U.S. Department of Agriculture, "The Wheat and Flour Industry in Manchuria," Foreign News on Wheat, November 7, 1927.

⁵ North Manchurian production of staple crops in 1922-26 is given as follows, in thousand metric tons, by A. A. Neopihanoff, "The Development of North churian wheat production occurred between 1922 and 1923; the crop was a failure in the latter year. Observers state that the millets and soy beans are safer crops in Manchuria because the climate favors latematuring crops. Under these circumstances there seems to be little probability that north Manchuria, apparently the only region of China in which much new land is available for wheat production, will become so large a producer as to satisfy the demand likely to arise throughout northern China. But north Manchuria is by no means the only wheat-producing region of China; and less is known of these other regions. They are densely populated and intensively cultivated. More wheat could probably be grown and marketed in the absence of such political disturbances as have prevailed during a good part of the post-war period.2

On the whole it seems somewhat more reasonable to anticipate for the next few decades an increase rather than a decrease in China's net imports of wheat and flour. The demand likely to become effective if, as, and when political instability is reduced and economic progress accelerated seems larger quantitatively than the probable increase in domestic production. Variations in the quantities imported annually. however, will presumably always be considerable, if only because variations in the domestic crop are ordinarily large in all countries where wheat is produced in large volume. China, like Japan, will perhaps tend to import proportionately less flour and more wheat. The domestic milling

Manchuria," Chinese Economic Journal, March 1928, II. 261:

Crop	1922	1923	1924	1925	1926
Wheat	1,245	508	573	590	686
Yellow beans	2,293	2,211	2,875	3,080	3,259
Kaoliang	1,507	1,671	1,900	2,130	2,194
Italian millet	1.638	1.721	2.048	2,228	2,296
Indian corn	901	901	983	1,098	1,142
Other cereals	1,180	1,344	1,427	1,491	1,536
Total	8,764	8,356	9,806	10,617	11.113

¹ See U.S. Department of Agriculture, "The Wheat and Flour Industry in Manchuria," Foreign News on Wheat, November 7, 1927.

industry is by no means underdeveloped and is apparently not ill managed, and with unhampered transportation of wheat and flour could probably supply the flour needs of the country without difficulty. Since fine white bread is not extensively consumed in China, imports will doubtless continue to consist either of soft wheat and flour or of the lower and cheaper grades of Canadian hard wheat.

Thus among the several territorial divisions of Asia, only western Asiatic countries seem likely to require smaller net imports of wheat and flour in the future than were reported on the average for 1921-26. For Asia as a whole increased net imports are to be expected in the future. But the situation with respect to wheat production and consumption differs so widely in different countries that the extent of the probable increase in total Asiatic net imports can be stated only in the most general terms. There seems little reason to expect, over an equivalent length of time. so large a percentage increase as occurred between the pre-war and the post-war periods, some 237 per cent. But as large an increase in absolute terms, some 35 million bushels more or less, is conceivable and reasonably probable.

IMPORTS OF AFRICA

In sharp contrast with Asiatic countries, African countries increased their net imports of wheat and flour very little between the pre-war and post-war periods, from 18.8 to 19.1 million bushels. But, as appears from Table 9, the situation differs between different countries or dependencies. The net imports of Egypt and the Anglo-Egyptian Sudan increased while those of the Union of South Africa decreased; increases appeared in the imports of other British Africa, of French Equatorial and West Africa, and of Italian possessions, but there were decreases in the imports of other French Africa and of all other African countries and dependencies than those named.

The African trade consists predominantly of flour. Wheat is grown only in northern Africa (Morocco, Algeria, Tunis, and Egypt), in the Union of South Africa, and in the highlands of Kenya in southeastern

² For an extended discussion of the Chinese situation not available when this study was in preparation, see *ibid.*, August 14, 1928.

Africa. The French dependencies of northern Africa usually export wheat but import flour; milling is not well developed, and the French colonial policy does not encourage it. In Egypt also the native crop is milled locally by primitive methods, and flour rather than wheat is imported. In the Union of South Africa milling is better developed than elsewhere in Africa, and in recent years has been protected by relatively higher duties on flour than on wheat.

Union of South Africa, wheat plays a distinctly small part in the diet of the various African countries and dependencies.

Neither the reasons for the relatively small increase in African net imports, nor the prospects for growth of African trade, are clear. A slightly greater growth would have appeared in the imports of the group of dependencies designated "Other French Africa" if the pre-war average figure were not so heavily weighted by net imports of

TABLE 9.—NET IMPORTS OF WHEAT AND FLOUR AS WHEAT INTO AFRICAN IMPORTING COUNTRIES, PRE-WAR AND POST-WAR*

(Thousand bushels)										
Oalendar Year	Total	Egypt and Sudan	Union of South Africa	Other British Africaª	French Equatorial and West Africab	Other French Africac	Italian possessions ^d	Other Africa°		
Average 1909-13	18,845	8,627	6,443	1,348	334	947′	653	493		
1921	15,730 13,882 19,306 22,166 23,429 19,826	11,566 5,935 8,599 9,196 12,832 11,253	1,489 2,864 6,998 7,703 6,132 4,541	1,131 1,452 1,721 1,974 1,975 1,888	117 265 490 690 574 577	173 2,039" 221 219 286 264	892 799 823 1,878 1,123 759	362 528 454 506 507 544 483		
Average 1921-26	19,056	9,897	4,954	1,690	452	534	1,046			

^{*} See Table 6 for sources and qualifying notes.

Before the war, the net imports of the Union of South Africa were about half of flour and half of wheat, but after the war. one-third of flour and two-thirds of wheat. Among all African countries, only the Union of South Africa consistently imports fairly large quantities of wheat.

Egypt (including the Sudan) and the Union of South Africa have always been the largest importers among the African countries and dependencies. Before the war the net imports of these two were 15.1 million bushels as compared with a total of 18.8 million; after the war, 14.9 as against 19.1 million. Other British African dependencies ranked next in importance, but imported only 1.3 million bushels in 1909–13 and 1.7 million in 1921-26. Except in Morocco, Algeria, Tunis, Egypt, and the Tunis, which amounted to 742 thousand bushels out of 947 thousand. Tunis has been a net exporter since the war except in 1922. The net imports of "Other French Africa" would show an increase from 205 to 224 thousand bushels rather than a decrease from 947 to 534 thousand, if net imports of Tunis in 1909–13 and 1922 and of Algeria in 1922 were not included in the calculation. Such significant decreases in net imports as have been recorded have occurred in Tunis, the Union of South Africa, and the Belgian Congo. Other African countries have increased their net imports, though not greatly.

Net imports of the Union of South Africa decreased from 6.4 to 5.0 million bushels between the two periods. The reasons are difficult to perceive. Domestic wheat pro-

Gold Coast, Gambia, Kenya, Mauritius, Nigeria, Uganda, North and South Rhodesia, Seychelles, Sierra Leone, British Somaliland, Tanganyika, British Southwest Africa, Togoland, and Zanzibar.

Gabon, Mid-Congo, Ubangi, Ivory Coast, Dahomey, Guinea, Senegal, Sudan.

Cameroon, Somaliland, Madagascar, Réunion, Togo.

Libya, Somaliland, Eritrea, Cyrenaica, Tripolitania.

Cape Verde, Belgian Congo, Mozambique, Angola, Liberia, Saint Thomas and Prince Islands.

Includes net imports of Tunis of 742 thousand bushels.

Includes net imports of 1,253 thousand bushels of Algeria, and 605 thousand bushels of Tunis.

duction increased, but increased population and decreased net imports apparently led to a decline in per capita disappearance from 127 to 102 pounds per annum. Per capita disappearance of rice also declined, from 13 to 11 pounds; but per capita disappearance of maize increased from 241 to 328 pounds. This does not necessarily imply a shift in human cereal consumption from wheat and rice to maize. The Union produces livestock heavily, and the increase in maize disappearance may have been due to an increase in the livestock population or to changes in feeding practices rather than to larger use of maize for human food. Moreover, net imports in 1921 and 1922 appear to have been exceptionally low, probably as an aftermath of the war. The apparent decline in per capita disappearance of wheat is probably only temporary, and averages for 1923-26 rather than 1921-26 certainly show it to be much less marked. The large indigenous population of the Union of South Africa, and of many other central and southern African areas as well, probably represents a large potential demand for wheat; and this demand may become effective under the slow advance of European civilization.1 Presumably it will be met by imports, since wheat is an uncertain crop, yield per acre is low, and there are apparently no considerable areas suitable for wheat production.² Hence more reasons appear for anticipating increased than decreased net imports into South Africa, but the increases are likely to be slow, as well as irregular on account of

1"There cannot be the slightest doubt of the future of the flour trade of the sub-Continent. Of a native population of perhaps 30,000,000, probably not more than 5 per cent are flour eaters at present. Yet in course of time all this native population will be wheat consumers, as experience proves that any native race will desert its traditional foods for bread. Every native who is compelled or persuaded, as a result of new desires, to sell his labour is almost certain to become a wheat consumer at his earliest opportunity." G. R. Stevens, Canadian Trade Commissioner in South Africa, Trade of the African Sub-Continent, Ottawa, 1928, p. 75.

² Outside of the Union of South Africa, the potential wheat-growing areas seem to be in the highlands of Kenya and of southwestern Tanganyika.

³ Throughout the sub-continent bakers are said to blend "one bag of Canadian second patent to four bags of Australian or South African soft wheat flour." *Ibid.*, 77. India also exports some flour to the south-eastern coast of Africa.

fluctuations in domestic production. With established trade routes and tariff preferentials, Australia will presumably continue to supply most of the soft wheat and flour, Canada the hard wheat flour.³

Egypt, the largest single importer among the African countries, increased her net imports from 8.6 to 9.9 million bushels between the pre-war and post-war periods. Domestic production also increased; but per capita consumption apparently declined from 215 to 202 pounds per annum. Rice disappearance also declined from 73 to 38 pounds per capita, and maize disappearance remained stable at about 290 pounds. Egypt has a much smaller livestock population than the Union of South Africa; and per capita human consumption of meat is lower, of the various cereals, including the millets, higher. The apparent declines in per capita disappearance of wheat and rice are not unreasonable in view of the fact that the great bulk of the population consists of laborers who suffered from rather than benefited by the advancing prices during the war. Landowners presumably profited greatly by high prices, especially of the great cash crop of Egypt, cotton; but wages seem not to have risen so rapidly as food prices, and the meager diet of the laboring classes may have been curtailed. There is probably room in Egypt for considerable expansion of wheat consumption at the expense of maize and the millets, but expansion must presumably be very slow. Further increases in wheat imports might be expected from this cause alone, but whether or not increases occur depends in large part upon the profits of cotton cultivation. Egypt already produces much more wheat than she imports, and could undoubtedly produce more if cottongrowing should appear unremunerative. But at present cotton cultivation is well established, and a shift to wheat production seems remote. Consequently increasing net imports of wheat and flour seem probable for some years to come.

Thus in Africa as a whole, as in Asia, there is apparently a large potential demand for wheat and wheat flour. Only in the French dependencies of North Africa does there appear to be any probability that increasing domestic requirements can be

met by domestic wheat production. Over an equivalent length of time, an increase in the net imports of African countries considerably larger than occurred between 1909–13 and 1921–26 is not unlikely.

