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SURVEY OF THE WHEAT SITUATION

APRIL TO JULY, 1929

The closing four months of the crop year 1928-29 were noteworthy for a spectacular change for the worse in the outlook for the crops of 1930 in North America. The most striking results of this change were wide fluctuations in wheat prices, markedly in contrast with movements in the first two-thirds of the year; and a rather sharp reduction in the flow of wheat to export. The reversal in crop prospects tended to build up the outward carryover in exporting countries to a level even higher than had been anticipated. The crop year 1928-29 therefore closed with outward carryovers in exporting countries much the largest in recent years, with the greatest accumulations in the United States and Canada. The level of stocks in European importing countries was apparently one of the highest since the war.

In April and May 1929 the outlook was roughly for a large but not a record crop in North America, and for a moderate one in Europe. During June and July, however, winter wheat in the United States and spring wheat in Canada and the United States suffered greatly from unfavorable weather conditions. In the United States, a total wheat crop of around 875 million bushels was expected as of June 1; but the standing official estimate as of August 1 is only 774 million. In Canada, the condition of wheat as of about June 1 was 100 per cent; as of August 1 it was only 66 per cent. This reduction of 34 per cent is the most extreme one recorded in post-war years; it compares with a reduction of 19 per cent in 1924, when Canada subsequently harvested her shortest post-war crop. In Europe, however, crop prospects improved rather than deteriorated.

Wheat prices in the leading markets of the world declined during April and May

under the pressure of heavy stocks in exporting countries and an improving crop outlook in the Northern Hemisphere, a movement unprecedented in these months since 1910. At the end of May international wheat prices reached the lowest point in post-war years. But subsequent deterioration of North American crops more than offset the earlier decline. Prices rose with extreme rapidity from mid-June to mid-July. The maximum advance during June-

July was recorded at Winnipeg, where the July future rose over 70 cents per bushel; it was in Canada that the crop outlook turned most unfavorable. In Buenos Aires the advance was only 35 cents, and less than this in some European countries. The rapid rise in prices sharply curtailed the movement of wheat in international trade, particularly Canadian exports; but it came too

late to prevent the total movement for the year from reaching a new record. Preliminary data suggest that net exports in 1928-29 approximated 935 million bushels, not far below our May estimate of 950 million. At this figure, net exports were some 10 per cent larger than in any other year.

The outlook for crops, trade, and prices in 1929-30 remains obscure in its details, for the size and distribution of Northern Hemisphere crops is not yet certain, and Southern Hemisphere crops remain to be made. Preliminary data suggest, however, that the Northern Hemisphere crop, excluding Russia, approximates 2,900 million bushels, one of the smallest in recent years. It is larger than the very short crop of 1924, but some 450 million bushels below the huge crop of 1928, if allowance is made for underestimates of the 1928 crop in Canada and perhaps the United States. The crop of 1929 is relatively the shortest in North America, especially Canada; the European

CONTENTS

	PAGE
<i>New Crop Developments . . .</i>	428
<i>Visible Supplies and Outward Carryovers</i>	435
<i>Wheat Price Movements . . .</i>	441
<i>International Trade</i>	447
<i>Outlook for the New Crop Year</i>	452
<i>Appendix Tables</i>	459

importing countries and the northern African countries have large crops. It is too early to anticipate the outcome of the important Southern Hemisphere crops; these have not promised well on account of drought, but favorable weather might still reverse the outlook. Already it is clear that much less wheat will move in international trade in 1929-30 than in 1928-29, for exporters have less to export and importers require less.

If crops alone determined the international statistical position, that of 1929-30 must turn out to be a very tight one. But its tightness is much mitigated by the extraordinarily heavy inward carryovers in many important countries. The position will clearly prove tighter than in 1928-29 or 1923-24. It may or may not prove as tight as those of 1924-25 and 1925-26; the out-

come of the Argentine and Australian crops will in great part determine this. The level and course of prices in the ensuing six months will be affected by crop developments in these countries; as usual at this season, there is little reason to suppose that the level of prices in the first half of August 1929 must prove to be the level prevailing in later months. Prices now stand above the level of 1928-29, and may reasonably be expected to remain above it. But how far above is another matter. The transition from the crop year 1928-29 to that of 1929-30 is commonly likened to the transition from 1923-24 to 1924-25. In this connection it is worth while to point out that the great increase of prices from September 1924 to January 1925 was due to a set of circumstances far different from any that may reasonably be anticipated for 1929-30.

I. NEW CROP DEVELOPMENTS

Crop developments during April-July 1929 were in many respects the antithesis of developments in the same months of 1928. In April 1928 the general outlook was for a world crop below average in size; but favorable spring and summer weather led to a record crop. This year the outlook in April was for a large though not a record crop; but the result, so far as it can be envisaged at present, is a rather small one. Spring wheat in Canada and the United States suffered extraordinary damage; winter wheat in the United States yielded much less well than seemed probable earlier. Continued drought in eastern Australia and in Argentina was unfavorable. Europe, however, experienced favorable weather in the later months of the period. The deterioration of wheat in North America during June and July led to a spectacular advance in international wheat prices, and profoundly affected the course of international trade and the outward carryover.

INDIA AND NORTH AFRICA

The official estimate of the Indian crop now stands at 318 million bushels, about 9 million bushels larger than the preliminary estimate issued in April. The crop is thus

about 24 million bushels larger than the poor one of 1928; but it ranks as the third smallest harvested since the war. The area sown was slightly larger than in any post-war year except 1928, but scanty winter rains and damage by cold weather resulted in relatively low yields per acre. A crop of 318 million bushels seems scarcely large enough to permit net exports during 1929-30, especially because it follows the shorter crop of 1928. Much depends, however, upon the level of international wheat prices and the progress of the crop to be harvested in March-May 1930.

The wheat crops of northern Africa developed favorably. The area sown, 8,168 thousand acres, was slightly the largest on record, exceeding that of 1928 by 164 thousand acres, and rainfall was ample. Standing estimates for Algeria, Morocco, and Tunis total 81.3 million bushels, a crop nearly 20 per cent larger than any previously obtained in these dependencies. The official estimate for Egypt has not yet appeared; but condition figures and trade reports suggest a distinctly large crop in this country as well. All told, northern Africa now appears to have secured a record output, around 40 million bushels larger than that of 1924, and some 20 million larger than that of 1928.

THE UNITED STATES

Winter wheat in the United States emerged from the winter under conditions favorable to fairly large production in 1929. The official estimate of condition as of April 1 was 82.7 per cent, as compared with a ten-year average of 80.9 per cent. Despite a severe winter which had created apprehension of an exceptional amount of winterkilling, abandonment of acreage proved unusually small, only 6.4 per cent according to official data as of May 1, as compared with a ten-year average of 10.5 per cent and the high figure of 25.1 per cent abandoned in 1928. As of May 1, the area remaining for harvest was 40,467 thousand acres, a figure reduced to 39,886 thousand as of July 1. This area was the largest on record except 1915 and the four post-war years 1919-22; it exceeds the area harvested in 1928 by over 3½ million acres. The increase in area to be harvested was due to the smaller winterkilling, not to enlargement of the area sown, which was over 4 million acres smaller in 1928-29 than in 1927-28. Private forecasts of production (four estimators) as of April 1 averaged 575 million bushels, a good crop but not a distinctly large one.

Weather conditions during April and May were on the whole favorable, but in June and July deterioration occurred. Official and certain private forecasts and estimates of winter-wheat production over the period under review were as follows, in million bushels:¹

Estimator	Apr. 1	May 1	June 1	July 1	Aug. 1
Cromwell ..	590	599	615	594	567
Donovan ...	565	620	625	590	545
Murray	580	617	631	601	553
Snow	563	608	649	612	561
Average ..	575	611	630	599	557
Official ....	...	595	622	582	568

As the figures show, crop experts agreed that prospects improved considerably during April; forecasts as of May 1 averaged 611 million as against 575 million a month before. Improvement was centered principally in the states producing hard winter wheat—Kansas, Nebraska, Oklahoma, and

Texas. In parts of these states generous rains relieved danger of drought. There was rather too much rain east of the Mississippi, though deterioration was slight or negligible; and in Washington dry weather turned prospects unfavorable. Cool and wet weather prevailed in May, leading to a further increase to 630 million bushels in the average of private forecasts as of June 1; and the official forecast was 622 million. According to the official data, the rains again improved prospects principally in Nebraska, Kansas, Oklahoma, and Texas, enough more than to offset deterioration in Illinois and Missouri, where rain was excessive, and in Colorado.²

The general outlook turned less favorable during June. As of July 1, the official forecast of production was reduced 40 million bushels, the average of private forecasts by 31 million. According to official data, the deterioration was most marked in Kansas, Oklahoma, and Nebraska, though it was also significant in Ohio, Illinois, Missouri, and Colorado; rains in the Pacific Northwest brought notable improvement. Excessive rains hampering harvest, and a hot wave which promoted premature ripening, appear to have been the principal causes of damage in the hard winter-wheat belt.

Further damage occurred in July, mostly in the first half of the month from excessive rain in some regions, excessive heat in others; threshing returns proved disappointing. Private estimates averaged only 557 million bushels as of August 1, a reduction of 42 million bushels from the July figure. The official estimate, 568 million bushels as compared with 582 million as of July 1, tended to confirm the unfavorable developments, but not fully. Estimates for practically all of the important states

¹ Data from *Daily Market Record* and official sources. Private forecasts appear about the first of each month, the official about the tenth. The fact that the official forecast as of May 1 fell so far below most private forecasts may have been due in part to a change in the official "par yield" for the month. See explanation by B. W. Snow, in *Modern Miller*, May 11, 1929, p. 33.

² It is interesting to observe, as a commentary on the uncertainty surrounding crop prospects in any large country, that Murray's reports suggested deterioration rather than improvement in Oklahoma and Texas, and improvement rather than deterioration in Colorado, and also in Washington.

producing hard and soft red winter wheat were slightly reduced, but there was some improvement in the Pacific Northwest.

The changing prospects for winter wheat during April-July, though striking enough, cannot be regarded as unusual. The August official estimate was 27 million below the May forecast. Last year the August estimate was 93 million bushels above the May forecast; in 1926 it was 77 million higher; in 1921 it was 85 million lower. One may also find more extreme instances of changes between June and August forecasts in the past eight years. This year there was a reduction of 54 million bushels in official forecasts between these two months; but in 1922 there was a reduction of 65 million, in 1924 an increase of 80 million, in 1926 an increase of 83 million, and in 1928 an increase of 67 million.

Changes in the outlook for the American spring-wheat crop are difficult to describe. As of March 1, farmers had expressed intentions to plant some 21.5 million acres, an area well above the average of recent years and only slightly below the area harvested in 1928. The first official estimate as of July 1 was for 20.9 million acres, again a fairly high figure. By comparison with the harvested acreages of 1928, the bread wheat area sown in 1929 was 680 thousand acres larger, the durum area 1,354 thousand smaller. Condition as of June 1 was 84.8 per cent (official data), somewhat below the ten-year average of 88.4 per cent. The supply of subsoil moisture was then regarded as satisfactory except perhaps in western North Dakota, eastern Montana, and the Pacific Northwest.

The outstanding feature of June and July weather was its extreme variability from locality to locality, with respect to both rainfall and temperature. Private forecasts of production¹ averaged 258 mil-

¹ Private and official forecasts were as follows, in million bushels:

Estimator	June 1	July 1	Aug. 1
Cromwell	256	244	211
Donovan	260	240	195
Murray	251	247	194
Snow	263	266	209
Average	258	249	202
Official .....	...	251	206

² See *Foreign News on Wheat*, August 15, 1929, table on p. 5.

lion bushels as of June 1, and 249 million bushels as of July 1; three experts suggested deterioration, one suggested slight improvement. The official forecast was 251 million, with indication of yield apparently somewhat, but not markedly, below the ten-year average of 12.6 bushels per acre for all spring wheat. In July, deterioration was much more apparent than in June. Widespread rains were needed but did not come; there were ample showers in some localities and not in others; some localities suffered from extreme heat, others from cold, others from high winds. Private forecasts as of August 1 averaged only 202 million bushels, a reduction of 47 million in the course of the month. The official forecast was 206 million bushels, 45 million below the July figure. The contrast with 1928 is striking; July official forecasts were about the same in both years, but in 1928 the August forecast was 57 million bushels above the July.

Thus, in the course of two months, the earlier outlook for a distinctly large crop of winter wheat and a fair crop of spring was altered sharply, and only a fair crop of winter wheat and a poor one of spring were secured. The total United States wheat crop, now officially estimated as 774 million bushels, is smaller than any in the past decade except that of 1925; but it exceeds that crop by nearly 100 million bushels, and hence is not so markedly a short one. The crops of 1921 and 1923 were but little larger; but the excellent crop of 1928 exceeded it by over 125 million bushels. These comparisons rest upon official estimates for the earlier years; and since the crops of 1923, 1925, and 1928 may have been officially underestimated, the crop of 1929 may compare even less favorably with them if the standing official estimate as of August 1 remains unchanged in later revisions. Trade comments suggest that in so far as the standing official estimate may prove inaccurate, it places outturns in the hard spring-wheat belt and in the Pacific Northwest somewhat too low.

In its distribution by classes,² the crop of 1929 is noteworthy for the short crops of hard red spring and durum wheats; these, at approximately 126 and 54 million bushels respectively, rank with the poorest in

the past decade. They are much the same in size as the crops of 1921, 1923, and 1926, far smaller than the excellent crops of 1927 and 1928. The crop of hard red winter wheat, approximately 330 million bushels, is a good one; only those of 1924, 1926, and 1928 were larger in the past nine years. The outturn of soft red winter, some 189 million bushels, is around 50 million bushels larger than that of 1928, but is still only a fair one; considerably larger crops were harvested in 1920-23 and in 1926. The crop of white wheat, some 75 million bushels, is only a little below average in size. So far as domestic requirements are concerned, there can be a shortage only in hard red spring wheat; and this is mitigated by the size of the outward carryover. Preliminary indications point to fairly good quality, especially with respect to the protein content of hard winter wheat.

CANADA

So drastic a reversal in the wheat-crop outlook in Canada as occurred this year has not been witnessed in the past decade, even in 1924. With a single exception, the several principal factors making for heavy production were fairly favorable in the earlier months. Seeding was a little late, but by no means so late as in 1927-28. Germination was satisfactory. Early growth was rather slow on account of cool, dry weather, but served to give the plant good roots. Subsoil moisture, however, was decidedly scanty. It is impossible to sum up accurately what may be called the consensus of opinion regarding probable outturns at any time. Nevertheless one may say with moderate assurance that at the end of May there seemed to most observers no good reason to anticipate, under normal weather conditions, either so short a crop as that of 1924 or so huge a one as that of 1928. At the time expectations were in general hardly more definite than this.

The fact that subsoil moisture was deficient was widely regarded as an unfavorable feature, but hardly so unfavorable as was indicated by a careful statistical analysis published by the United States Department of Agriculture on June 15.¹ This analysis, based upon temperature and rainfall

data in Saskatchewan during the September-April period from 1905 to 1928, led to the inference that weather conditions during September-April, without regard to the growing season, could reasonably be expected to result in a yield per acre of only 15 or 16 bushels in Canada, and a crop of only 360-400 million bushels. It is doubtful if most observers have been accustomed to attach such importance to September-April weather as this analysis attributes to it; and there seems to be no evidence that, late in May or early in June, the general expectation of probable outturn in Canada was crystallized about so narrow a range as 360-400 million bushels. So far as one can judge by comments in trade journals, a considerably larger crop than 400 million bushels was regarded as probable if June-August weather proved distinctly favorable, and one considerably smaller than 360 million bushels if distinctly unfavorable weather supervened. The deficiency in subsoil moisture seems to have been regarded by most observers more as a potential than as an actual cause of damage.

Condition as of May 31 was officially placed at 100 per cent of the average yield per acre of the preceding ten years. Comparisons of this figure with those issued in earlier years are of limited significance, for the ten-year average is different in each year; it was higher this year than it was a year ago because of the exceptionally high yield per acre secured in 1928. Hence the fact that the condition estimate of May 31, 1929, was the same as that of May 31, 1928, does not lead to the inference that the same yield per acre seemed probable in both years; rather it signified that, for the date, the outlook was rather better this year.

Condition estimates may be employed, however, to illustrate the comparatively extreme deterioration in crop prospects which occurred in the course of June and July. Comparisons with 1924 and 1928 are illuminating. The figures below show condition of spring wheat in all Canada as of the dates indicated:²

¹ See *Foreign News on Wheat*, June 15, 1929, pp. 12-16.

² Official data from *Monthly Bulletin of Agricultural Statistics* and press releases.

	Condition in per cent on		
	May 31	June 31	July 31
1924	96	92	77
1928	100	103	107
1929	100	88	66

The decline of 12 points in June was the largest June decline on record in post-war years; since 1919 the largest June declines were 5 points in 1922 and 4 points in 1924. It appears to have resulted chiefly from deficient rainfall added to subsoil moisture already in short supply, though on different days there were high winds, or heat, or unseasonably cold weather. Deterioration became evident in the second half of the month, as is evidenced by condition estimates for the Prairie Provinces issued by the Canadian Pool.¹ As in the United States spring-wheat belt, condition at the end of June varied greatly from locality to locality. But in general a continuing deficiency of rainfall, with cumulating unfavorable effect on the growth of wheat, was the fundamental cause of deterioration.

The same cause was dominant in July, and in addition there were many days of extreme heat and of high winds. For the month as a whole, the official condition figure fell 22 points to 66 per cent, a considerably greater decline than occurred even in 1924 and the lowest on record for the date in the past decade. The greater part of the deterioration occurred in the first half of the month, especially in the first week. Between June 29 and July 11, according to the Pool's data, condition in Alberta declined 22.2 points, in Saskatchewan 13.5 points, in Manitoba 14.2 points. By mid-July it was apparent that a large crop was hardly possible, for many fields were damaged beyond hope of recuperation even under the most favorable weather conditions. There was further deterioration in the latter third of July, but not so marked

¹ These figures, expressed in terms of percentage of a "full yield," not a ten-year average yield, are as follows:

Date	Manitoba	Saskatchewan	Alberta
June 1.....	93.7	95.1	96.5
June 15.....	91.2	91.9	93.6
June 29.....	84.2	82.5	76.2
July 11.....	70.0	69.0	54.0
July 18.....	58.0	60.0	50.0
July 25.....	60.0	56.5	44.0

² Messrs. Cromwell, Donovan, and Murray.

³ See Appendix Table XI, and below, p. 439.

as in the preceding four weeks. Wheat sown on fallow and new breaking withstood the drought much better than wheat sown on stubble. Much of the wheat headed on short straw, and the crop will contain many weed seeds because the weeds withstood the drought better than the wheat. Naturally, precipitation and rainfall were not uniform in their effect from locality to locality; and if in some regions wheat at the end of July seemed clearly a complete failure, in others the outlook was favorable.

The spotted conditions gave rise to wide variations in forecasts of total production as of August 1: some observers doubted if more than 175 million bushels would be produced in Canada, while others regarded as much as 350 million as possible. American experts,² however, presented forecasts as of August 1 which ranged only from 240 to 252 million bushels for the three Prairie Provinces. The official Canadian condition figure was interpreted to indicate a crop in the Prairie Provinces lying somewhere between 210 and 280 million, with around 25 million more for Canada as a whole. No official forecast of production will appear until September 10. Weather conditions during the month of August have not been generally favorable, in that widespread rains, which would have been beneficial in filling heads, have not occurred. Further damage is possible if there are heavy frosts or if the harvest is wet; but these factors would affect quality rather than quantity. Any forecast of production must be tentative at the date of writing, if only because conditions are so highly variable in different localities. In the light of current information, a crop of some 260 million bushels in Canada as a whole represents a reasonable guess at the middle of the probable range; but it may well prove considerably more or less than this.

If the Canadian crop reaches only 260 million bushels, it will be smaller than any crop obtained from an area exceeding 20 million acres—that is, the crops of 1921-28. The crop of 1924, the smallest during this period, was officially placed at 262 million bushels, but was apparently underestimated; the largest crop, 534 million bushels, was that of 1928, which also appears to have been underestimated.³ Since this

year's crop was obtained from the largest sown area on record, so small an outturn as 260 million bushels would represent the smallest yield per acre in recent years.¹

EUROPE, EXCLUDING RUSSIA

Sharply in contrast with the situation in North America, European (ex-Russian) wheat-crop prospects improved during April-July. The spring was late and cold, and the severe winter, as well as frost in April, had occasioned much more than the normal amount of winterkilling in certain areas, notably parts of Roumania, Bulgaria, and Hungary; northern France, Belgium, and Holland; and northwestern Germany and the Baltic states. Hence the general outlook in April was not especially favorable, in spite of some increase in the area sown. Opportune rains and warmth greatly improved the outlook during May and June, though the period was rather dry and improvement was not uninterrupted.