IMPORTS OF SOUTH AMERICA

Table 10 shows net imports of wheat and flour by South American countries. In South America there are no countries which during the post-war period at least have shifted from a net importing to a net exporting status; Argentina, Chile, and Uruguay were consistently net exporters, and

TABLE 10.—NET IMPORTS OF WHEAT AND FLOUR AS WHEAT INTO SOUTH AMERICAN IMPORTING COUNTRIES, PRE-WAR AND POST-WAR*

Calendar year	Total	Brazil	Peru	British Gulana	Vene- zuela	Othersa
Average 1909-13	27,371	21,351	2,121	823	895	2,181
1921	23,305	17,353	2,571	763	266	2,352
1922	29,081	22,324	2,744	707	820	2,487
1923	31,032	22,966 28,830	2,810	857	913	3,486
1924 1925	38,761 36,614	27,736	3,874	803 708	$985 \\ 1,050$	$\frac{4,270}{3,937}$
1926	40,269	31,676	3,100	861	1,347	3,284
Average	00 177	OF 147	. ,			
1921–26	33,177	25,147	3,047	783	897	3,303

^{*} See Table 6 for sources and qualifying notes.

^a Bolivia, Colombia, Ecuador, French and Dutch Guiana,
Paraguay.

all other countries were consistently net importers. South American countries imported more wheat and flour than any other continental group in the pre-war period, and were second only to Asia in the postwar period. Brazil is by far the most important single importer; her imports constitute over two-thirds of the total. Peru ranks next in importance. South American imports consist more largely of wheat as grain than those of Asia or Africa. Brazil and Peru are the principal wheat grain importers; other countries except Colombia, whose imports of wheat are much smaller than those of Brazil or Peru, import flour almost exclusively. Throughout South America wheat is used chiefly to make bread of the south European type, not for noodles, boiled or fried doughs, alimentary pastes, or coarse hard bread, as in many parts of Asia and Africa. Hence the South American demand for flour and wheat is chiefly for a fair quality of product for the uses of the wealthier classes of the population, and cheap soft flours or wheats are not preferred in most countries. Also, high grade flours keep better than clears.

In Brazil the chief cereal foods are wheat, rice, and maize; and manioc or cassava flour is also extensively used. The per capita disappearance of wheat is not large, and appears to have declined from 58 to 53 pounds per annum between the pre-war and post-war periods. Per capita disappearance of rice, on the other hand, rose from 29 to 50 pounds. Disappearance of maize is much larger, as would be expected because of the large livestock population. It is not feasible to ascertain the position of cassava. Brazil raises practically all of her rice, and was a net exporter in four years of the post-war period; but she now produces less than one-sixth of her requirements of wheat. There are said to be considerable areas suitable for wheat production in Brazil, especially in the states of Rio Grande do Sul and Paraná; and recently governmental efforts have been made to encourage domestic production. With wheat readily available in Argentina and Uruguay and the livestock industry already well developed in the potential wheat-growing areas of Brazil, it seems improbable that domestic wheat production will increase with any rapidity. If wheat imports decline, competition with rice seems more likely to prove the effective cause. There are presumably large uncultivated areas suitable for rice production, and per capita consumption of rice appears to be increasing. Nevertheless such decline as there has been in per capita disappearance of wheat has been slight, and would not appear at all for a post-war period excluding 1921, when imports were abnormally small. It seems not to represent a trend of consumption from wheat to rice. There is in Brazil probably a large proportion of the population which would turn from maize and cassava to wheat and rice if circumstances permitted. Hence, even if consumption of rice increases, it may not be at the expense of wheat; and with normal growth of population and economic prosperity, wheat imports bid fair to continue to increase in the coming years.

Brazil imports the bulk of her wheat and flour from Argentina and Uruguay, the nearest surplus-producing countries. Most of these imports come to Rio de Janiero and other ports lying on the southeastern coast. Some ports on the northeastern coast are near enough to the United States and Canada to permit exporters in those countries to compete regularly; but imports from North America tend to come largely in those months when North American prices are seasonally lowest and Argentine highest.

Whether or not per capita disappearance of wheat has increased in Peru is uncertain in the absence of reliable estimates of population, though there has probably been an increase. Rice and maize are important cereal foods, as in Brazil. Peru produces about as much wheat as she imports, but production seems to increase very slowly. The domestic wheat is milled and consumed where it is produced, in the interior region around the foothills of the Andes. The needs of the coastal region are almost entirely supplied by imports, largely of wheat milled at Callao. Chile naturally dominates the markets of southern Peru, but the United States and Canada compete successfully in the northern regions. With growth of population, further increases in Peruvian net imports are probable.

Among the other importing countries of South America, British Guiana alone imported less wheat and flour in the post-war than in the pre-war period, partly because of the lack of prosperity in the important sugar industry, and perhaps partly because rice, in a population consisting largely of East Indians, has tended to displace wheat. Other countries—Venezuela, Colombia, Bolivia, Ecuador, Paraguay, and French and Dutch Guiana—all imported more wheat and flour after than before the war; and there seems no reason to anticipate a decrease in the total if peaceful development of agriculture and industry continues. Hence, the imports of British Guiana being of small importance, South American imports may be expected to increase, over an equal period of time, at least as rapidly as between the pre-war and post-war periods. IMPORTS OF NORTH AND CENTRAL AMERICA

The net imports of North and Central America (exclusive of Canada and the United States, which are net exporters), averaged 17.5 million bushels, before the war, and 22.2 million in the post-war period. In each period, on the average, flour accounted for all but about 2 million bushels of the average net importations. Of the numerous countries comprising the group, Mexico alone produces wheat in any quantity, though a little is grown in Newfoundland and in the highlands of several Central American countries. Hence North and Central American importing countries are markets for flour to a greater degree even than African countries, and far more so than Asia or South America. As appears from Table 11, no single country is of outstanding importance as an importer. Cuba imported somewhat less than a fourth of the total in both periods, Mexico from a ninth to about a seventh, no other single country as much as a tenth. All countries and dependencies except Newfoundland and certain of the smaller British West Indies imported more wheat and flour after than before the war.

In most of these small markets flour is wanted for the baking of a good quality of white bread, except perhaps in parts of Central America. Bread is not the only staple cereal food, since rice is widely used in most of the West Indian and Central American countries, and to some extent maize. Maize is the staple cereal for the bulk of the population in Mexico, where rice consumption is small. Trends in per capita disappearance of the various cereals differ considerably. In Cuba per capita disappearance of wheat decreased slightly between the pre-war and post-war periods; in Mexico, Porto Rico, Jamaica, and Haiti there were slight increases, and in Trinidad a considerable increase. There was a slight (and probably temporary) decline in per capita disappearance of rice in Mexico, but slight increases in Cuba, Porto Rico, Jamaica, and Trinidad. Per capita disappearance of maize declined in both Cuba and Mexico; in Cuba, however, maize is consumed chiefly by poultry. In the absence of comparable statistics it is not feasible

either to present or to analyze the data bearing on cereal consumption. For the group of North and Central American net importing countries regarded as a unit, there is probably a considerable potential demand for wheat and flour, especially in Mexico and Central America where the bulk of the comparatively large population now consumes maize, and wheat occupies a preferred position. Rice does not distinctly appear to encroach upon wheat flour in 1909-13. The data appear in Table 12 (p. 338). Hawaii was the only important importer in the pre-war period, when New Zealand was a net exporter. In the postwar period as a whole, New Zealand was a net importer, and was a net exporter only in 1922 and 1923. These net exports were largely the result of guaranteed prices for a few years following the war; when guarantees were abandoned, acreage and production of wheat in New Zealand declined.

TABLE 11.—NET IMPORTS OF WHEAT AND FLOUR AS WHEAT INTO THE IMPORTING COUNTRIES OF NORTH AND CENTRAL AMERICA, PRE-WAR AND POST-WAR*

	(Thousand bushels)												
								Brit	ish West I	ndies	Other Wo	Miscel-	
Calendar year	Total	New- foundland	Mexico	Central America	Cuba	Porto Rico	Haiti	Jamaica	Trinidad and Tobago	$Others^b$	French	Domin- ican Republic	laneous ^d
Ave. 1909-13	17,539	1,769	2,169	2,014	4,321	1,577	1,238	1,223	1,001	1,252	511	341	124
1921	20,134	1,417	4,131	1,850	5,722	1,839	644	1,181	1,261	1,057	484	424	124
$1922\dots$	20,264	1,905	2,715	2,222	5,485	1,823	1,000	1,303	1,417	1,158	587	504	145
$1923\dots$	24,253	1,854	4,122	2,561	6,185	2,058	1,626	1,755	1,454	1,245	738	507	148
1924	23,967	1,873	3,243	2,690	6,453	1,966	2,169	1,628	1,352	1,218	703	502	170
$1925 \dots$	21,164	1,598	2,579	2,670	5,950	1,841	1,343	1,329	1,286	1,257	674	475	162
1926	23,373	1,685	4,182	2,800	5,758	1,988	1,472	1,333	1,319	1,250	800	613	173
Ave. 1921-26	22,192	1,722	3,495	2,465	5,925	1,919	1,376	1,422	1,348	1,198	664	504	154

* See Table 6 for sources and qualifying notes.

even where it is most used, in the West Indies. On the whole, if population continues to grow and economic prosperity increases, imports of wheat and flour into the North and Central American group of countries seems likely to increase also, though perhaps no more rapidly than between the pre-war and post-war periods. Mexico alone might conceivably expand her wheat production to meet increased domestic consumption, but is not likely to do so; even if she did, some imports of hard wheat and flour for mixing purposes would still be necessary.

IMPORTS OF OCEANIA

The imports of the countries of Oceania are comparatively small, amounting, on the average, to less than 3 million bushels in 1921–26 and less than 1.5 million bushels

Wheat is apparently less remunerative than meat and wool production, and unless government intervention again encourages wheat production, net imports are more likely to remain near the level of 1924-26 than to fall distinctly below.

SUMMARY OF OUTLOOK

We are now in a position to summarize briefly the outlook for expansion of ex-European trade in wheat and flour in the near future. In most net importing countries, imports increased between the prewar and post-war periods. In the net importing countries of dominant importance-China, Japan, Brazil, and Egyptper capita disappearance of wheat has apparently increased, and there appears to be a large potential demand for wheat; but the degree to which this will become

 ^a Costa Rica, Nicaragua, Panama, Canal Zone, Guatemala, Salvador, British Honduras.
 ^b Barbados, Bahamas, Bermudas, Caymans, Turks and Caicos, Windward and Leeward Islands.
 ^c Guadeloupe, Martinique.
 ^d Greenland, Curação, St. Pierre and Miquelon.

effective will depend upon many factors political, economic, and social. The countries where per capita consumption is clearly declining are few and insignificant.

TABLE 12.—NET IMPORTS OF WHEAT AND FLOUR AS WHEAT INTO THE IMPORTING COUNTRIES OF OCE-ANIA, PRE-WAR AND POST-WAR*

(Thousand bushels)

Calendar year	Total	New Zealand	Hawaiiª	Others ^b
Average 1909-13	1,330	σ	731	598
1921	1,478	306	650	522
1922	1,156	c	718	438
1923	1,207	с	629	578
1924	4,901	3,547	688	666
1925	4,008	2,641	729	638
1926	4,336	2,969	662	705
Average 1921-26	2,848	1,577	679	592

^{*} See Table 6 for sources and qualifying notes.

With growing population and with increasing per capita consumption of wheat in most countries, net imports must increase unless domestic wheat production expands. This is impossible in many tropical coun-

tries such as the West Indies, Central America, much of South America, parts of Africa, the East Indies, and southern Asia. Expansion sufficient to take care of probable increases in consumption seems unlikely to occur in China, Japan, South Africa, Egypt, Brazil, or New Zealand, though in each of these areas and some others, domestic production of wheat could be increased if circumstances justified. Western Asia and French north Africa appear to be the only significant ex-European areas where expansion of domestic production is more likely to exceed than to fall below increasing requirements for consumption; and these areas have never been heavy net importers. Hence one may reasonably anticipate a considerable growth of total ex-European net imports of wheat and flour, whether regular or erratic, in the next decade or more. An average annual increase of 3 to 5 million bushels is not improbable, or at least not so improbable as an increase of 1 or of 10 million bushels, though the complexities of the situation do not warrant a forecast precisely expressed numerically. Total net imports of ex-Europe or net exports to ex-Europe averaging between 160 and 190 million bushels annually may well be recorded in a period of years as distant from 1921–26 as 1921–26 is from 1909–13, say 1933-39.

V. ANNUAL VARIATIONS IN THE TOTAL VOLUME OF TRADE

We have thus far discussed chiefly prewar and post-war averages either of net import or net export statistics, both of which are computed as far as possible from calendar year data. There are, however, considerable fluctuations in the volume of wheat and flour annually imported into or exported to ex-European net importing countries. Total net exports computed on the calendar year basis varied during the post-war period from 104.6 million bushels in 1921 to 154.4 million in 1924; total net imports computed on the calendar year basis varied from 85.3 million bushels in 1921 to 163.0 million in 1924. The post-war averages, however, differed by less than a million bushels, though the correspondence may be fortuitous. Net exports to ex-Europe averaged 126.3 million bushels, net imports of ex-Europe 127.2 million.

Annual fluctuations in the total volume of ex-European trade must be considered in the process of obtaining a reasonably clear view of the world wheat situation in any current crop year. To assume that ex-European trade of an oncoming crop year will approximate closely the trade of the preceding year or the average of several preceding years is evidently unsound, so large are the variations, at least in calendar year figures. It is desirable to attempt some explanation of recorded annual variations in this ex-European trade, and examination of the prospects for reasonably accurate forecasts of the trade of a current crop year. For such purposes July-June data are more

Commerce with United States. Imports from other countries are negligible.
 French Possessions, Guam, Fiji Islands, New Caledonia,

^b French Possessions, Guam, Fiji Islands, New Caledonia, Samoa, Papua. Guam and Samoa are not included because of no data in several years; but imports are small.

One exports averaged 751 thousand bushels in 1909-13; they were 1,209 thousand in 1922 and 4 thousand in 1923. These are ignored in striking averages and obtaining totals.

¹ See Table 2, p. 316, and Table 6, p. 326.

useful than calendar year data, since most analyses of the world wheat situation are presented in terms of Northern Hemisphere crop years. Subsequent discussion concerns data for five years only, 1922–23 to 1926–27. The crop year 1921–22 was abnormal in that trade was affected by disturbances incident to war-time controls, and that China occupied an unusual position as a net exporter while India was a net importer.

LIMITATIONS OF CROP YEAR DATA

In order to construct annual crop year totals of ex-European net imports of wheat and flour, or of net exports shipped to ex-European countries, one requires either data already presented on the crop year basis for each country, or data presented in monthly or quarterly form. For most importing countries, net import statistics are available only on the calendar year Exports to ex-European destinations from the principal exporting countries, however, can for the most part be obtained on the crop year basis, since data are available in monthly, quarterly, or crop year form. Yet data strictly comparable with the calendar year export data analyzed in a preceding section cannot be secured, principally because exports to ex-Europe from the United States are reported less completely in the monthly trade statistics appearing in the Monthly Summary of Foreign Commerce than in the calendar year statistics appearing in Foreign Commerce and Navigation of the United States.

The following figures for United States exports to ex-Europe, for five recent calendar years, in million bushels, display the extent of this discrepancy:

Calendar year	Foreign Commerce and Navigation	Monthly Summary of Foreign Commerce	Discrepancy
1922	48.50	42.99	-5.51
1923	64.31	60.94	-3.37
1924	54.15	49.21	-4.94
1925	36.71	30.19	-6.52
1926	51.43	43.06	-8.37
Average	51.02	45.28	-5.74

The annual totals obtained from the Monthly Summary have fallen below the annual totals obtained from Foreign Com-

merce and Navigation by amounts varying from 3.37 million bushels to 8.37 million, and averaging 5.74 million. This apparently arises from the fact that small exports to a large number of countries are not given in detail in the Monthly Summary, but are grouped, together with exports to ex-European countries which are not net importers, under the heading "other countries." Only ex-European importing countries or groups are specified in the Monthly Summary, whereas 57 are specified in Foreign Commerce and Navigation. Hence the crop year totals of net exports to ex-European net importing countries subsequently shown in the present section must be too low by around 6 million bushels on the average.

There is no difficulty involved in obtaining exports from Australia and Canada to ex-Europe on a July-June basis; these are obtained from the same quarterly or monthly data employed in a preceding section in constructing calendar year totals. July-June exports from Argentina, however, must be secured from monthly data appearing in Estadistica Agro-Pecuaria, while calendar year exports are obtained from the Annuario del Comercia Exterior. These sources show some discrepancies, though not important ones.² Total crop year (July-June) exports to ex-European importing countries include the exports not only of Australia, Argentina, the United States, and Canada, but also of India and Chile. But Indian exports are necessarily compiled on an April-March, not a July-June, crop year, and Chilean crop year exports can only be approximated by averaging exports to ex-Europe in two successive calendar years. Since Indian and Chilean exports are small, the July-June crop year totals are not greatly in error because of this procedure. There are, furthermore, some estimates—of Indian total

² The following data show Argentine exports to ex-European net importing countries for the four calendar years 1922-25, in million bushels:

Annuario del Comercia Exterior	Estadistica Agro-Pecuaria
1922 17.95	16.45
1923 18.00	19.39
1924 21.28	22.43
1925 19.06	19.18
Average 19.07	19.36

¹ See pp. 315-25.

exports in 1925–26 and 1926–27, of Chilean total exports in 1926–27, and of exports from the United States to "other South America" in 1922–23 and 1923–24; but the bases for these small estimates are reasonably sound, and the errors introduced by them must be small.

On the whole, therefore, our imperfect totals of crop year exports to ex-European net importing countries seem to approximate the truth fairly closely for each of the crop years 1922-23 to 1926-27. In each year the totals are too small, partly because exports from the United States are understated, but partly because exports from Uruguay, Eritrea, and in some years from countries in Asia Minor are not included. All in all, the understatement in some years may amount to as much as 15 million bushels, and is probably never less than 5 million. Nevertheless, in the present state of statistical information, these totals appear to display annual variations in ex-European trade by crop years better than any other available series.

Comparisons with Broomhall's Data

The most familiar and widely used estimates of ex-European trade during crop years are those published in Broomhall's Corn Trade News. In his Corn Trade Year Book Broomhall also publishes revised estimates of total world shipments of wheat and flour, and total shipments to Europe; and by subtraction shipments to ex-Europe can be obtained from these. The following figures, in million bushels, show for crop years 1922–23 to 1926–27 our figures for exports from the principal exporting countries to ex-European net importing countries to comparison with Broomhall's shipments data:

Gran waar		Shipments						
Crop year	Exports	Corn Trade News	Corn Trade Year Book					
1922-23	104.8	90.5	89.3					
1923-24	172.5	148.8	146.8					
1924-25	108.9	75.5	90.7					
1925-26	128.2	135.3	135.3					
1926-27	128.5	132.0	131.5					
Average	128.6	116.4	118.7					

The three sets of data are not strictly comparable, if only because Broomhall's figures are for August-July crop years, whereas the export data are predominantly for July-June crop years. Nevertheless, if shipments are assumed to include all shipments of wheat and flour from all points to all ex-European destinations, including India, shipments ought to exceed these export totals since, as we have pointed out, the export figures here presented are below the truth. Hence one can only conclude that Broomhall's estimates of ex-European trade were much too low in 1922-23, 1923-24, and 1924-25, though only slightly so in 1925-26 and 1926–27. With respect to displaying annual variations in total ex-European trade the three sets of data do not always agree. Trade appears smallest in 1922–23 on the basis of export and Broomhall's Year Book data, but in 1924-25 on the basis of Corn Trade News figures. Otherwise there is rough agreement: trade was smallest in 1922-23 and 1924-25, largest in 1923-24, and moderately large in 1925-26 and 1926-27.

The evidence therefore suggests that Broomhall's data, at least for earlier years, cannot be accepted as indicating the volume of ex-European trade with reasonable accuracy. Understatements of at least 14 million bushels in 1922-23, 24 million bushels in 1923-24, and 18 million bushels in 1924-25 are too large to be ignored, especially since understatement is not consistent and hence cannot be allowed for in analysis of current crop year estimates. As far as we are able to judge in the absence of detailed information respecting the manner in which Broomhall's data are collected and revised, export data seem to represent the annual crop year volume of ex-European trade much more satisfactorily, even though the figures are somewhat too low in all years.

Causes of Annual Variation

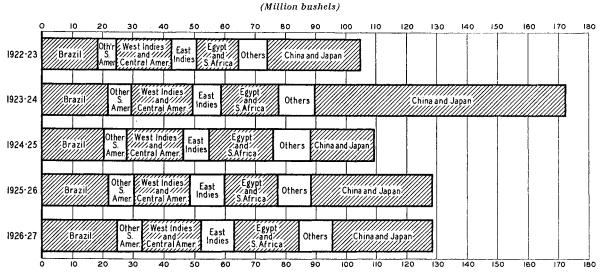
Annual variations in the volume of exports to ex-European net importing countries may be due to a great variety of causes.

¹We have no basis for explaining the differences between Corn Trade News and Corn Trade Year Book figures. The upward revision of shipments to ex-Europe in 1924-25, from 75.5 to 90.7 million bushels, is especially interesting.

With a rising trend in net imports, the broad tendency is for trade to be larger each year than it was the year before; an annual increment may be added because of growth in population and/or per capita consumption in importing countries. Trade might be expected to prove relatively large in years when wheat and flour prices are low, and relatively small when prices are high. Some ex-European countries produce more

from the six principal exporting countries distributed to the principal countries (or groups of countries) of destination. In 1922–23 total exports of 105 million bushels were smallest, though but slightly larger than in 1924–25; in 1923–24 the total of 172 million bushels was by far the largest; and in both 1925–26 and 1926–27 exports reached nearly 130 million bushels. The extreme variation thus was 67 million bushels, be-

CHART 2.—NET EXPORTS OF WHEAT AND FLOUR (AS WHEAT) FROM PRINCIPAL EXPORTERS TO PRINCIPAL EX-EUROPEAN DESTINATIONS, ANNUALLY, 1922-23 TO 1926-27*



* Summarized from data in official trade reports of the United States, Canada, Argentina, Australia, India, and Chile. Includes some estimates, especially for Chile and India. See text, pp. 339-40, for further description of the data used.

wheat than they import; and the imports of these countries might be expected to be large when domestic crops are short, small when domestic supplies are plentiful. Other countries produce little or no wheat; but imports of wheat and flour may perhaps be affected by production and relative prices of cereals with which wheat competes, or of commodities from which these countries obtain the major proportion of their national income. Ex-European countries are both numerous and widely different with respect to the factors which govern imports of wheat and flour; and adequate statistical data bearing on these factors are frequently lacking. Hence the causes of annual fluctuations in imports of or exports to particular countries and ex-Europe as a whole cannot always be ascertained.

Chart 2 shows total exports to ex-Europe

tween 1922-23 and 1923-24. Variations in exports to China and Japan clearly account for most of the variation in total exports. These ranged from 20.6 million bushels in 1924–25 to 82.6 million in 1923–24. If exports to China and Japan are excluded, the totals to all other countries varied only from 74 million bushels in 1922-23 to 95 million in 1926-27, or 21 million bushels. amount of variation, occuring as it does between the earliest and latest years of the period, may reasonably be accounted for in large part by normal growth in trade due to increase of population and per capita consumption of wheat. But the fact that normal growth is not the only cause of variations in exports of all countries (excluding China and Japan) is suggested by the fact that in the three years 1923-24 to 1925-26 exports to this group were of very nearly the same size, not larger in each successive year.