Weather conditions during July were mostly favorable; toward the end of the month, however, a spell of extreme heat caused some premature ripening in the more northerly countries, especially Germany. The earlier crops—in the Danube countries, Spain, Italy, and France—were for the most part harvested in reasonably dry weather. To the date of writing (August 25) fragmentary reports suggest satisfactory August weather in Europe, neither notably favorable nor notably unfavorable. But the reports are too scattering and indefinite to yield a clear picture of more recent developments, and the experience in other years shows that weather conditions in the late growing and harvesting season may affect outturns considerably. Last year, for example, the outlook in mid-August was for smaller crops than were actually harvested.

The outcome is therefore hardly clear at the moment. The following figures show such standing official preliminary estimates

¹ It will be of interest to observe how far the yield per acre in Saskatchewan will prove to fall below the United States Department of Agriculture's estimate, based upon September-April weather conditions, of 15 bushels. Over the period 1905-28, the Department's calculated yield differed from the official estimate of yield by a maximum of 4.2 bushels per acre, in 1924.

of wheat production in 1929 as are available, in comparison with averages for 1924-28 and with outturns in 1924 and 1928. Data are in million bushels.

Country	Average 1924-28	Final 1924	Final 1928	Preliminary 1929
Hungary	74.9	51.6	99.2	70.6
Bulgaria	39.1	24.7	50.7	37.4
Roumania	99.7	70.4	115.5	91.9
Jugo-Slavia	73.5	57.8	103.3	96.9
Total	287.2	204.5	368.7	296.8
Spain	139.7	121.8	122.6	139.8
Italy	211.2	170.1	228.6	238.8
Netherlands	5.9	4.7	7.3	3.8
Belgium	14.9	13.0	18.0	16.0
Switzerland	3.8	3.1	4.3	5.8
Germany	113.0	89.2	141.6	125.0 ^a
Greece	12.0	7.7	15.7	16.8
England, Wales..	50.1	50.9	47.3	41.8
Austria	10.7	8.5	12.9	11.6 ^b
Poland	50.2	32.5	59.2	64.7
Total	611.5	501.5	657.5	664.1

^a Calculated on the basis of an official estimate of winter-wheat production, in which the outturn was placed at 110 million bushels as against 127 million in 1928.

^b Winter wheat only.

On the basis of these figures and less specific advices, a few conclusions seem tenable. The crop in the four Danubian exporting countries is surely much smaller than the bumper crop of 1928, but much larger than the short crop of 1924; it is a little above the 1924-28 average, but may prove lower if trade opinion is justified in expecting downward revisions of some of the official estimates.

The crop of the importing countries of Europe is certainly much larger than the short crop of 1924. It may prove even larger than the excellent crop of 1928, though this is not certain in the absence of official estimates of the outturns in France, Czecho-Slovakia, Denmark, and Sweden. Trade reports suggest that all of these countries except France are harvesting smaller wheat crops than in 1928, though probably not much smaller in the aggregate.

The outturn in France is of major significance, but opinions vary widely. The United States Department of Agriculture anticipated as of August 15 a crop smaller than that of 1928, which was 281 million bushels. Trade estimates have run higher,

even up to 400 million bushels. So far as we are able to evaluate the widely variant reports, a crop in the neighborhood of 320 million bushels more or less is in prospect.

If the French crop reaches or exceeds 320 million bushels, the European importing countries as a group are assured of a crop larger than that of 1928—the largest, indeed, in recent years, and much the same in size as the bumper post-war crop of 1925. Whether the net increase in the wheat crop of the importing countries of Europe will prove large enough to balance the decrease in the Danube countries is difficult to say.

The distribution of the European crop now appears to be approximately a normal one. Most countries have average crops or better. There are no conspicuously short crops among the larger producers, such as the Spanish crop of 1928; and there are no such conspicuously large crops as the 1928 outturn in the four Danube countries and Germany. The quality of early-harvested grain is reported to be good, though perhaps not so good as in 1928. The quality of later-harvested grain will depend upon the weather at harvest. Heavy rains could still assume some importance by intensifying the need of European millers for sound dry wheat in their mill mix, as was the case in 1924; but it is rather late in the season for such rains to cause marked damage.

OTHER NORTHERN HEMISPHERE COUNTRIES

Crop developments in various other countries of the Northern Hemisphere are more difficult to picture. To judge by standing official estimates, the season must have been favorable in Japan and Chosen and in Mexico, where outturns are reported larger than in 1928 and above the 1923-27 average. The crop in Syria and Lebanon is estimated much above the short crop of 1928; if one may infer from this that Asia Minor as a whole has a larger crop, this area will need to import considerably less wheat in 1929-30 than in 1928-29. The Chinese crop apparently turned out rather poorly, though comparisons rest on a most uncertain basis in the absence of estimates of acreage, condition, or yield. In the Yangtze Valley, the wheat crop is said to be

smaller and of poorer quality than the good crop of 1928; the more northerly provinces of Shantung and Chihli appear to have experienced a second crop failure; in North Manchuria, however, the outturn of all cereals, and thus perhaps of wheat, is estimated to be larger than in 1928.

In Russia certain aspects of the situation are clear. As in western Europe, the spring was late and cold. Official advices indicate an increase of 3 per cent in the area sown to all grain, both winter and spring, and of nearly 6 per cent in the acreage of spring wheat. Winterkilling was said to be about normal, despite the severe winter. Condition of all grains in mid-July was mostly average or above, and average crops were anticipated. Stress was laid upon the outlook for much better outturns in the southwestern regions this year than in 1928, and it was thought that this change in distribution would facilitate collection of grain, minimizing some of the difficulties encountered during 1928-29. Exports in 1929-30, however, were thought to be improbable on account of the necessity of building up stocks in the consuming regions. At the moment there seems little likelihood that Russia should experience a crop failure such as that of 1924; on the other hand, there is no evidence tending to suggest that the crop is an exceptionally large one.

THE SOUTHERN HEMISPHERE

Throughout the period under review, the outlook for Southern Hemisphere crops has remained unfavorable on account of widespread and long-continued drought. The area sown in Australia is said at least to have maintained the high level of 1928; but trade reports from Argentina have reiterated that a decrease of 10 to 20 per cent was probable there. An official report issued early in August, however, suggested that the decline was confined to the province of Cordoba, while some increase had occurred in Santa Fé. It was in Cordoba that rainfall was most markedly deficient. In Australia the driest weather was experienced in the eastern states, Victoria and New South Wales. At this date it is unwise to assume either that the area sown in Argentina has been drastically reduced, or

that yield per acre in either country must prove small. Under favorable conditions wheat can be sown in August, at least in Argentina. The wheat plant is in its earlier stages of growth in both countries, and ample rainfall in September–November could result in high yields; rains in Australia in late October 1928, for example, resulted in a large crop when a distinctly small one had been anticipated earlier. On the other hand, the crops in both countries may encounter further drought, and, in Argentina, frost or rust. Changing crop

prospects in the Southern Hemisphere may confidently be expected to exert a strong influence on prices and trade in the fall and winter months, perhaps all the more so because European importers have been and continue to be able to secure exceptionally large supplies from Argentina. At the moment the chances are adverse to heavy production in either Australia or Argentina, though rainfall in early August has somewhat improved the outlook; but prospects may become much worse or much better.

II. VISIBLE SUPPLIES AND OUTWARD CARRYOVERS

Enormous quantities of wheat in commercial channels, especially in North America, have characterized the crop year 1928–29 throughout its course, as markedly in April–July as in earlier months. There can be little question that this situation, itself the result of bumper crops in exporting countries, persistently acted as a drag upon upward movements of prices, even during the precipitous advance of June–July. At no time during the crop year have importers been forced to indulge in precipitous and panicky buying such as occurred in the course of 1924–25 and 1925–26.

At the close of the year, outward carryovers were of record size in the United States and Canada—in Canada, considerably larger than would have occurred in the absence of the severe damage incurred by the growing wheat crop. Argentina and Australia also carried over exceptional quantities of wheat, but in these countries the supplies were not so strikingly large as in North America. The evidence suggests that year-end stocks were also above average in size in many European countries as well, notably in the Danube countries; only in Great Britain, and perhaps Spain and Portugal, were they presumably below average. All told, it seems certain that the world carryover out of 1928–29 was by far the largest in post-war years, even with allowance for relatively small stocks in India and perhaps Russia. The presence of this huge carryover constitutes one of the outstanding differences between the opening of the crop year 1929–30 and that of 1924–25, which in some other ways are similar.

VISIBLE SUPPLIES

Chart 1 (p. 436) summarizes data on visible supplies, chiefly in North America. In the United States, visibles declined more rapidly in April and May than they did in 1928, partly because declining prices resulted in smaller marketings by farmers,¹ partly because exports were larger this year, especially in May. Rising prices in June led to increased marketings by farmers, but the export movement was fairly small; hence visibles declined only slightly. The seasonal upturn in late June and July began at about the usual time; the subsequent increase was greater than in any of the past five years. Rising prices stimulated the movement from farms, but tended to restrain purchases by importers. As of July 27, Bradstreet's visible stood at 125 million bushels, somewhat further above the comparable figure for 1927–28 than it had been at any time during 1928–29. Visibles rose further by some 20 million bushels in the week ending August 3 and again by 20 million in the week ending August 10; and this increase, added to the existing enormous commercial stocks, was a price-depressing factor of some importance.² At