At first glance the chief cause of variation in total ex-European trade would appear to be relative variations in wheat prices. Table 13 shows various significant annual prices of wheat compared with the total smallest in 1924–25, and so indeed they were, even after allowance for normal growth. That exports of 1925–26 would be slightly larger than those of 1924–25 is also in accord with expectations. But one would not expect imports of 1922–23 to be so much smaller than in 1923–24, or any smaller

TABLE 13.—Comparisons of Total Exports of Wheat and Flour as Wheat to ex-European Destinations with Annual Average Wheat Prices, 1922–27*

Year	Total exports to ex-Europe (Million bushels)	British customs prices (Dollars per bushel)	U.S. farm prices (Dollars per bushel)	Washington farm prices (Dollars per bushel)	farm prices (Dollars	Winnipeg No. 3 Man. (Dollars per bushel)	Australian f.o.b. prices (Dollars per bushel)	Argentine Barletta cash prices (Dollars per bushel)
1922–23. 1923–24. 1924–25. 1925–26. 1926–27.	105 172 109 128 128	$egin{array}{c} 1.38 \\ 1.22 \\ 1.77 \\ 1.70 \\ 1.64 \\ \end{array}$.98 .92 1.28 1.46 1.23	1.02 .86 1.44 1.34 1.19	$\begin{array}{c} .77 \\ .65 \\ 1.20 \\ 1.19 \\ 1.05 \end{array}$	1.06 .97 1.59 1.42 1.35	1.18 1.02 1.44 1.49 1.29	$egin{array}{c} 1.19 \ 1.06 \ 1.66 \ 1.44 \ \end{array}$

^{*}Export figures from official trade reports of the principal exporting countries. British prices derived from data in Accounts Relating to Trade and Navigation of the United Kindgom; United States prices from Agriculture Yearbook, 1927, p. 756, and Crops and Markets; Canadian prices from Monthly Bulletin of Agricultural Statistics, and Report on the Grain Trade of Canada; Argentine prices from International Institute of Agriculture; Australian prices from unofficial source. Averages for crop years August-July, except United States prices which are July-June averages.

exports to ex-Europe as recorded. These exports contain an annual increment of growth, due to increase of population and per capita consumption, which seems to approximate 4 million bushels. Wheat prices were distinctly low in 1923–24, and not much higher in 1922–23; they were distinctly high in 1924–25, little if any lower in 1925–26, and (at least in exporting countries) again considerably lower in 1926–27, though not so low as in 1922–23.¹

If prices alone determined the volume of ex-European trade, one would expect exports to have been largest in 1923-24, and

¹ It is not pertinent here to explain in detail why each price series does not show the same changes in price levels. British prices were higher relative to export prices in 1926-27 than they would have been in the absence of a great bulge in ocean freight rates. United States prices were relatively high in 1925-26 following a short domestic crop accompanied by tariff protection. Australian prices would have shown more difference between 1924-25 and 1925-26 had not the Australian crop of 1924 been exceptionally large, that of 1925 rather small.

² North Manchurian crops for 1922-26 were estimated by the Chinese Eastern Railway, in million bushels, as follows:

1922	45	1925 2	2
1923	19	1926 2	4
1924	21		

See U. S. Department of Agriculture, Foreign News on Wheat, November 7, 1927, p. 5. Cf. data given above, pp. 331-32.

than in 1925-26 and 1926-27; and one would expect the 1926-27 imports to be larger, not smaller, than those of 1925-26.

In considerable part the explanation of these divergencies of actual exports from what would be roughly expected from the price situation are to be found in particular aspects of the Japanese and Chinese wheat situations. Exports to China, to Japan, to other ex-Europe, and to all ex-Europe were as follows, in million bushels:

Стор усаг	China	Japan	China and Japan	All other	Total ex- Europe
1922–23.	17.0	14.1	31.1	73.7	104.8
1923–24.	50.5	32.1	82.6	89.9	172.5
1924–25.	5.7	15.0	20.7	88.2	108.9
1925–26.	10.5	29.6	40.1	88.1	128.2
1926–27.	12.9	20.2	33.2	95.3	128.5

The huge exports to China in 1923-24 largely account for the heavy total exports to ex-Europe in that year. But these were not due solely to low world wheat prices. The wheat crop of north Manchuria was distinctly short;² hence the requirements of south Manchuria could not be met from that source. Nor, apparently, could they be obtained from other Chinese regions.

Although no statistics are available, it appears that the Chinese wheat crop of 1923 was unusually small. The Japanese crops both of rice and of wheat were the smallest of the period. These circumstances, as well as low wheat prices, may reasonably be supposed to have contributed to the heavy exports to China and Japan in 1923–24, and hence to the large total of ex-European trade.

In 1924–25, when wheat prices were highest, Japanese and Chinese imports combined were lower than in any other year of the period. Exports to China, only 5.7 million bushels, were particularly small. In this year, however, the Chinese wheat crop, though not the Manchurian, appears to have been good,³ and imports as heavy as those of 1923–24 would probably not have occurred even if foreign wheat prices had been equally low. There appears also to have been an unusually heavy carryover of import wheat out of 1923–24.

The fact that exports to China and Japan were somewhat larger in 1925-26 than in 1926-27 despite higher prices is not easily explained. Japan had a good wheat crop in both years; the Chinese situation, particularly with respect to the effects of internal warfare, is far from clear. It is to be observed, however, that exports to China were larger in 1926-27 than in 1925-26, while exports to Japan were smaller. Japanese millers purchased wheat rather heavily in 1925–26 partly in order to anticipate an increase in the duty which took effect on March 29, 1926. Except for this occurrence, it is possible that exports to China and Japan combined would have been larger in 1926-27 than in 1925-26, as would accord with the price situation in these two years.

The effect of these various circumstances

² Japanese Empire wheat crops in million bushels and rice crops in billion pounds were as follows:

	Whe	at Rice
1922-23		2 25.5
	35.	
1925-26		0 25.4
1926-27	39.	9 24.2

^a U.S. Department of Agriculture, *loc. cit.* There is no reason to suppose that the total Chinese wheat crop varies with the north Manchurian. The small Manchurian crop of 1923 was due to a crop failure; that of 1924 and subsequent years to a reduction of acreage following this failure.

was apparently to swell total ex-European exports considerably in 1923–24, to reduce them somewhat in 1924-25; and to swell them slightly in 1925-26, and to reduce them slightly in 1926-27. It is of course impossible to make precise numerical allowances for these influences. Presumably 1923-24 would still appear as the year of largest ex-European trade. But 1926–27 would more clearly appear next largest, 1925-26 next, 1924-25 next, and 1922-23 smallest. If so, one might reasonably conclude that only large changes in wheat prices are sufficient to alter the volume of ex-European trade from what might be expected if an increment is added each year on account of growth of consumption. Apparently ex-European demand for wheat is not to be described as distinctly elastic. Wheat production in the importing countries remaining about the same from year to year, and wheat prices changing only by 10 or 15 per cent, total exports to ex-Europe would probably differ little between any two successive years; and differences between years separated by a considerable period would be due predominantly to increase in consumption.

The limited elasticity of ex-European demand is further indicated by annual variations in exports to those countries which produce little or no wheat. Chart 2 (p. 341) shows roughly the sums of exports to such countries—Brazil, other South America, the West Indies and Central America, and the East Indies. These sums were as follows in relation to total exports to ex-Europe, in million bushels:

	Exports to countries specified above	Exports to all ex-Europe
1922-23	 51.0	104.8
1923-24	 58.8	172.5
1924-25	 54.8	108.9
1925-26	 59.6	128.2
1926-27	 62.9	128.5

Fairly regular growth is the outstanding feature of exports to these predominantly non-wheat-producing countries, interrupted only by exceptionally heavy exports in 1923–24, the year of distinctly low prices. Far higher prices apparently did not serve greatly to curtail imports in 1924–25 and 1925–26. It seems fairly clear that exports

¹ Ibid., February 9, 1928, p. 6.

to this group of countries cannot be expected to vary widely in accordance with variations in wheat prices. Exceptionally high or low prices seem to cause only slight variations in imports; and the element of growth is apparently the dominant influence. As far as Cuba—the most important single importer of the group after Brazil is concerned, imports seem to depend quite as much upon domestic production and prices of sugar as upon wheat or flour prices.1 Cuba is a one-crop country, and her imports of flour are in part dependent upon general prosperity which rests on sugar; but the variation in net exports to Cuba is very slight.

Little is to be gained by discussing exports to Egypt; exports to Egypt do not coincide even roughly with crop year net imports. Difficulties arise because Egypt is a country of transhipment, and because wheat and flour shipped to orders from Australia and India, of which we have taken no acount, may have Egypt as the country of final destination. There seems to be no well-marked concordance between Egyptian net imports and Egyptian wheat crops, or between imports and prices. But the annual variations in net imports are small, and in exports to Egypt not large. Exports to South Africa, apparently depend more upon domestic wheat production than upon wheat prices; imports were largest in 1923-24, when the domestic crop

¹ Exports of wheat and flour to Cuba, in million bushels, in relation to values of the Cuban sugar crops, in million dollars (as given in *Commerce Yearbooks*), for 1922-23 to 1926-27, were as follows:

	Wheat mports	Sugar crop values
1922-23	 6.19	400.2
1923-24	 6.35	368.5
1924-25	 6.31	273.2
1925-26	 6.12	245.3
1926-27	 6.00	280.7

² Exports to the Union of South Africa compare as follows with domestic wheat crops, both in million bushels:

	Exports	Crops
1922-23	5.05	6.3
1923-24	6 . 79	6.0
1924–25	5.96	7.1
1925-26	4.79	7.8
1926-27	3.67	9.0

³ Exports to New Zealand were negligible in 1922–23, when the wheat crop harvested early in 1922 reached 10.6 million bushels; but following the small crops harvested in 1923–25, which ranged from 4.2 to 5.4 million bushels, exports to New Zealand ranged from 2.4 to 3.1 million bushels.

was smallest, and smallest in 1926–27, when the domestic crop was large.² Fluctuations in domestic production are also significant in New Zealand, where distinctly small crops in 1923–25 led to proportionately large imports.³

The dominant causes of annual variations in the total volume of ex-European trade thus appear to be (1) annual growth of consumption common to the majority of ex-European countries; (2) annual fluctuations in the domestic wheat crops of certain wheat-producing countries, especially China; and (3) the annual variations in wheat prices. The evidence suggests that among these influences the third, often regarded as the most important, is not in fact so, but is subordinate to the second. Since these factors account fairly well for variations in ex-European trade, the substitution for wheat of available supplies of cereal foods such as rice in the Orient or maize in Central and South America appears not to be of great importance, though supplies and prices of substitutes presumably have some effect.

FORECASTING THE VOLUME OF EX-EUROPEAN TRADE

From the foregoing pages it is perhaps apparent that the problem of forecasting the probable volume of ex-European trade in a given crop year must remain a difficult one. Yet some help may be gained from the conclusions that demand in many countries is not highly elastic, and that consumption may be expected to increase fairly steadily. Moreover, if the list of ex-European net importing countries does not change—if some countries which usually export wheat do not in particular years become net importers—then the size of the Chinese wheat crop appears to be the most important single influence on the total volume of trade, and after it, the level of wheat prices. If one wishes to forecast "requirements," the level of prices ought not to enter into the calculation; but this may properly be considered in forecasting the probable volume of trade.

As we have seen, statistics indicating the volume of exports to ex-European countries are affected by the price situation in various years; and it is impossible to de-

termine what exports would have been had prices remained unchanged from year to year. Forecasting must rest on some sort of a record of past occurrences. In order to forecast "necessary" or "customary" requirements of ex-Europe, one desires a record of exports as they would have appeared if uninfluenced by prices; but no such record is obtainable. Alternatively, however, one may regard total exports in 1924–25 as minimum requirements of ex-Europe; this was the post-war year of highest prices, and a year in which China appears to have had a distinctly good wheat crop.

Even in the absence of any notion whether the Chinese crop is large or small in the year for which ex-European requirements are to be forecast, one could under most circumstances assume that minimum ex-European requirements would exceed those of 1924-25 at least by an amount equal to 3 or 4 million bushels multiplied by the number of years in the interval between 1924-25 and the current crop year. This assumption would be unsound in the event of higher prices than those of 1924–25; but the distribution of world crops and the level of prices in 1924-25 may properly be regarded as quite unusual. Moreover, more or less tangible evidence respecting the size of the Chinese crop would probably be available in the period when the forecast is made, presumably in September-December; for this crop is harvested earlier than the winter-wheat crop of the United States, and comes to market in volume by June. Merely with the assurance that the Chinese crop was distinctly short, distinctly good, or about average, one could make reasonable though not exact numerical allowances for exports to China, and could add these to the sum previously obtained. The result would be a forecast somewhat more reasonable than otherwise seems possible with present information. If based upon the export data employed above, it would be a forecast of incomplete, not total, exports to ex-Europe, too low at least by the amount that United States exports reported monthly fall below annually reported figures; and even with an allowance for this understatement, the forecast would be too low because it would apply only to exports from the six principal exporting countries.

Each year the possibility that India and perhaps Algeria and Tunis might become net importers would need to be borne in But the prospects of such occurrences may be expected to become fairly clear by the time when a forecast is to be made, and reasonable allowances are not impossible. Having reviewed these factors, one would be in a position to say that the requirements of ex-Europe must reach at least a certain figure; and that this figure compares in a certain way with recorded exports in past years, and has a certain signifiance with respect to world wheat prices. In connection with other data, notions respecting the probable extent of world demand for wheat in the current crop year could be somewhat clarified, though by no means rendered exact.

If probable exports to ex-Europe rather than minimum requirements of ex-Europe were to be forecast, allowance would need to be made for additional exports due to differences of prices in 1924-25 and in a current year. At present it seems necessary that such allowances be made by judgment, not by statistical formulas. Eventually, after a longer series of trustworthy trade statistics has been accumulated and more has been learned about production and consumption of wheat, it may become possible to measure and forecast with some precision both European and ex-European minimum requirements, and to distinguish these sharply from actual exports to Europe and ex-Europe. But at present the data permit only the roughest approximations.

This study is the work of M. K. Bennett, with substantial assistance from Margaret Milliken and Janet Murray

APPENDIX

TABLE I.—UNITED STATES EXPORTS OF WHEAT AND FLOUR (AS WHEAT) TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND POST-WAR*

(Million bushels)

Area	1909–10	1910-11	1911–12	1912-13	1913–14	Pre-war average	1921	1922	1923	1924	1925	1926	Post-war average
North and Central America	14.52	12.42	14.55	15.03	13.48	14.00	16.67	16.24	19.23	19.60	16.04	18.74	17.76
Newfoundland	.29	.34	.17	.38	.45	.33	.09	.11	.07	.20	.11	.23	.13
Mexico	3.32	.42	1.58	.75	.44	1.30	4.32	2.91	4.13	3.05	2.32	2.85	3.26
Central America"	1.96	2.27	2.51	2.86	2.77	2.47	2.52	2.92	3.54	4.70	2.97	5.32	3.66
Cuba	3.73	3.99	3.98	4.31	$\frac{2}{4.25}$	4.05	5.04	5.14	5.16	5.68	5.66	5.26	5.32
Porto Rico	1.53	1.63	1.56	1.67	1.59	1.60	1.65	1.86	2.07	1.98	1.85	2.00	1.90
Haiti	.78	.86	1.53	1.36	.99	1.10	-65	1.04	1.79	1.65	1.13	1.26	1.25
British West Indies	2.18	2.04	2.28	2.66	2.02	2.23	1.31	1.09	1.18	1.12	.89	.70	1.05
Jamaica		.75	.80	1.18	.93	.91	.92	.73	.88	.76	.67	.53	75
Trinidad and Tobago		.57	.71	.64	.34	.57	.11	.08	.03	07	.03	.04	.06
Others ^b		.71	.77	.84	.75	.77	.28	.28	.27	.29	.18	.13	.24
Other West Indies	.72	.86	.94	1.03	.96	.90	1.09	1.22	1.30	1.23	1.10	1.12	1.18
French	.25	.33	.39	.43	.45	.37	.44	.49	.68	.60	.46	.35	.50
Dominican Republic	.27	.31	.31	.38	.33	.32	.42	.48	.39	.39	.42	•54	.44
Others ^o	19	.22	.24	.22	.18	.21	.23	.24	.24	.24	.22	.23	.23
Miscellaneous ^d	.01	x	x	.01	.01	.01	x	x	X	x	x	x	x
South America	4.40	5.59	6.00	5.98	6.07	5.61	5.28	4.23	4.07	5.55	6.25	11.45	0.14
Brazil	1.69	2.44	2.94	2.74	3.52	2.67	2.88	2.00	2.18	2.98	3.56	7.56	6.14
Peru	.84	.97	.61	.63	.58	.73	1.21	.77	.47	.63	.39	1.30	.79
British Guiana	.52	.54	.57	.51	.26	.48	.05	.03	.02	.01	.02	.01	.02
Venezuela	.57	.66	.82	.98	.75	.76	.55	.39	.29	.35	.59	.67	.47
Others'	.78	.97	1.07	1.12	.13	.98	.60	1.05	1.11	1.59	1.70	1.91	1.33
	F 00	44 44	10.07	10.00									
Asia Ceylon	5.82	11.44	16.07	16.82	15.51	13.13	18.71	23.41	38.19	26.57	11.35	17.12	22.56 x
China'	3.24	6.15	10.53	6.72	c 00	6.53	5.87	17 77		15.04	4.00	· · · ·	i
Japanese Empire	1.15	4.21	4.08	8.32	6.00 8.36	5.22	10.07	11.55	25.84	15.24	4.62	5.77	11.48
Dutch East Indies							.05	9.33 x	9.78 x	7.88	3.85	8.09 x	8.17
Philippines	1.18	1.07	1.45	1.74	1.11	1.31	1.20	1.95		2 20	2.65	2.74	2.37
Western Asia ^h	1.10	1.07	1.40 X	1.14	X 1.11	1.91	1.29	.34	2.37 $.18$	3.30	.21	.16	.38
Indo-China		_				!		× 54		x .07	·41	× .10	x
Others ⁴	.24	.02	.01	.04	.03	.07	.23	l .		l '	.02	.35	.16
		.02	•01	•04	05	.07	.23	.23	.02	.08	.02	.55	1 .10
Africa	.79	.61	.50	2.78	1.10	1.15	3.03	3.75	2.09	1.62	2.23	3.11	2.64
Egypt and Sudan	.04	.30	.14	.28	.26	.20	.71	1.07	1.14	.66	1.21	1.89	1.11
Union of South Africa	.08	.05	.05	.26	.12	-11	.02	.02	.05	.02	.06	.09	.04
Other British Africa,	.14	.20	.23	.34	.43	.27	.24	.37	.52	.70	.66	.65	.52
French Africa'	.07	.02	.02	1.81 ^k	.17	.42	1.94k	1.64k	.06	.09	.09	.07	.65
Others'	.46	.04	.06	.09	.11	.15	.11	.66	.31	.16	.22	.41	.31
Oceania	.65	.72	.82	.87	.91	.79	.68	.81	.73	.81	.83	1.02	.81
New Zealand			x			x	x	x	x		x	.24	.04
Hawaii	.55	.63	.71	.75	.79	.69	.62	.72	.63	69	.73	-66	.68
Others ^{m}	.10	.09	.11	.12	.13	.11	.06	.08	100	.11	.09	.11	.09
Total	26.18	30.78	37.95	41.47	37.07	34.69	44.37	48.50	64.31	54.15	36.71	51.43	49.91

^a British Honduras, Costa Rica, Honduras, Guatemala, Panama,

Including Hongkong and Kwantung.

Japan, Chosen.

british Rollidars, Costa Rica, Rollidars, Stateman, Landan, Salvador, Nicaragua.

b Bermudas, Barbados, other British West Indies.

c Dutch West Indies, Virgin Islands.

d St. Pierre and Miquelon.

b Bolivia, Colombia, Ecuador, Dutch Guiana, French Guiana,

^{*} Data from Foreign Commerce and Navigation of the United States. Pre-war data for July-June years; post-war data for calendar years. Flour converted to wheat at 4.7 bushels per barrel. Dots (....) indicate years when no exports were reported to designated destinations. Exports of less than 5,000 bushels are indicated by "x." h For pre-war years Asiatic Turkey alone; for post-war years Palestine, Syria, Armenia, Kurdistan, Turkey in Asia, Asiatic

Palestine, Syria, Armenia, Kurdistan, Turkey in Asia, Asiaco-Greece, Aden.

⁴ Straits Settlements, Siam, Asiatic Russia, Far Eastern Republic, British Malaya.

⁵ Precise destinations not ascertainable.

⁶ Probably includes exports to Algeria and Tunis in 1912-13 and 1921, and certainly in 1922.

¹ Portuguese Africa, Canary Islands, Liberia, German and Spanish Africa, Italian possessions, Mozambique, Belgian Congo.

⁷ British Oceania, French Oceania, other Oceania.

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TABLE II.—United States Exports of Wheat to ex-Europe by Destinations, Pre-War and Post-War*
(Million bushels)

				(MALLEL	on bush	E18)							
Area	1909-10	1910–11	1911–12	191213	1913–14	Pre-war average	1921	1922	1923	1924	1925	1926	Post-war average
North and Central America	3.20	.32	1.55	.80	.50	1.27	3.01	2.03	3.00	3.60	1.76	4.83	3.04
Newfoundland	x			x		1.21	x	2.00	x	.10		.06	.03
Mexico	3.18	.27	1.47	.62	.22	1.15	2.66	1.52	2.08	1.46	1.38	1.92	1.84
Central America	.01	.04	.05	.13	.21	.09	.30	.49	-88	1.95	.34	2.71	1.11
Cuba	.01	.01	.02	.05	.05	.03	.01	.02	.03	.09	.03	.09	.05
Porto Rico	.01	x				x x				• •			1
	x		x	x	.01	x	x x	х	 х	х	• • • •	• • • •	x
Haiti	x	 х	×	x	.01 X	x	x	x	x		х	x	x
			x	x	x	x		x		.01 x	x	x	x
Jamaica	• • • •	• • • • •	x	_		!!!	x		x		_		
Trinidad and Tobago	• • • •			• • • • •	••••	x	• • • • •	• • • •	• • • •	••••	• • • •	• • • •	• • • • • •
Others'	• • • •	x	x	x	x	x	x	x	x	.01	x	x	x
Other West Indies	x	x	x	x	x	x	.03	x	x	.01	.01	.05	.02
French	• • • • •	• • • • •	• • • • •	• • • • •			••••	• • • • •	x	• • • •	••••	• • • •	x
Dominican Republic	х	х	x	x	x	x	.03	x	X.	.01	.01	.05	.02
Others'	• • • • •	• • • •	• • • •		• • • •		x	• • • •	x	• • • •	••••	• • • •	x
South America	.45	.32	.52	-58	.25	.42	2.67	.38	.12	.47	.20	4.09	1.32
Brazil	x	x	x	x	x	x	1.66	x	x	x	x	3.12	.80
Peru	.33	.08	.19	.19	.02	.16	.96	.29	.02	.31		.76	.39
British Guiana									x				x
Venezuela			x	x	x	x	x	x	x	x	x	x	x
Others'	.12	.24	.33	.39	.23	.26	.05	.09	.10	.16	.20	.22	.14
Asia	.13	2.10	.74	4.18	4.63	2.36	9.40	9.39	15.06	9.64	4.08	9.05	9.44
China'		.06	.03		x	.02	1.17	1.61	6.52	2.25	.39	.80	2.12
Japanese Empire	.13	2.05	.71	4.18	4.63	2.34	8.22	7.59	8.54	7.30	3.67	8.01	7.22
Philippines	• • • • • • • • • • • • • • • • • • • •	2.00					0.22				X X		x
Western Asia ^h	х	× ×	x	x	x	x	x	x		х	.02	.01	.01
Others ¹								.18	x x	.08		.23	.08
Others	• • • •	• • • •	• • • •	• • • •	••••		••••	•10	^	+00	• • • •	.20	•00
Africa	.50	.11	x	1.99	.25	.57	1.96	1.67	x	ж	.01	.35	.67
Egypt and Sudan	x	.11				.02	.04					.28	.05
Union of South Africa	.04		X	.19	.09	.07	.02		`x	x	.01	07	.02
Other British Africa'									l x				x
French Africa'	-05			1.79*	.16	.40	1.91*	1.59*					.58
Others'	.41				x	.08	1.01	.08	× ×	x	х	x	.01
otacis	• 11	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	••••		.00	• • • • •		"	-		_	.01
Oceania	.07	.08	.11	.11	.13	.10	.07	.07	.09	.10	.08	.31	.12
New Zealand									x			.24	.04
Hawaii	.07	.07	10	.11	.13	.10	.07	.07	.09	.10	.08	.07	.08
Others ^m	x	x	x	x	x	x	x	x	x	x	ж	x	x
Total	4.35	2.93	2.92	7.66	5.76	4.72	17.11	13.54	18.27	13.82	6.14	18.62	14.58

^{*} For sources and footnotes, see Appendix Table I.