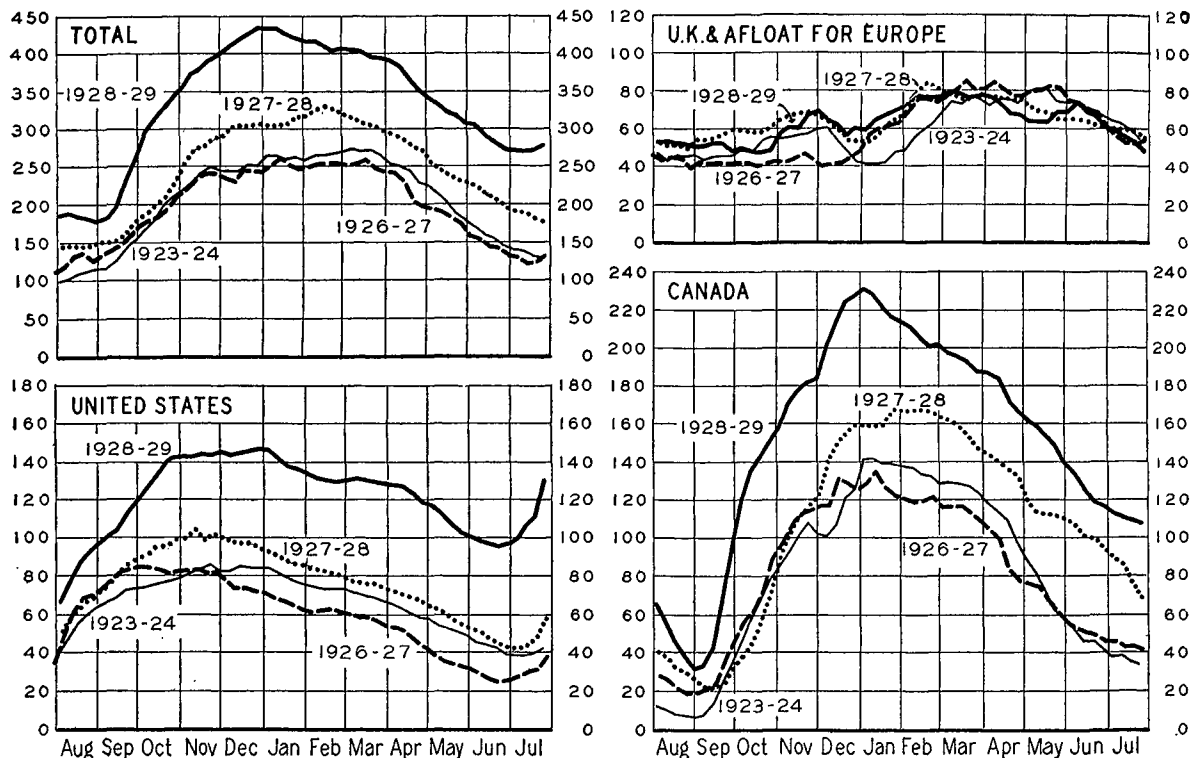
¹ See Appendix Tables II and III, which show monthly and weekly receipts at primary markets in the United States.

² These heavy marketings by farmers evoked on August 3 the following statement from the newly organized Federal Farm Board: "The Federal Farm Board has made no statement or forecast whatsoever concerning a proper price for wheat for this market year nor does it propose to do so, but under conditions which exist this season when all reports agree on a substantial reduction in world supply as compared with last year, it seems unfortunate to crowd

the end of July, though practically all terminal markets held more wheat than in 1928, the concentration of holdings was most noteworthy in Minneapolis, Kansas City, Duluth, and Chicago. Visibles in these four markets totaled 80.8 million bushels as against 32.3 million the year before, an

larger and exports much smaller as compared with July 1928, as Canadian prices rose precipitously under the influence of unfavorable crop developments; and the visible supply showed a decidedly smaller decline. At the end of July these stocks reached 107 million bushels, a record fig-

CHART 1.—VISIBLE WHEAT SUPPLIES IN THE UNITED STATES, CANADA, AND UNITED KINGDOM PORTS AND AFLOAT TO EUROPE, WEEKLY, 1923-24, AND FROM AUGUST 1926*
(Million bushels)



* Data from *Grain World*, *Northwestern Miller*, and *Canadian Grain Statistics*.

increase which accounts for 48.5 million bushels out of the total increase (Chicago Board of Trade data) of 66.8 million.

Canadian visible supplies declined somewhat more rapidly during April-June 1929 than they did in the same months of 1928; the export movement was a trifle larger this year, especially in June, while receipts at terminal markets, notably Vancouver, were smaller.¹ But in July receipts grew

wheat onto the market faster than existing facilities can handle it, resulting in cash prices which are much lower than contract prices for future delivery."

¹ See Appendix Tables II and III.

² See below, p. 448.

ure for this time of year, and 38 million above that of 1928. Of this increase, the greater proportion occurred in stocks in terminal elevators at Fort William and Port Arthur, and in lake and Atlantic ports of the United States.

Visibles afloat for Europe and in ports of the United Kingdom fell to relatively low levels in late April and May, as overseas shipments declined sharply;² they rose with increasing shipments in late May and early June, and fell again—much more abruptly than in 1928 because shipments declined more rapidly—in later June and July. At the end of July stocks afloat for

Europe were 42.5 million bushels, about the average of the preceding five years, but somewhat below the figures for 1927 and 1928. Port stocks in the United Kingdom, 6.0 million bushels, were below the five-year average, and 4.4 million smaller than those of 1928.

The total visible changed in accordance with changes in its major component parts, declining rather more rapidly in April-June than it did in 1928, but rising rather than declining (chiefly on account of the rapid increase in the United States visible) in July. At the end of July the total reached 281 million bushels, an increase during the year of 100 million. A more elaborate statement of the world visible supply, including certain stocks in Argentina and Australia, gives a figure of 370 million bushels as of August 1.¹ This total by far exceeds any other as of the same date in post-war years; it surpasses the previous record figures of 1928 and 1924 by 143 and 178 million bushels respectively.

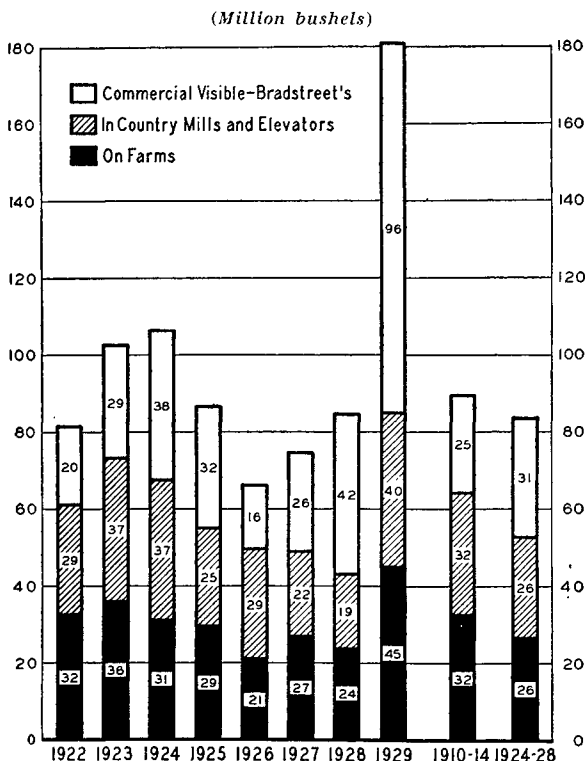
UNITED STATES STOCKS, JUNE 30, 1929

The total outward carryover of wheat (including a little flour) in the United States, so far as it is measurable, proved by far the largest on record in recent years.² Three of the major components in the total—stocks on farms, stocks in country mills and elevators, and visibles in terminal elevators—are shown, with comparisons, in Chart 2. The sum of these three items was 180.6 million bushels, nearly 75 million more than the next highest figure shown on the chart, that of June 30, 1924; 70 million higher than the previous record for post-war years established in 1920;³ and more than twice as large as that of 1928. All three components of the total were relatively high; but visible supplies of 96 million bushels were most strikingly so, being the largest in history by a wide margin. Stocks on farms, 45 million bushels,⁴ were

exceeded in 1920 and 1921; and stocks in country mills and elevators, 40 million bushels, were rather closely approached, though they were not exceeded, in 1920, 1923, and 1924.

Stocks held by city mills, the fourth component of the total carryover, were of unprecedented size for the five years in which estimates have been obtained. The data appear in Table 1 (p. 438). Excluding

CHART 2.—WHEAT STOCKS IN THE UNITED STATES, JULY 1, 1922-29, WITH COMPARISONS*



* Official data except Bradstreet's visible, as tabulated in Appendix Table VIII. Country mill and elevator figures for 1926-29 are estimated on a new basis, and probably are not strictly comparable with figures for earlier years.

the first two items (mill stocks held in public terminal elevators and in country elevators) so as to avoid duplication in computing the total United States carryover, the carryover held by city mills was 81.5 million bushels, a quantity exceeding any of the past four years by from 18 to 39 million. These stocks were nearly 24 million bushels larger this year than last; the increase occurred in all items.

All told, therefore, the four principal items of the United States carryover totaled

¹ See Appendix Table VII.

² It was almost certainly by far the largest in history; but strictly comparable data are not available prior to June 1925.

³ See Appendix Table VIII for data prior to 1922.

⁴ An indeterminate proportion of farm stocks in the Southwest was probably of poor quality, being bin-burnt grain.

262 million bushels. So far as we are able to ascertain, this is by far the largest of any in the past seven years—nearly 100 million bushels larger than that of June 30, 1924, and fully 120 million larger than that of 1928. A precise analysis of the factors causing the carryover of 1928–29 to

TABLE 1.—UNITED STATES CENSUS REPORTS ON MILL STOCKS OF WHEAT AND FLOUR, JUNE 30, 1925–29
(Million bushels)

June 30	Wheat			Flour as wheat ^b	Grand total
	Country elevators	Public terminals	Private terminals ^a		
1925.....	2.16	3.44	26.72	15.73	48.04
1926.....	2.52	3.00	30.32	14.67	50.51
1927.....	2.56	3.88	46.15	16.76	69.35
1928.....	1.91	3.68	40.50	17.08	63.15
1929.....	3.52	8.32	63.51	17.98	93.33

^a Includes wheat in transit and in mill elevators.

^b Barrels of flour converted at 4.7 bushels per barrel.

be built up to so extreme a height need not be undertaken here. Certainly the major part of the upbuilding did not occur in March–June; for reductions of the various components of the total between March 1 and June 30 were not much smaller than usual.¹ Practically throughout the year wheat prices in the United States were maintained at too high a level to permit exports consistent with the size of the large crop; exporters in competing exporting countries were willing and able or felt compelled to accept lower prices. The situation now seems traceable principally to the heavy crops of 1928 secured in Canada, Argentina, and Australia; to the prevailing relatively low level of world prices; to more ample storage facilities in this country; and to the fact that domestic demand plays a relatively stronger rôle in the United States than in competing exporting countries. But other factors, among them speculative activity, relative interest rates,

¹ The five-year average reduction occurring between March 1 and June 30, 1924–28, in combined farm stocks, country mill and elevator stocks, and visible supplies was 187 million bushels; this year it was 177 million. City mill stocks were reduced between March 31 and June 30, 1926–28, by some 29 million bushels, and this year the reduction was 26 million.