Table III.—United States Exports of Flour (as Wheat) to ex-Europe by Destinations, $\operatorname{Pre-War}$ and $\operatorname{Post-War}^*$

						_			T				
Area	1909-10	1910-11	1911–12	1912-13	1913-14	Pre-war average		1922	1923	1924	1925	1926	Post-war average
North and Central America	11.32	12.10	13.00	14.22	12.98	12.72	13.66	14.26	16.24	15.99	14.28	13.91	14.72
Newfoundland	.29	.34	.17	.38	.45	.33	.09	.11	.07	10	.11	.17	-11
Mexico	.13	.15	-11	.12	.22	.15	1.66	1.39	2.05	1.59	.94	.93	1.43
Central America"	1.95	2.23	2.45	2.73	2.56	2.39	2.22	2.43	2.65	2.75	2.64	2.61	2.55
Cuba	3.72	3.98	3.96	4.27	4.20	4.02	5.02	5.12	5.13	5.59	5.63	5.16	5.28
Porto Rico	1.53	1.63	1.56	1.67	1.59	1.60	1.65	1.86	2.07	1.98	1.85	2.00	1.90
Haiti	.78	.86	1.53	1.36	98	1.10	.65	1.04	1.79	1.65	1.13	1.26	1.25
British West Indies	2.18	2.04	2.28	2.65	2.02	2.23	1.31	1.09	1.18	1.11	.89	.70	1.05
Jamaica		.75	.80	1.18	.93	.91 .57	.92 .11	.73	.88	.76	.67	.53	.75
Others ^b		.57	.77	.84	.75	.77	.28	.08	.03	.07	.03	.04	·06 ·24
Other West Indies	.72	.86	.94	1 03	.96	.90	1.05	1.22	1.30	1.22	1.08	1.07	1.16
French	.25	.33	.39	.43	.45	.37	.44	.49	.68	.60	.46	.35	.50
Dominican Republic	.27	.31	.31	.38	.33	32	.38	.48	39	.38	.41	.49	.42
Others ^e	.19	.22	.24	.22	.18	21	.23	.24	.24	24	.22	.23	23
$Miscellaneous^{a}$.01	x	x	.01	.01	.01	x	x	x	x	x	x	x
South America	3.95	5.27	5.49	5.41	5.81	5.18	2.61	3.85	3.95	5.08	6.05	7.35	4.81
Brazil	1.69	2.44	2.94	2.74	3.52	2.67	1.23	2.00	2.18	2.98	3.56	4.44	2.73
Peru	.51	.90	.42	.44	.56	.56	.24	.47	.45	.32	.39	.54	.40
British Guiana	.52	.54	.57	.51	.26	.48	.05	.03	.02	.01	.02	.01	.02
Venezuela	.57	.66	.82	.98	.75	.76	.55	.39	.28	.35	.59	.67	.47
Others ^e	.66	.73	.75	.73	.73	.72	.55	.96	1.01	1.42	1.50	1.69	1.19
Asia	5.69	9.33	15.33	12.64	10.89	10.78	9.31	14.02	23.13	16.93	7.27	8.07	13.12
Ceylon									х				x
China'	3.24	6.09	10.50	6.72	6.00	6.51	4.70	9.93	19.32	12.98	4.22	4.98	9.36
Japanese Empire	1.03	2.16	3.37	4.14	3.74	2.89	1.84	1.75	1.24	.58	18	-08	.94
Dutch East Indies		1.07			1 ::::		.05	X	x			x	.01
Philippines	1.18 x	1.07 x	1.45 x	1.74 x	1.11 x	1.31 x	$1.20 \\ 1.29$	1.95	2.37	3.30	2.65	2.74	2.37
Indo-China			l					x	.18	.06 x	.20 x	.15 x	.37 x
Others ¹	.24	.02	.01	.04	.03	.07	.23	.05		x	.02	.12	.07
Africa	.29	.50	.50	.79	.85	.58	1.07	2.08	2.09	1.62	2.22	2.77	1.97
Egypt and Sudan	.04	.19	.14	.28	.26	.18	.67	1.07	1.14	-66	1.21	1.62	1.06
Union of South Africa	.04	.05	.04	.07	.03	.04	.01	.02	.05	.02	.05	.02	.03
Other British Africa ¹	.14	.20	.23	.34	.43	.27	.24	.37	.52	.70	.66	.65	.52
French Africa,	.02	.02	.02	.02	.01	.02	.04	.05	.06	.09	.09	.07	.07
Others'	.05	.04	.06	.09	11	.07	.11	.58	.31	.16	.22	.41	.30
Oceania	.58	.65	.71	.75	.78	.69	.61	.73	.65	.70	.75	.71	.69
New Zealand			х			х	x	х			x	x	х
Hawaii	.49	.56	.60	.64	-66	.59	.55	-65	.55	.59	.65	.60	.60
Others ^{m}	.10	.09	.11	.12	.13	.11	.06	.08	.10	.11	.09	.11	.09
Total	21.83	27.85	35.03	33.81	31.31	29.97	27.26	34.95	46.04	40.32	30.57	32.81	35.33

^{*} For sources and footnotes, see Appendix Table I.

TABLE IV .- CANADIAN NET EXPORTS OF WHEAT AND FLOUR (AS WHEAT) TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND POST-WAR*

Area	1909-10	1910-11	1911-12	1912-13	1913-14	Pre-war average	1921	1922	1923	1924	1025	1926	Post-war average
North and Central America Newfoundland	2.44 1.41	3.43 1.12	3.20 1.38	$2.97 \\ 1.25$	3.62 1.29	$3.13 \\ 1.29$	4.03 1.61	5.59 1.55	6.97 1.86	6.39 1.65	5.44 1.40	6.39 1.44	5.80 1.58
Mexico	.08	.59	.05			.14	.01	.02	.14	.04	.01	.23	.07
Central America					• • • •		.05	.10	.13	.16	.15	.17	.13
Cuba				• • • •	• • • •	• • • • •	.23	.94	1.06	.91	.53	.64	.72
Haiti		• • • •	• • • •	• • • •		• • • • •	.01	.09	.31	.29	.24	.14	.18
British West Indies	.93	1.73	1.74	1.72	2.31	1.69	2.07	2.73	3.28	3.15	2.91	3.52	2.94
Jamaica							.28	.65	.99	1.04	.78	1.26	.83
Trinidad and Tobago	• • • •	• • • •	••••	• • • • •	• • • •	••••	1.05	1.22	1.32	1.11	1.13	1.26	1.18
Others ^b		• • • •	• • • •	• • • •		• • • •	.74	.86	.97	1.00	1.00	1.00	.93
Other West Indies		• • • •	••••	••••	••••	••••	.04	.13	.16	.17	.17	.23	.15
French		• • • •	• • • •	• • • •	• • • •		.01	.05	.04	.05	.10	.13	.06
San Domingo	• • • •	• • • •	• • • •	• • • •	• • • •		.02	.06	.11	.11	.06	.07	.07
Others'		••••	• • • • •	• • • • •	• • • • •		.01	.02	.01	.01	.01	.03	.01
Miscellaneous ^a	$.02^{\circ}$	••••	.03°	• • • •	02°	.01°	.03	.02	.03	.02	.03	.03	.03
	•04	• • • •	.00	••••	.02	.01	.00	.02	.00	•02	•00	.05	.00
South America	.16	.23	.23	.30	.46	.28	.77	1.25	2.13	1.92	1.52	3.88	1.91
Brazil							.01	.02	.35	.15	.19	1.92	.44
Peru								x	.35	.44	.19	.40	.23
British Guiana	.16	.23	.23	30	.36	. 26	.56	.74	.80	.70	.63	.72	-69
Venezuela					.09	.02	.18	.45	.57	.60	.50	.74	.51
Others'							.02	.04	.05	.02	.02	.09	.04
Asia	.18	.09	.32	-60	1.45	.53	.50	5.08	8.94	18.65	14.17	18.95	11.05
China ^o	.11	.07	.28	.29	-81	.31	·10 ^h	1.19	3.75	11.27	7.39	7.90	5.27
Japan	.06	.02	.04	.30	.64	.21	.40	3.88	5.16	7.35	6.73	10.90	5.74
Philippines		• • • •	• • • • •		• • • •		• • • • •	x	.02	.03	.02	.09	.03
Western Asia'		• • • •	• • • • •		• • • •	••••		• • • • •	• • • •	.01	.02	.04	.01
Others ^k		• • • •	• • • •	• • • •	• • • •	• • • • •		• • • • •	• • • •	• • • •	• • • •	.02	x
Africa	1.18	.91	.94	1.57	1.43	1.20	.80	.90	1.73	1.64	1.35	1.39	1.30
Egypt	.02	. 31 X	X X	.03	.06	.02	.03	.50	.58	.58	.64	.56	.48
Union of South Africa	١					l l	.07	.30	1.04	.92	.57	.58	.58
Other British Africa'	1.16	•90	.94	1.54	1.32	1.17	Xm.	.02**	.06	.07	.06	.12	.06
French Africa"	'		,.			[.67	.05	x	.02	x	.04	.13
Others'					05^{p}	.01	.02	.02	.05	.02	.08	.09	.05
		• • • •		• • • •	•00	.01	.02	.02	.00	•00	100	.09	1 .00
Oceania ^q	х	.01	.01	x	х	.01	• • • • •			••••	х	.01	х
Total	3.95	4.67	4.71	5.43	6.95	5.14	6.09	12.81	19.77	28.60	22.49	30.62	20.06

^{*} Data for pre-war years from Canadian Sessional Papers, L, 378, 386; for post-war years from Monthly Report of the Trade of Canada. Pre-war data for July-June years. Flour converted to wheat at 4.5 bushels per barrel. Dots (....) indicate years when no exports were reported to designated destinations. Exports of less than 5,000 bushels are indicated by "x."

ports were reported to designated destinations. Exports of less in a British Honduras, Costa Rica, Guatemala, Honduras, Panama. b Bermuda, Barbados, other British West Indies. Dutch West Indies. St. Pierre and Miquelon. St. Pierre only. Colombia, Dutch Guiana. Includes Hongkong. Hongkong only.

[/] Syria only.
k Straits Settlements.
l British West Africa, British East Africa.
m British West Africa only.
Precise destinations not ascertainable.
Liberia, Portuguese Africa, Spanish Africa.
Portuguese Africa only.

P Portuguese Africa only.
 Australasia in pre-war years; New Zealand in post-war years.