² See disposition statistics in Appendix Table XI.

³ See Appendix Table VIII.

international trade balances, and expectations that governmental influence would be brought to bear on wheat prices, were also operative.

The appearance of fairly definitive estimates of the outward carryover completes certain data needed to adjudge the accuracy of the 1928 official crop estimate, now standing at 902 million bushels.² The inward carryover was 142 million bushels, so that available supplies for 1928–29 totaled 1,044 million bushels. Official data on net exports (including shipments to possessions), seed requirements, and the outward carryover, together with our own estimate of wheat consumed for food, total 1,008 million bushels. A residual of only 40 million bushels is left to cover wheat fed to animals and wasted—a figure hardly to be regarded as sufficiently high, especially for a year of low wheat prices. It is impossible to adjudge the accuracy of the crop estimate with precision; for error may be present in our estimate of consumption, the carryover data do not include some invisible items, and it is as yet impossible to obtain securely founded notions of the quantities fed to animals and wasted annually. Nevertheless one may venture to assert that the crop of 1928 was certainly not overestimated, and was probably underestimated.

CANADIAN CARRYOVER, JULY 31

The carryover of Canadian wheat in Canada was brought to an extremely high level, in some part by a reduction of net exports in July, a reduction itself due to rising prices caused by the extraordinarily poor progress of the growing wheat crop. The official estimate as of July 31 was 104 million bushels, some 39 million in excess of our forecast issued in late May, and 27 million above the next largest carryover on record, that of 1928. Each item in the total except stocks in transit was of record size for the period over which comparisons are possible.³ Though most of the increase was in stocks held in elevators, even this huge figure does not state in full the carryover of Canadian wheat; for some 23 million bushels in addition were in store in lake and Atlantic ports of the United States, as

against 14 million in 1928 and an average of 3.6 million for the years 1924-27.

The appearance of the carryover estimate suggests fairly definitively, as is pointed out by the Dominion Bureau of Statistics, that the Canadian crop of 1928, now placed officially at the record figure of 534 million bushels, was appreciably underestimated. Available supplies (official crop estimate plus inward carryover) were apparently 612 million bushels; but net exports and the outward carryover, plus the quantities of wheat consumed domestically as food, feed, seed, and waste total 643 million bushels.¹ This suggests that the official estimate now standing of the crop of 1928 is roughly 25-35 million bushels too low.

SOUTHERN HEMISPHERE STOCKS

In view of uncertainties surrounding Argentine crop estimates for 1927 and 1928, the problem of measuring the size of the outward carryover on August 1, 1929, has become even more difficult than in earlier years. The United States Department of Agriculture computed the Argentine exportable surplus as of July 1 at 80 million bushels, on the basis of a probable range reported by the American consul at Buenos Aires.² This implies an exportable surplus of some 65 million bushels as of August 1, since exports in July were about 15 million bushels. Broomhall on July 17 published an estimate of 68 million bushels for the Argentine "reserve"; but on July 24 he stated that his agent in Buenos Aires expected the "carryover" on August 1 to reach 96 million bushels; and on July 31 he placed the "reserve" at 88 million bushels. These figures seem to rest upon a direct estimate of stocks published in the *Times of Argentina* on July 22; the estimate in-

cluded stocks in railway stations, in ports, and on farms. A similar estimate for June 30, 1928, proved to be a conservative one;³ and the estimate for June 30, 1929, is regarded as conservative by its compilers. We tentatively employ as Argentine stocks on August 1, 1929, the rounded figure of 100 million bushels. This is considerably the largest of recent years.

If the Argentine carryover approximated 100 million bushels, even the standing official estimate (307 million bushels) of the crop of 1928 appears to be below the truth. The items of disposition total 409 million bushels, available supplies only 387 million.⁴

The Australian stocks position is likewise uncertain. The United States Department of Agriculture, employing for 1929 a figure obtained through the American consul at Melbourne, placed Australian stocks (apparently total) at 53 million bushels as of July 1, 3 million bushels less than a year before. This implies stocks on August 1, 1929, of roughly 45 million bushels compared with roughly 48 million a year before. Broomhall judged the exportable surplus as of August 1 to be some 24 or 25 million bushels, 4 or 5 million bushels larger than in 1928.

Our calculations, if based on the assumption that the 1928 crop was accurately estimated, lead to the conclusion that August 1 stocks in Australia approximated 43 million bushels, 3 million above those of 1928. This result is rather difficult to reconcile with the low prices prevailing in January-May 1929 and the unfavorable early crop prospects in Australia, both of which presumably tended to restrain exportation and to encourage upbuilding of stocks. Here also the evidence suggests that the crop of 1928 may have been underestimated, though presumably by only a small amount; and this is not clear in the absence of net export statistics for June and July.

If our analysis of the stocks position is approximately correct, it implies that the wheat crops of 1928 were appreciably underestimated in three of the four major exporting countries. All told, the underestimations may have reached as much as 75-100 million bushels. To allow for these quantities in evaluating the international

¹ See Appendix Table XI.

² See *Foreign News on Wheat*, July 15, 1929, p. 2.

³ At least 80 million bushels of wheat must have remained in Argentina on August 1, 1928; for net exports in August-December 1928, before the advent of the new crop, were some 55 million, and something like 25 million bushels must have been used in these months for domestic consumption. But one could reasonably infer from the *Times of Argentina* estimate of stocks on June 30, 1928, that on August 1, 1928, stocks were hardly more than 70 million bushels.

⁴ See Appendix Table XI.

statistical position during 1928-29 would show the actual position to have been considerably easier than it earlier appeared to be. The extensive underestimation of crops in some part explains why carryovers now seem to have proved larger than appeared probable in earlier months of the year.

EUROPEAN STOCKS

Any evaluation of the carryover in European countries must rest partly upon assumptions, partly upon inferences drawn from production, trade, and price statistics, and partly upon unofficial statements. The evidence is in some respects contradictory; but the subject is of such considerable importance in view of the oncoming crop year of relatively short wheat crops that a tentative examination of it is desirable.

Stocks of old-crop wheat in the exporting countries of the Danube basin were probably larger on August 1, 1929, than in any of the preceding five years. Available supplies of wheat for the past six years (wheat crops less net exports) were approximately as follows in million bushels:

1923-24	.....	225	1926-27	.....	250
1924-25	.....	180	1927-28	.....	240
1925-26	.....	250	1928-29	.....	335

Thus these countries had available for all domestic uses fully 85 million bushels more wheat than in any other recent year. Population and per capita consumption for food alike appear to be increasing in this area; and the corn crop of 1928-29 was extremely short. The extent to which these factors, together with relatively low wheat prices as compared with most earlier years, tended to increase domestic utilization cannot be measured with any precision. Nevertheless it is a generally accepted doctrine that low prices tend to encourage the upbuilding of stocks here as in other countries, as well as to expand actual consumption. Even if an increase of 10 per cent occurred in actual consumption—an extremely liberal figure, as judged by data from other countries where information on consumption is far more adequate—there must still have been a marked increase in stocks during 1928-29, probably to much the highest level of recent years.

Among the importing countries of Europe, the situation clearly varied widely from country to country. Total available supplies (crops plus Broomhall's shipments to Europe) in the importing countries as a group were approximately as follows, in million bushels, for the past six crop years:

1923-24	....	1,615	1926-27	....	1,590
1924-25	....	1,485	1927-28	....	1,650
1925-26	....	1,625	1928-29	....	1,745

In this group of countries, as in the Danube basin, available supplies were larger in 1928-29 than ever before, by some 95 million bushels. In percentage terms, this increase is much less marked than in the Danube countries, and is more difficult to interpret. That stocks were as much as 80-88 million bushels larger on August 1, 1929 than on August 1, 1928, as Broomhall estimates,¹ is possible but not certain. If, as some observers maintain, the quantity of wheat fed to animals in 1928-29 was extraordinarily large, so great an upbuilding of stocks as 80 million bushels seems improbable, with available supplies only about 95 million bushels larger in 1928-29 than in 1927-28. On the whole, with allowances for growth of consumption, it seems reasonable to conclude that in the aggregate stocks on August 1 were considerably larger than at the end of any other post-war year except perhaps 1923-24. At the moment, more precise comparisons are hardly feasible; a good deal of light will be thrown on the situation by statistics of imports in ensuing months. The evidence is fairly convincing that stocks on August 1 were small rather than large in Spain, Portugal, the United Kingdom, and not distinctly large in Germany; but apparently much larger than usual in France and Italy especially, and to a less striking extent in the countries of central Europe. All told, European importing countries apparently entered the crop year 1929-30 in somewhat the same position regarding stocks as in 1924-25; the outstanding difference is not in the size of stocks, but in the size of the prospective crops, which are much larger this year than in 1924.

¹ *Corn Trade News*, July 17 and 24, 1929.

The situation in Russia is even more obscure; but stocks were presumably lower than on August 1, 1928, though not so low as they were following the short crops of 1923 and 1924.

SUMMARY OF STOCKS

The importance of the world carryover of wheat into 1929-30 is such as to justify emphasis and an attempt to summarize the world position. Never before, at least in post-war years, has the wheat situation at the opening of a crop year involved on the one hand a relatively short crop and on the other an inward carryover of such magnitude as that of 1929-30. Unfortunately even rough numerical expression cannot be given to stocks in all countries. Table 2

TABLE 2.—APPROXIMATE CARRYOVERS OF WHEAT IN EXPORTING COUNTRIES, AFLOAT FOR EUROPE, AND IN PORTS OF THE UNITED KINGDOM, AUGUST 1, 1924-29*

Location	(Million bushels)					
	1924	1925	1926	1927	1928	1929
United States ^a	165	135	111	138	142	262
Canada	41	26	35	48	78	104
Canadian in United States ^b	3	3	4	5	14	23
Argentina	66	56	61	65	80	100
Australia	38	36	30	41	40	43
Afloat for Europe	42	33	39	46	45	38
United King- dom ports . .	10	9	4	8	10	6
Total	365	298	284	351	409	576

* Data summarized from Appendix Tables VII and XI, except as noted.

^a Data as of July 1. Includes flour stock in city mills.

^b Canadian wheat in store in lake and Atlantic ports of the United States. Data from *Canadian Grain Statistics*, as of dates nearest to August 1.

shows such estimates as may be presented as accurate within reasonable but rather elastic limits; the figures involve only the stocks in major exporting countries, afloat for Europe, and in ports of the United Kingdom, and were reached by methods set forth in earlier pages.

Total stocks in these positions reach about 576 million bushels in 1929, some 167 million more than in 1928 and 211 million more than in 1924. The United States Department of Agriculture estimated on July 15 that the carryover in somewhat these same positions as of July 1¹ might be expected to prove only 125 million bushels larger this year than last.² Broomhall, writing on July 31, estimated that stocks in about these same positions were around 172 million bushels larger in 1929 than in 1928. As we have seen, there is good reason to suppose that the Danubian countries hold larger stocks than they did in 1928 or 1924, and that European importing countries hold stocks larger than those of 1928, though probably little if any larger than those of 1924. India presumably has considerably smaller stocks than in 1924, and somewhat smaller than those of 1928. It is difficult, of course, to summarize with precision the situation of importers this year as compared with earlier years. On the whole, however, importing countries may be said to have in sight or at least available to fill their requirements much more old-crop wheat, domestic and in exporting countries together, than they have had in any of the preceding five years. The fact is of particular significance in evaluating the international statistical position for 1929-30 in comparison with the positions in 1924-25 and 1925-26.³

III. WHEAT PRICE MOVEMENTS

THE COURSE OF PRICES

Fluctuations in wheat prices during April-July presented features of unusual interest. In the United Kingdom and in the principal exporting countries, prices declined fairly steadily and extensively during March-May, an occurrence unprecedented since 1910 in these months of the year. During June-July, particularly in

the middle four weeks of the period, prices rose precipitously—somewhat the most ex-

¹ The outstanding differences in compilation between our estimates and the Department's are that we include flour stocks in city mills in the United States, total stocks rather than the exportable surplus in Argentina, and stocks on farms, in mills, and in transit in Canada instead of the Canadian visible alone.

² The figure was revised to 136 million on August 15.

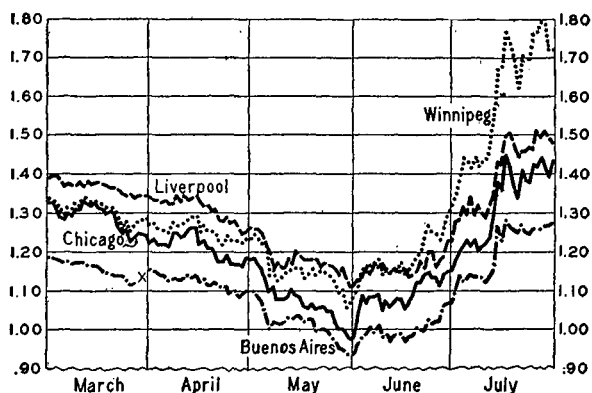
³ See below, pp. 453-54.

treme rise recorded in post-war years in these months, but one resembling in its timing, extent, and causes the upswing of June–July 1924. As usual, diverse movements were shown as between cash and futures prices, and as between both cash and futures prices in different markets. It is impossible to present or analyze all of these diversities, and more difficult than usual to explain the general movements common to most markets.

Chart 3 shows the daily closing prices of July futures (August in Buenos Aires) in the world's leading markets. Ignoring

CHART 3.—DAILY CLOSING PRICES OF JULY WHEAT FUTURES IN LIVERPOOL, CHICAGO, AND WINNIPEG, AND OF JULY AND AUGUST FUTURES IN BUENOS AIRES, MARCH–JULY 1929*

(U.S. dollars per bushel)



* Data from *Daily Trade Bulletin, Chicago*, and *Times of Argentina, Buenos Aires*. The X indicates a change in future.

minor fluctuations for the moment, one may say that the general movement was downward throughout April and May, upward from June 1 to July 17, and thereafter without trend, though fluctuating rather widely from day to day.

The downward tendency during April–May was a continuation of a movement begun as early as February 15–20. In retrospect, the major factors in the decline appear to have been the pressure of extraordinarily heavy supplies of wheat (especially those in Argentina, which were continuously pressed upon the import markets after the huge new crop began to move in volume), coupled with a favorable outlook for new crops, especially of United States winter wheat. The March–May de-

cline would of course have appeared less marked in the absence of an upswing in prices in January–February. Just as this upswing in prices reflected in part the influence of weather conditions which seemed to presage heavy winterkilling,¹ so the subsequent decline in prices represented in some part the accumulation of evidence that winterkill was not exceptionally extensive. To this were added, as the days passed, really favorable early growing conditions in the United States. One cannot accurately appraise how far the pressure of heavy stocks, how far favorable crop prospects, were responsible for the downward drift of prices; clearly the one influence supplemented the other. To judge by the comments in trade journals, however, the pressure of supplies was the more important. The central feature of the situation was pressure of offers by Argentine and Canadian exporters, and this pressure sprang primarily from the huge stocks available for sale; the crop outlook seemingly played a secondary though not a negligible rôle, if only because the outlook was at that time necessarily entirely obscure in Argentina, far from clear in Canada, and favorable and uncertain in the United States but unfavorable and uncertain in Europe.

The decline, as usual, was interrupted, and was more marked in some markets than in others. There was a slight bulge in prices from April 8 to 15, most marked in Chicago and scarcely apparent in Buenos Aires. This reflected, in its inception, expectations that the bills for farm relief to be introduced in the United States Congress after April 13 would in some way provide the means whereby the "burdensome surplus" might be removed from the domestic market; and, in its subsidence, disappointment over the bill as introduced. During the March–May period, the Chicago future declined more than any other; thus the spread between the Chicago and the Liverpool July futures was only 6 cents on March 1, but was 13 cents on May 31. Ap-

¹ Other influences were operative, among them the atmosphere engendered by a bullish stock market in the United States, hopes that legislative action to raise wheat prices might be taken, and a widespread feeling that prices had already moved downward about as far as could be expected.

parently the period represented an unsuccessful attempt at adjustment, whereby American prices should be brought into a relationship permitting an increase in exports which might bring the total for the year to a level more normal for a year of large domestic crop. The Winnipeg future on the whole declined less than the Liverpool—partly, perhaps, the expression of a seasonal movement, but more probably a reflection of deficient subsoil moisture in Canada, which (taken alone) augured a moderate or a short new crop.

In some journals¹ the decline in prices of April–May was attributed largely to “misdirected efforts to put up the price of wheat” in the United States, which took essentially the form of statements that railway freight rates must be reduced in order to move our burdensome surplus to export. It is impossible to ascertain how far the wide publicity given to these statements was responsible for the decline. Perhaps the emphasis placed upon our heavy stocks contributed somewhat by encouraging bearish sentiment. But in retrospect the decline seems more reasonably explicable, at least the larger part of it, by the joint action of actual heavy stocks and favorable crop prospects, as described above. The effect upon prices of reductions of railway freight rates both in the United States and Canada in the latter half of May is likewise uncertain. One cannot demonstrate conclusively that the benefit of the reductions accrued either to foreign importers and consumers or to American and Canadian exporters and producers. But it is pertinent to observe that British trade journals regarded the reduced rates as a depressing influence on the import markets and not all American journals regarded them as tending to maintain prices in United States markets; and that the evidence is fairly conclusive that the great advance in ocean freight rates in September–October 1926 (a reversed illustration of a change in costs of transport) tended to increase import prices rather than to decrease export prices.² Regardless of the incidence of the reduced rates effective in

May, they were in themselves not large enough to have altered in a significant degree the broad picture of the decline in prices common to all four markets.

The advance in prices during June–July was spectacular, concentrated as it was practically within 30 days, from June 17 to July 17. Between these dates futures prices as shown on the chart moved upward 62 cents in Winnipeg, 39 cents in Chicago, 34 cents in Liverpool, and 31 cents in Buenos Aires. The maximum increase during June–July was larger—70 cents in Winnipeg, 47 in Chicago, 39 in Liverpool, and 35 in Buenos Aires. In Chicago at least, there has not been so marked an increase in prices during these months over the whole period 1881–1928, excluding the war years. The closest analogy is with 1924. In that year, maximum increases during June–July amounted to 49 cents in Winnipeg, 33 cents in Chicago, 36 cents in Liverpool, and about 44 cents in Buenos Aires. In 1924, as in 1929, Winnipeg advanced more rapidly than the other markets, because crop damage was more marked in Canada than elsewhere. But the Liverpool and Buenos Aires markets advanced more rapidly in 1924 than in 1929, presumably because Argentina had a much smaller exportable surplus in 1924, and the European crop outlook was unfavorable. Chicago prices rose more this year than in 1924; explanations are not easy, in view of the much heavier stocks this year, but one may at least point out that the American crop outlook improved in 1924 but grew worse in 1929 during June–July, and that the supporting influence of farm relief legislation was not present in 1924.

Many interrelated factors were responsible for the sharp advance this year. Its inception appears to have been in the United States, where on June 3 and 4 encouragement was afforded to traders by dispatches from Washington which were interpreted to mean that governmental action would be taken to raise wheat prices after passage of farm relief legislation. The action of the Chicago markets was reflected in others, though not fully; and the spread between Chicago and Liverpool prices, which had widened to 13 cents on May 31, was narrowed again. For about

¹ See especially an editorial in *Northwestern Miller*, May 15, 1929, p. 619.

² See *WHEAT STUDIES*, January 1927, III, 152–56.

two weeks after June 4 the movement of prices was horizontal or slightly downward. During this period crop progress was on the whole favorable. Lack of sub-soil moisture in Canada and drought in Argentina and Australia evoked comment as potential causes of damage, though not at the time actually damaging if rain should come later. The sustained and rapid rise in prices began about June 18 on news of heavy damage, as shown by threshing returns, to American winter wheat in the Southwest, and to reports of damage to spring wheat from continuing dry and hot weather both in the United States and Canada. Toward the end of the month crop reports from the United States winter-wheat belt became more favorable; but the continued drought in the North American spring-wheat belt gave rise to almost daily increases in prices during late June and the first half of July, except on occasional days of reaction or of reports of more or less rain. The greatest advances were recorded on July 13, 15, and 17—not, apparently, because these were the particular days in which crop damage was greatest, but rather because the sentiment of traders crystallized and speculative activity became marked. The volume of trading in futures on the Chicago markets was larger than ever before on June 15, 17, and 18, around 140 million bushels daily.¹ Probably the week ending July 20 witnessed the greatest activity in wheat futures trading known in post-war years, in Winnipeg and Liverpool as well as in the United States.