Table V.—Canadian Net Exports of Wheat to ex-Europe by Destinations, Pre-war and Post-war*
(Million bushels)

Area	1909–10	1910–11	1911-12	1912–13	191314	Pre-war average	1921	1922	1923	1924	1925	1926	Post-war average
North and Central America	.08	.59	.05	x	.01	.15		x	.05	.15	x	.21	.07
Newfoundland		x	x	×	x	X	• • • •				• • • •	• • • • • • • • • • • • • • • • • • • •	
Mexico British West Indies	.08	.59	.05 x	····	.01	.14		x	.05	.15	x x	·21	.04
Jamaica										.15	x	x	.03
Others ^b													
South America								.02	.51	.44	.19	.97	-36
Brazil						l	:	.02	.16	• • • •	• • • • •	.50	-11
Peru		• • • •						x	.35	.44	.19	.40	•23
Others'	• • • •	• • • •	• • • •	• • • •			. • • • •	• • • •	• • • •	••••	.01	.07	.01
Asia		x	.01	.24	.52	.15	.36	3.63	5.54	14.26	10.17	14.90	8.14
China ^o					••••	••••		.20	1.10	7.07	3.65	4.40	2.74
Japan	• • • •	x	.01	.24	.52	.15	.36	3.43	4.44	7.19	6.51	10.50	5.41
Africa	.11	.05	.05	.11	.16	09	.67	.05	.69	.55	.32	.39	.44
Union of South Africa	.11	.05	.05	.11	16	.09		.01	.69	.53	.32	.35	.32
Other British Africa') .11	.00	•••	• • • • • • • • • • • • • • • • • • • •	'10	.00			• • • •			••••	••••
French Africa ⁿ			• • • • •	• • • • •			.67	.05	• • • •	.02	••••	•04	13
Oceania ^a		x	ж		x	х							
Total	.18	.64	-11	.35	•69	.39	1.03	3.71	6.80	15.39	10.68	16.48	9.01

^{*} For sources and footnotes, see Appendix Table IV.

APPENDIX 351

TABLE VI.—CANADIAN NET EXPORTS OF FLOUR (AS WHEAT) TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND POST-WAR*

(Million bushels)

			<u> </u>							1	Ī	1	
Area	1909-10	1910-11	1911–12	1912-13	1913-14	Pre-war average	1921	1922	1923	1924	1925	1926	Post-war average
North and Central America	2.36	2.85	3.15	2.96	3.61	2.98	4.03	5.59	6.92	6.24	5.44	6.18	5.73
Newfoundland	1.41	1.12	1.38	1.25	1.29	1.29	1.61	1.55	1.86	1.65	1.40	1.44	1.58
Mexico	1.11	1.12	1.00	1.20	1.20	1.20	.01	.01	.09	.04	01.	.02	.03
Central America ^a							.05	.10	.13	.16	.15	.17	.13
Cuba						::::	.23	.94	1.06	.91	.53	.64	.72
Haiti		!				1 1	.01	.09	.31	.29	.24	.14	.18
British West Indies	.93	1.73	1.74	1.71	2.30	1.68	2.07	2.73	3.28	3.00	2.91	3.51	2.92
Jamaica							.28	.65	.99	.89	.78	1.25	.81
Trinidad and Tobago		• • • •	••••	• • • •	• • • •	••••	1.05	1.22	1.32	1.11	1.13	1.26	1.18
Others ^b		• • • • •	• • • •		••••	• • • • •	.74	.86	.97	1.00	1.10	1.00	.93
Other West Indies	• • • •	• • • •	• • • •		••••	• • • •	.04	.13	.16	.17	.17	.23	.15
French		• • • •		••••	• • • •	••••	.01	.05	.04	.05	.10	.13	.06
San Domingo			• • • •	••••	• • • • •	• • • • •	.02	.06	.11	.03	.06	.07	.07
Others'	• • • •	• • • • •	• • • • •	••••	••••	• • • •	.01	.02	.01	.01	.00	.03	.01
Miscellaneous ^a	.02°	• • • • •	.03"	••••	.020		.03	.02	.03	$.01 \\ .02$.03	.03	.03
Miscellancous	.02	• • • • •	.00	• • • •	.02	101	.00	.02	•00	.02	.05	.05	.00
South America	.16	.23	.23	.30	.46	.28	.77	1.23	1.62	1.48	1.33	2.91	1.56
Brazil							.01	x	.19	.15	.19	1.42	.33
Peru									х	.01	x	x	x
British Guiana	.16	.23	.23	.30	.36	.26	.56	.74	.80	.70	.63	.72	. 69
Venezuela					.09	.02	.18	.45	.57	.60	.50	.74	.51
Others'							.02	.04	.05	.02	.01	.03	.03
								, ,			,-		
Asia	.18	.09	.31	-36	.93	.37	.14	1.44	3.39	4.40	4.00	4.05	2.90
China	-11	.07	-28	.29	-81	.31	.10 ⁿ	.99	2.65	4.20	3.74	3.50	2.53
Japan	.06	.02	.03	.07	.12	.06	.04	.45	.72	.16	.22	.40	.33
Philippines	• • • •							x	.02	.03	.02	.09	.03
Western Asia ^t	• • • •	• • • •								.01	.02	.04	.01
Others ^{k}	• • • •											.02	x
Africa	1.07	.85		1 40	1 00	1 11	10	0-	1 04	1 10	1 00	1 00	0.0
Egypt	.02	.00	.90	1.46	1.26	1.11	.13	-85	1.04	1.10	1.03	1.00	.86
Union of South Africa	.02	^	^	.03	.06	.02	.03	.50	-58	.58	.64	.56	.48
Other British Africa	1.05	.85	.90	1.43	1.15	1.08	.07	.29	.35	.39	.26	.23	.26
French Africa"	J				_	(.02**	.06	.07	.06	.12	.06
Others'	• • • •	• • • •	• • • •	• • • • • • • • • • • • • • • • • • • •	057		••••	.01	X or	x	x	x	x
omers	• • • •	• • • •	• • • • •	• • • • •	.05"	.01	.02	.02	-05	.06	.08	.09	.05
Oceania ^a	х	.01	.01	x	x	.01					x	.01	x
Total	3.77	4.03	4.60	5.08	6.26	4.75	5.07	9.10	12.98	13.21	11.81	14.14	11.05

^{*} For sources and footnotes, see Appendix Table IV.

TABLE VII.—AUSTRALIAN EXPORTS OF WHEAT AND FLOUR (AS WHEAT) TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND Post-war*

Area	1909	1910	1911	1912	1913-14	Pre-war average	1921	1922	1923	1924	1925	1926	Post-war average
South America	.63	1.27	1.59	1.20	.94	1.13		.78	.09		1.52	.46	.47
Asia	2.05	2.59	4.27	3.74	5.81	3.69	3.75	19.06	15.03	19.29	14.37	17.47	14.83
Ceylon	.11	.11	.15	.19	.26	.16	.26	.52	.39	.53	.54	.91	.53
Chinab	.09	.12	.35	.18	.22	.19	.21	.49	1.81	4.39	.61	1.33	1.48
Japan	.08	.27	.11	.06	1.24	.35	.61	7.26	8.08	9.62	8.00	9.79	7.23
Dutch East Indies	.73	1.02	1.75	1.75	2.29	1.51	1.55	2.11	2.33	2.49	2.54	2.83	2.31
Western Asia"	x				.01	x			.04	.02		.07	.02
Indo-China	.01	.03	.05	.02	.04	.03	.02	.05	.13	.05	.13	.10	.08
Philippines	.74	.45	.79	.77	.68	.69	.37	.51	$\cdot 59$.51	.56	.41	.49
India	d	ď	d	d	d	d	d	6.96	đ	d	d	d	1.16
Others'	.30	.59	1.07	.76	1.06	.76	.72	1.15	1.66	1.68	1.99	2.03	1.54
Africa	5.41	5.64	5.00	4.04	9.18	5.85	15.35	9.76	13.64	16.42	15.07	12.40	13.77
Egypt and Sudan	.07	.02	.30	.75	1.89	.60	12.50	6.54	7.78	10.18	9.80	8.69	9.25
Union of South Africa	4.41	4.41	4.13	3.03	6.30	4.46	2.46	2.74	5.29	5.66	4.52	3.13	3.97
Other British Africa'	.15	.14	.09	.06	.09	.11	.25	.36	.36	.37	.21	.19	.29
French Africa	x					x				.01	.06	-03	.02
Others ^h	.79	1.07	.47	.20	.90	.69	.14	.12	.20	.21	.47	.37	-25
Oceania	.68	.53	.58	.52	.60	.58	.56	.43	.48	3.93	3.22	3.17	1.97
New Zealand	.33	.16	.15	.08	.15	.17	.11	x	.01	3.39	2.68	2.59	1.46
Others ¹	.35	.37	.43	.44	.46	.41	.45	.43	.47	.54	.54	.58	.50
Total	8.78	10.03	11.44	9.50	16.53	11.26	19.65	30.03	29.23	39.64	34.18	33.49	31.04

^{*} Data for pre-war years from Trade and Customs and Excise Revenue of the Commonwealth of Australia; for post-war years from Quarterly Summary of Australian Statistics. Flour converted to wheat on the assumption of a 70 per cent extraction. Dots (....) indicate years when no exports were reported to designated destinations. Exports of less than 5,000 bushels are indicated by "x."

" Peru only.
" Includes Hongkong.

TABLE VIII.—AUSTRALIAN EXPORTS OF WHEAT TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND POST-WAR* (Million bushels)

				··	on basin	 							
Агеа	1909	1910	1911	1912	1913-14	Pre-war average	1921	1922	1923	1924	1925	1926	Post-war average
South America ^a	.63	1.27	1.59	1.20	.94	1.13		.78	.09	••••	1.34	.46	.44
Asia	.24	.23	.10	.05	1.22	.37	.44	14.23	7.95	13.51	7.97	10.76	9.14
Ceylon	х	х	х	х	x	x	x	.26	х	х	х	x	.04
China ^b									.64	3.90		.99	.92
Japan	.06	.23	.10	$\cdot 04$	1.22	.33	.44	7.07	7.31	9.60	7.97	9.78	7.03
Dutch East Indies	x					x		l		l			
Philippines	.18			х		.04							
India	d	d	d	d	a	d	d	6.90	d	d	d	đ	1.15
Others'	х			• • • • •		x							
Africa	3.24	3.00	2.69	2.21	4.73	3.17	8.66	3.08	3.41	5.62	5.29	2.66	4.79
Egypt and Sudan			.16	.43	.09	.14	7.31	1.79	.13	1.44	1.92	.44	2.17
Union of South Africa	3.23	3.00	2.46	1.78	4.48	2.99	1.35	1.29	3.28	4.12	3.37	2.22	2.60
Other British Africa'	x					x							
Others ^h	x	х	.07	x	.16	.05				.06			.01
			.01		1.10	.00		• • • • •					
Oceania	.08	.01	.01	x	x	.02	.10	x		3.37	2.28	1.30	1.18
New Zealand	.07	.01	.01	x	x	.02	.10	x		3.37	2.28	1.30	1.18
Others¹	x	x	х	х	x	х	••••	••••					
Total	4.18	4.51	4.40	3.46	6.90	4.69	9.20	18.09	11.45	22.50	16.87	15.18	15.55

^{*} For sources and footnotes, see Appendix Table VII.

^d Palestine, Syria, Aden.

^d Exports to India here given only for the year in which India was a net importer.

^e Straits Settlements (Malaya), British Borneo, Siam.

b Madagascar in pre-war years; Reunion Island in post-war years.
b Portuguese East Africa, Canary Islands.

Fiji, New Caledonia, New Hebrides, Society Islands, New Guinea, Tonga, Papua, other Pacific islands.