¹ The course of speculative activity, as shown by the average daily volume of futures trading in all United States markets, was as follows, in million bushels during April–July 1924–29:

Year	April	May	June	July
1924.....	18.0	14.4	34.0	53.3
1925.....	59.3	60.3	67.6	56.2
1926.....	55.8	48.8	46.3	57.5
1927.....	33.8	50.4	44.8	40.7
1928.....	66.2	56.6	36.2	39.8
1929.....	52.4	48.2	55.6	111.1

It is interesting to observe that, while trading was not of exceptional volume under the declining prices of April–May, it became relatively large in June, and quite without precedent in July.

Deterioration of the North American spring-wheat crop continued after July 18; but reports of damage lost much of their force, as was only natural after the extensive trading and huge advance in prices of July 15–18. To the end of the month prices fluctuated erratically, but scarcely exceeded the peak reached on July 17–18. On August 2–6 there were fairly sharp declines to a level 10–15 cents lower than the earlier peak, induced in some part by rather more favorable weather in Canada, but more by extremely heavy receipts of wheat at United States markets which accentuated the existing relative weakness in cash grain. But there were sharp upward recoveries in the week ending August 17, only to be followed by another decline.

A summary of the several factors influencing the price movement of June–July is perhaps desirable at this point, even if no device appears for attributing appropriate weight to each. The continued drought in Canada and the American spring-wheat belt now appears to have exerted the greatest influence toward price increase. Deterioration of the United States winter-wheat crop contributed to it, especially in its earlier phases; so also did continued drought in Argentina and eastern Australia, and expectations of governmental attempts at price-raising in the United States. The advance might have been greater in the absence of fairly consistent improvement in European crop prospects, and of huge stocks of wheat carried over from the crop of 1928, which created a relatively weaker situation on the cash than on the futures markets, especially in the United States. This situation, as in earlier months of the crop year, has maintained unusually wide spreads between near and distant futures in the United States and in Liverpool (the distant being at exceptional premiums), and has kept the July future in Winnipeg from standing at all close to its usual premium over the October.

European prices of domestic wheats failed to follow the movement of prices in exporting countries at all closely, especially in France and Italy, where stocks of old-crop wheat were large and the new crops promised well. In these countries prices were lower in the first half of July than they

had been in May.¹ In Germany, domestic prices followed the international market more closely. Prices in Hungary and Jugoslavia appear to have behaved in much the same manner as in France and Italy, and for similar reasons.

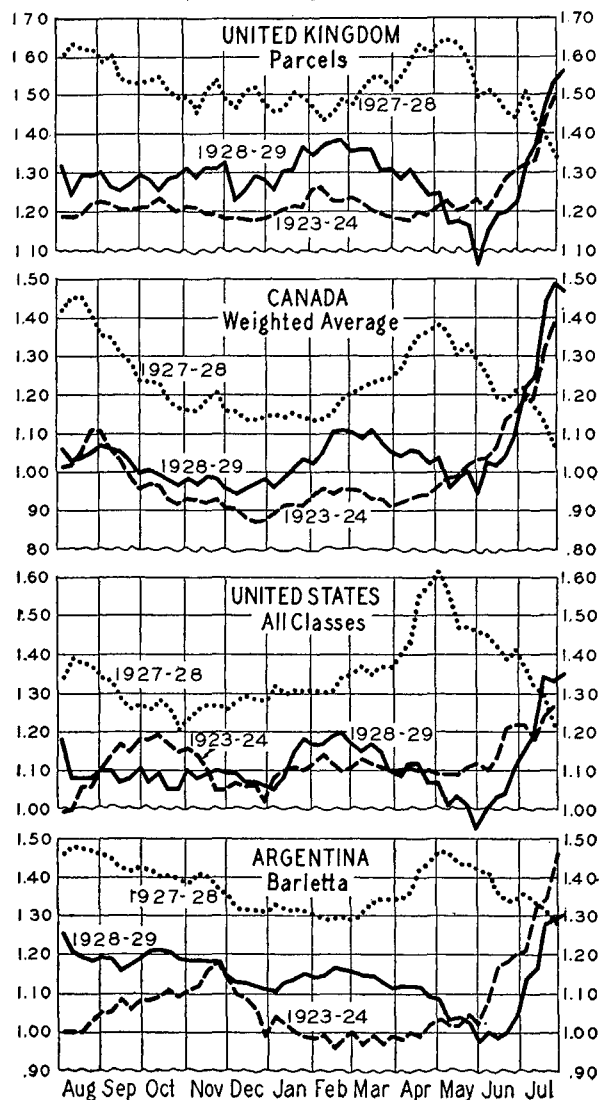
THE LEVEL OF PRICES

Chart 4 shows weekly average cash prices, weighted and unweighted, in the United Kingdom, Canada, the United States, and Argentina. It serves to emphasize the relatively low post-war level to which wheat prices were brought by the decline of April–May. At their lowest during the last week in May, parcels prices were over 10 cents lower than they were at any time in 1923–24, the year of lowest post-war prices. The other series, particularly for Canada and Argentina, show a less marked contrast. To a considerable degree this reflects the fact that different qualities and quantities of wheat enter into each of the various series as between the two years. Argentine Barletta wheat, for example, was undoubtedly of better quality than in 1924; and the weighted averages of United States wheat prices are made up from carlot sales in six markets (including Omaha, a relatively low-price market) in 1929 but only five in 1924. One may reasonably suppose that weighted average prices at Winnipeg failed to fall to as low a relative level as those in the United Kingdom and the United States principally because even so early in the season the deficiency of subsoil moisture in Canada tended to sustain prices there.

By the end of July, after the spectacular advance, the comparative level of prices was radically altered. Parcels prices stood at about \$1.55 per bushel, not much higher than in the last week of July 1924, but about 20 cents higher than a year before. Canadian prices were 10 cents higher than in 1924, and over 40 cents higher than in 1928. United States prices were only about 6 cents higher than in 1924, and only 11 cents higher than in 1928. Argentine prices were about 15 cents lower than in 1924, and almost the same as in 1928. This contrast illustrates the joint effect of changing prospects for new crops and of existing heavy

¹ See Appendix Table X.

CHART 4.—WEEKLY AVERAGE PRICES OF WHEAT IN LEADING EXPORTING AND IMPORTING MARKETS, 1923–24, AND FROM AUGUST 1927* (U.S. dollars per bushel)



* United Kingdom prices are averages of sales of wheat parcels in British markets, from *London Grain, Seed and Oil Reporter*; Canadian prices are weighted averages of different grades of wheat at Winnipeg (see *WHEAT STUDIES*, March 1929, V, No. 5); United States prices are weighted averages of all classes and grades of wheat in six markets (five markets in 1923–24), from *Crops and Markets*; Argentine prices are Friday quotations from *International Crop Report and Agricultural Statistics*, for 1923–24, and averages of daily prices from *Revista Semanal* from August 1927. Argentine prices for the last two weeks are estimated from futures.

stocks. The details need not be considered here. It suffices to emphasize the fact that Canadian prices stood relatively high in relation to other markets because the Canadian crop outlook turned so markedly

unfavorable, and that Argentine prices stood relatively low because of the existence of unusually heavy stocks of old wheat in Argentina.

The extreme advance of June–July did not suffice to bring wheat prices to a level notably high by comparison with earlier years. At about \$1.53 per bushel, British parcels prices were some 33 cents higher than they were at the end of July 1923 and about 19 cents higher than in 1928; but they were about the same as in 1924, and were 21 cents lower than in 1925, 18 cents lower than in 1926, and 7 cents lower than in 1927. Yet it is probable that the outlook for new crops for the world as a whole was worse than in any of these years—even in 1924, if we consider that (disregarding carryovers) much more wheat must be produced in 1929 than in 1924 in order to satisfy increased demand at equivalent prices. From this point of view also the significance is brought out of the huge stocks carried out of 1928–29. Without them, the level of prices must inevitably have proved much higher.

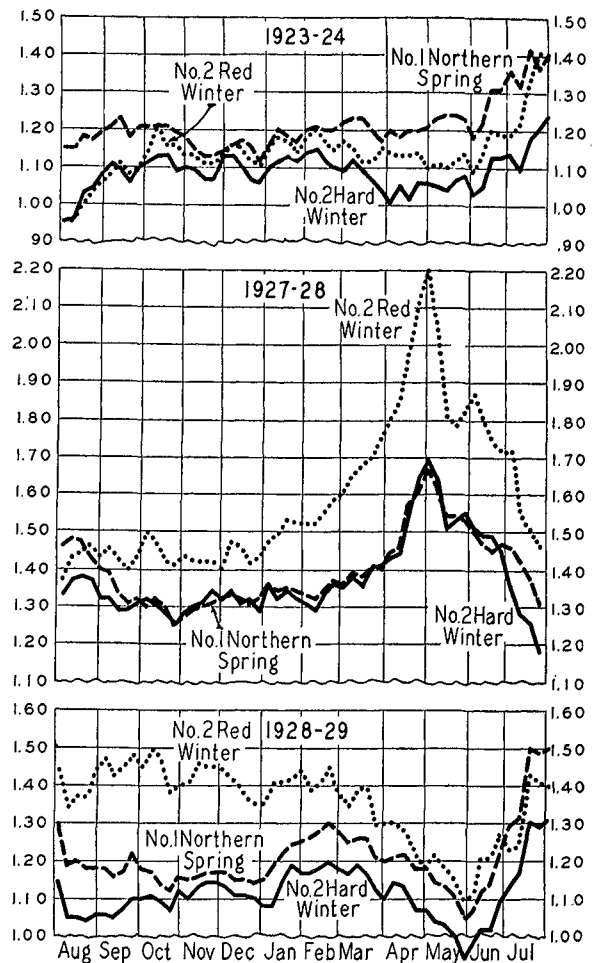
UNITED STATES CASH PRICES

Chart 5 shows the course and level of weekly weighted average prices of important grades of United States wheat, with comparisons. The transition to the new crop year brought significant changes in relationships. No. 2 Red Winter wheat at St. Louis continued to sell at higher prices than the other two grades until the first week in July, though its premium over No. 1 Northern at Minneapolis was much reduced in April–June from what it had been in earlier months. This reduction in premium represented the outlook for a fairly good crop of soft red winter wheat, considerably larger than the crops of 1927 and 1928. In the course of June and July, as the outlook for spring wheat became increasingly bad, the prices of No. 1 Northern rose much more rapidly than the prices of either No. 2 Hard or No. 2 Red Winter; the increase from the low point at the end of May to the peak at the end of July was 44 cents, 35 cents, and 31 cents respectively.