TABLE IX.—Australian Exports of Flour (as Wheat) to ex-Europe by Destinations, Pre-war and Post-war*
(Million bushels)

				1 //2 0 0 0 0	on ousn								
Area	1909	1910	1911	1912	1913-14	Pre-war average		1922	1923	1924	1925	1926	Post war average
South America		• • • • •			••••						.18		.03
Asia	1.81	2.36	4.17	3.69	4.59	3.32	3.31	4.82	7.08	5.79	6.40	6.71	5.68
Ceylon	.11	.11	.15	.19	.26	.16	.26	.27	.39	.53	.54	.91	.48
China ^b	.09	.12	.35	.18	.22	.19	.21	.49	1.17	.49	.61	.34	. 55
Japan	.02	.04	.01	.02	.03	.02	.17	.18	.78	.02	.03	.01	.20
Dutch East Indies	.73	1.02	1.75	1.75	2.29	1.51	1.55	2.11	2.33	2.49	2.54	2.83	2.31
Western Asia ^o	x				.01	x			.04	.02		.07	.02
Indo-China	.01	.03	.05	.02	.04	.03	.02	.05	.13	.05	.13	.10	.08
Philippines	.56	.45	.79	.77	.68	.65	.37	.51	. 59	.51	.56	.41	.49
India	d	đ	d	d	d	d	d	.06	a	ď	d	d	.01
Others'	.30	.59	1.07	.76	1.06	.76	.72	1.15	1.66	1.68	1.99	2.03	1.54
Africa	2.18	2.63	2.31	1.83	4.45	2.68	6.69	6.68	10.22	10.80	9.78	9.74	8.98
Egypt and Sudan	.07	.02	.14	.32	1.79	.47	5.19	4.75	7.65	8.73	7.88	8.25	7.07
Union of South Africa	1.17	1.41	1.67	1.25	1.82	1.46	1.11	1.46	2.01	1.55	1.16	.91	1.36
Other British Africa'	.15	.14	.09	.06	.09	.11	.25	.36	.36	.37	.21	.19	.29
French Africa	x					x				.01	.06	.03	.02
Others ^{h}	.79	1.07	.40	.20	.74	.64	.14	.12	.20	.15	.47	.37	.24
Oceania	.61	.52	.56	.52	.60	. 56	.46	.43	.48	.55	.94	1.87	.79
New Zealand	.26	.15	.13	.08	.15	-15	.01	x	.01	.02	.40	1.29	.29
Others'	.35	.37	.43	.44	.45	.41	.45	.43	.47	.54	.54	.58	.50
Total	4.60	5.52	7.04	6.04	9.64	6.57	10.45	11.94	17.78	17.14	17.31	18.31	15.49

^{*} For sources and footnotes, see Appendix Table VII.

Table X.—Argentine Exports of Wheat and Flour (as Wheat) to ex-Europe by Destinations, Pre-war and Post-war*

				(MILLIE	on ousn	218/							
Area	1909	1910	1911	1912	1913-14	Pre-war average		1922	1923	1924	1925	1926	Post-war average
North and Central America Cuba Mexico	• • • • •		••••				.10 x .10	х х	x x	x x	.14 x .14	.07	.05 .01 .04
South America Brazil Paraguay Peru Bolivia	14.00 13.96 .04	16.96 16.88 .08	17.64 17.32 .32	19.18 18.56 .62 	21.16 20.36 .81 		13.63 13.04 .53 	17.72 16.63 .57 .42 .09	17.76 16.04 .55 1.07 .11	21.00 19.87 .94 .09 .09	18.41 17.16 1.08 .11 .06	16.05 15.76 .24 	17.43 16.42 .65 .28 .08
Asia								.07ª			••••	· · · · ·	.01
Africa		.18	.15	.02		.07	.33 .33	.23	.24	.28	.51 .51	·32 } ·32	.32
Total	14.00	17.14	17.79	19.20	21.16	17.86	14.05	18.03	18.00	21.28	19.06	16.44	17.81

^{*}Data for pre-war years from Estadistica Agricola, 1917-18; for post-war years from Annuario del Comercio Exterior. Flour converted to wheat on the assumption of a 70 per cent extraction. Dots (....) indicate years when no exports were reported to designated destinations. Exports of less than 5,000 bushels are indicated by "x."

^a Reported as to Oriental kingdoms.

Table XI.—Argentine Exports of Wheat to ex-Europe by Destinations, Pre-war and Post-war *

(Million bushels)

				· · · · · · · · · · · · · · · · · · ·	,								
Area	1909	1910	1911	1912	1913-14	Pre-war average		1922	1923	1924	1925	1926	Post-war average
North and Central America Cuba Mexico							.10			x x	.14 	·02 ·02	.04 x
South America Brazil Paraguay Peru Bolivia	8.63 8.59 .04	11.70 11.63 .07	12.37 12.17 .19	13.12 12.72 .40	15.59 15.11 .48	12.28 12.05 .24	11.62		15.19 13.90 .22 1.07	15.88 15.43 .36 .09	14.13 13.58 .44 .11	12.50 12.26 .24	.04 13.99 13.41 .29 .28
Asia								.01ª	••••			••••	x
Africa	••••	.17	.15	.02		.07		.23 .23	$\begin{array}{c} \cdot 24 \\ \cdot 24 \end{array}$.28 .28	.51 .51	.32	.26
Total	8.63	11.87	12.52	13.14	15.59	12.35	11.71	14.84	15.43	16.16	14.78	12.84	14.30

^{*} For sources and footnotes, see Appendix Table X.

TABLE XII.—ARGENTINE EXPORTS OF FLOUR (AS WHEAT) TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND POST-WAR*
(Million bushels)

				(1.2 cc. 2									
Area	1909	1910	1911	1912	1913–14	Pre-war average		1922	1923	1924	1925	1926	Post-war average
North and Central America Cuba		• • • •	••••	••••			x x	x x	x x	x x	••••	.06	.01
South America	5.37 5.37	5.26 5.25 .01	5.27 5.15 .12	6.06 5.84 .22	5.57 5.24 .33	5.51 5.37 .14	2.01 1.65 .30 	3.11 2.71 .30 .01 .09	2.57 2.13 .33 .01	5.12 4.44 .58 ×	4.28 3.58 .64 	3.54 3.50 	3.44 3.00 .36 x
Asia								.06ª			• • • • •	••••	.01
Africa Egypt		.01				ж 	.33						.05
Total	5.37	5.27	5.27	6.06	5.57	5.51	2.34	3.18	2.57	5.12	4.28	3.60	3.51

^{*} For sources and footnotes, see Appendix Table X.

TABLE XIII.—BRITISH INDIAN EXPORTS OF WHEAT AND FLOUR (AS WHEAT) TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND POST-WAR*

					- vaonet	~/							
Area	1909–10	1910–11	1911-12	1912–13	1913-14	Pre-war average	1921-22	1922-23	1923-24	1924-25	1925–26	1926–27	Post-war average
Asia Ceylon Chinab Japan Western Asiad Others	1.53 .32 (.07)° 1.17 .11	1.48 .35 (.09)° 1.10	1.46 .42 (.10)° 1.00	1.83 .44 (.08)° x° 1.27 .20	2.30 .39 (.14)° (.01)° 1.87 .19	1.72 .38 (.10)° x° 1.28 .15	2.23 .50 (.07)° 1.63 .15	1.31 .38 (.07)° .87 .12	1.56 .36 .02 1.04 .14	2.65 .31 .02 2.18 .14	.534	.984	1.54
Africa Egypt and Sudan Union of South Africa Other British Africa' French Africa' Italian Possessions Othersh	.49 .07 .31 .12	.63 .17 .30 	1.52 .86 .46 	1.77 1.09 x .40 	2.05 1.31 x .39 x	1.29 .70 x .37 x	1.43 .91 .49 .01 x	1.22 .62 .13 .46 x	1.30 .71 .09 .48 .01	4.77 3.80 .36 .56 .02 .02	.954	1.70°	1.90
Total	2.03	2.10	2.98	3.60	4.35	3.01	3.66	2.53	2.87	7.41	1.48	2.684	3.44

^{*}Data for pre-war years from Accounts and Papers of the United Kingdom; for post-war years from Annual Statements of the Sea-Borne Trade of British India. Data are for April-March years. Flour converted to wheat on the assumption of a 70 per cent extraction. Dots (....) indicate years when no exports were reported to designated destinations. Exports of less than 5,000 bushels are indicated by "x."

TABLE XIV.—BRITISH INDIAN EXPORTS OF WHEAT TO EX-EUROPE BY DESTINATIONS, PRE-WAR AND POST-WAR* (Million bushels)

				(Millio	n ousne								
Area	1909–10	1910-11	1911~12	1912–13	1913–14	Pre-war average		1922-23	1923-24	1924-25	1925-26	1926–27	Post-war average
Asia	.33	.19	.06	.22	.53	.26	.31	(.17)°	(.19)¢	.80 x		• • • •	•••
Ceylon	.03	.03	.04	.04	.04	.04	.02	.02	.02	.02	•••		•••
Western Asia ^d Others ^e	.30	.16	.03	.18	.48	.23	.28	(.20)° .01	(.22)° .01	.77 .01	•••	• • •	•••
Africa	x x	.01	.54	.11 .11	.06	.14 .14	.01	.14	·12 ·01	$2.63 \\ 2.23$		•••	
Egypt and Sudan Union of South Africa		.01		x .11	x	x x		.13	.09	.36		•••	•••
Other British Africa' Italian Possessions	•••	•••	•••	•••	x	x	.01 x°	.01 xº	.02	.02	•••	• • •	•••
Others ^h	<u></u>	•••				•••	•••	X	X (07) c	X	•••	•••	•••
Total	.33	.19	.61	.33	. 59	.41	.32	(.03)	(.07)°	3.43	••••	• • • •	•••

^{*} For sources and footnotes, see Appendix Table XIII.

a Estimated.

b Including Hongkong.

Net import.
 Aden, Arabia, Persia, Turkey, Mesopotamia, Bahrein Islands, Syria, Smyrna, Palestine.
 Straits Settlements, Federated Malay States.
 Mauritius, Zanzibar, Pemba, Kenya, Tanganyika, Seychelles.
 Somaliland.

h Portuguese East Africa, German East Africa, East African Protectorate.

TABLE XV.—British Indian Exports of Flour (as Wheat) to ex-Europe by Destinations, Pre-war and Post-war*
(Million bushels)

Area	1909–10	1910-11	1911–12	1912–13	1913-14	Pre-war average		1922-23	1923–24	1924-25	1925-26	1926-27	Post-war average
Asia	1.20	1.29	1.39	1.61	1.77	1.45	1.92	1.47	1.75	1.85	•••	•••	
Ceylon	.32	.35	. 42	.44	.39	.38	.50	.38	.36	.30			
China ^b	(.10)°	(.12)°	(.14)°		(.18)°	(.13)°	(.08)°	(.09)°			• • •		• • • •
Japan		• • • •	• • •	Χ°	(.01)°		• • •	• • •			•••		
Western Asia ⁴	.87	.94	.98	1.10	1.39	1.05	1.35	1.07	1.26	1.41	• • •	•••	
Others'	.11	.12	.14	.20	.19	.15	.15	.11	.13	.13	• • •	• • •	• • • •
Africa	.49	.62	.98	1.66	1.99	1.15	1.42	1.09	1.18	2.14			
Egypt and Sudan	.07	.16	$\cdot 32$.98	1.25	.55	.91	.62	. 69	1.57			
Union of South Africa	• • • •		• • •										
Other British Africa'	.31	.30	.46	.40	.39	.37	.48	.45	.46	.54			
French Africa,	• • • •		• • •				.01	х				• • •	
Italian Possessions					x	x	.01	х	.01	.01			
Others ^h	.12	.15	.20	.27	.35	.22	.01	.01	.02	.02	•••	• • •	•••
Total	1.70	1.91	2.37	3.27	3.76	2.60	3.34	2.56	2.94	3.98			•••

^{*} For sources and footnotes, see Appendix Table XIII.

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