Throughout most of the crop year 1928–29, cash wheat in the principal markets of the United States has remained cheap rela-

tive to futures, a phenomenon traceable to the persistently large commercial stocks, and related to the exceptional premiums of distant futures over the near. The situation was necessarily a favorable one for

CHART 5.—WEEKLY AVERAGE CASH PRICES OF TYPICAL WHEATS IN UNITED STATES MARKETS, 1923–24, AND FROM AUGUST 1927* (U.S. dollars per bushel)



*No. 2 Red Winter at St. Louis, No. 2 Hard Winter at Kansas City, and No. 1 Northern Spring at Minneapolis. Data from *Crops and Markets*.

any dealer or miller in a position to buy cash wheat of contract grade, hedge it in a distant future, and store it for future delivery; it was this situation, itself a result in part of restricted exports, that was the immediate though not the fundamental cause of the huge accumulation of wheat stocks in elevators and in mills characteristic of the crop year.

Toward the end of the year, as the flow of new-crop wheat became more than seasonably heavy, the weakness of cash wheat prices relative to futures appears to have been accentuated, a natural result with storage space already well filled. In Chicago, cash wheat in mid-August sold at times for 8 cents under the September future, with only a few weeks to carry the wheat to delivery. The f.o.b. prices of cash wheat at Gulf ports declined to unusually low levels in relation to Chicago futures prices as wheat from the new crop (which could not be moved to inland terminal centers largely on account of differentials in freight rates) came forward in volume. This situation, rather than any readjustment of Chicago to Liverpool prices, permitted fairly heavy exports in July. Even so, f.o.b. prices were not sufficiently depressed to permit export sales large enough to cover arrivals from the country; and late in July temporary embargoes had to be put in effect at Galveston and Houston.

It is not clear that the reductions in rail-

way freight rates ranging from 2 to 7 or 8 cents per bushel according to region made in the latter half of May had any measurable effect toward increasing the receipts of wheat at Gulf ports, though this is possible because the costs of transporting wheat from interior points to the Gulf ports were on the whole reduced rather more than the rates to interior terminal markets. It seems likely, however, that these reductions failed to enlarge the export movement from the United States as a whole; but even so much cannot be demonstrated conclusively in the absence of knowledge concerning what the export movement would otherwise have been.

With the new crop of wheat in the Southwest showing generally higher protein content than the crop of 1928, premiums for protein at Kansas City tended to decline in July and early August. This occurred at Minneapolis also, though at that market the decline in premiums was based more upon anticipation than upon actual experience with the new crop of spring wheat.

IV. INTERNATIONAL TRADE

The movement of wheat and flour in international trade was restricted during April-July. Nevertheless, the volume of trade for the crop year 1928-29, as was anticipated earlier in the year, was of record size. Broomhall's shipments for the crop year totaled 928 million bushels (this is the figure for 53 weeks; that for 52 weeks is 917 million), over 100 million bushels more than in any other year, and above his earlier estimates which were progressively increased from 824 million bushels in August 1928 to 896 million in May 1929. Preliminary data point to net exports of about 935 million bushels, some 15 million below our own estimate calculated in May. Huge crops in exporting countries, and extraordinarily heavy imports by ex-European countries encouraged by low prices, were the outstanding factors which account for the record volume of trade in 1928-29.

VOLUME AND COURSE OF TRADE

According to Broomhall's data, as shown in Table 3, overseas shipments of wheat

and flour during April-July reached 279 million bushels, a fairly large figure, but one slightly exceeded in the same months of 1924 and 1927, and almost equaled in 1928. Measured in terms of the percentage of the yearly shipments which occurred in

TABLE 3.—INTERNATIONAL WHEAT AND FLOUR SHIPMENTS (BROOMHALL) BY DESTINATION*
(Million bushels)

Year	April-July (18 weeks)			August-July (52 weeks)		
	Total	To Europe	To ex-Europe	Total	To Europe	To ex-Europe
1920-21.....	235.3	214.6	20.7	591.0	541.5	49.4
1921-22.....	206.1	181.3	24.8	647.1	546.7	100.4
1922-23.....	231.7	200.7	31.0	676.4	585.9	90.5
1923-24.....	283.3	246.0	37.3	775.3 ^a	626.5 ^a	148.8 ^a
1924-25.....	188.2	169.2	19.0	715.2	639.7	75.5
1925-26.....	225.4	190.0	35.4	667.6	532.3	135.3
1926-27.....	282.5	233.3	49.2	814.4	682.4	132.0
1927-28.....	268.2	218.0	50.2	792.8	661.8	131.0
1928-29.....	278.9	213.7	65.2	928.1 ^a	703.1 ^a	225.0 ^a
Average						
1909-14.....	218.2	189.7	28.5	624.7	542.7	82.0
1923-28.....	249.5	211.3	38.2	753.0	628.5	124.5

* Data from Broomhall's *Corn Trade News*.

^a Fifty-three weeks.

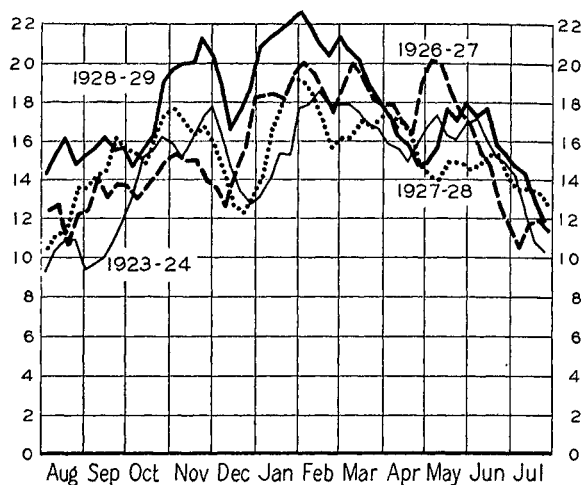
August–July, however, the movement this year was distinctly small. April–July shipments constituted only 30.1 per cent of the crop-year total, as against 36.5 per cent in 1924, 34.6 per cent in 1927, and 33.8 per cent in 1928. This is the smallest figure since the war except for 1925, when prospects for a large European crop following a very short one curtailed shipments to such an extent that only 26.3 per cent of the total movement in 1924–25 occurred in the closing four months of the crop year. The events of 1929 thus were such as to result in a fairly sharp year-end reduction in overseas exports from the levels which were reasonably to be anticipated under normal progress of new crops and in the absence of any radical change in wheat prices.

It is impossible to segregate all of the influences bearing upon this reduction. Chart 6 shows Broomhall's weekly shipments in terms of three-week moving averages, and permits analysis of the periods in which the most striking reduction took place. The seasonal trough was perhaps exceptionally low in April, at least for a year in which shipments had previously been maintained on such high levels. The peak in late May and early June, which always accompanies the opening of navigation on the Great Lakes, seems decidedly low in view of the huge stocks accumulated in Fort William and Port Arthur and in Duluth-Superior. It is likely that declining prices in April–May evoked resistance by exporters which tended to curtail the export movement, especially in Australia; and importers, faced with an outlook for large new crops practically throughout the Northern Hemisphere, may have curtailed their purchases on the declining market. These hypotheses are difficult to corroborate, for it is never feasible to ascertain with precision exactly how importers operate, since at times they buy actively on a falling market, at other times on a rising market. Explanation of the sharply declining world shipments in June–July is easier to find. With crop prospects turning unfavorable in North America and world prices rising, holders in Canada and the United States especially were encouraged to refrain from pressing their offers despite

the heavy stocks; and importers, faced with a favorable outlook for European crops and with liberal stocks everywhere, were encouraged to resist the price advance and

CHART 6.—INTERNATIONAL SHIPMENTS OF WHEAT AND FLOUR, WEEKLY, 1923–24, AND FROM AUGUST 1926*

(Million bushels; 3-week moving average)



* Broomhall's data, from the *Corn Trade News*.

to curtail their purchases. Somewhat the same thing occurred in June–July 1924, though in that year European crop prospects were less favorable.

SOURCES OF EXPORTS

In the aggregate, the movement of wheat from exporting to importing countries during April–July was fairly close to our expectations expressed in May,¹ though somewhat below. The quantities furnished by the several countries were more markedly different. The actual movement is shown, with comparisons, in Table 4. Canada exported considerably less wheat and flour than we anticipated earlier; Argentina, the United States, and the Danube countries exported somewhat more; Australia somewhat less.

In view of the record accumulation of stocks in the United States, April–July exports were remarkably small, only 42.8 million bushels, the smallest figure of the past seven years except 1924 and 1928. Do-

¹ See *WHEAT STUDIES*, June 1929, V, pp. 212–14.

mestic prices remained too high as compared with prices in other exporting countries, notably Argentina, to permit exportation consistent with the size of domestic supplies. The situation was one established in the early months of the crop year 1928-29, and is scarcely amenable to discussion in brief space.¹ The April-July movement

the heavy carryover, the fairly large new crop in the Southwest, and rapid marketing. They were some 7 million bushels larger than the exports of July 1928, however; hence net exports (including shipments to possessions) from the United States for the crop year August-July totaled 154 million bushels.

TABLE 4.—INTERNATIONAL SHIPMENTS AND NET EXPORTS OF WHEAT AND FLOUR FROM PRINCIPAL EXPORT AREAS, APRIL-JULY, 1922-29*

(Million bushels)

April-July	International shipments (Broomhall)								Net exports from			
	Total	North America	Argentina	Australia	Russia	Balkans	India	North Africa and Chile	United States	Canada	Argentina	Australia
1922.....	206.4	105.6	61.2	36.8	...	2.8 ^a	....	...	55.7	47.8	58.1	32.3
1923.....	231.6	131.9	60.7	15.8	...	4.7 ^a	18.5	...	45.1	66.2	57.1	18.0
1924.....	283.3	144.0	86.4	29.9	4.0	7.1 ^a	11.8	...	28.4	103.0	75.6	28.8
1925.....	188.0	104.2	31.0	44.3	...	4.0 ^a	4.5	...	43.4	54.2	31.8	48.9
1926.....	224.8	138.8	42.0	22.8	7.6	7.6	3.4	3.0	45.9	83.9	38.7	22.8
1927.....	283.2	141.6	71.2	48.8	8.0	5.6	7.6	.4	50.7	82.6	65.7	44.6
1928.....	268.0	144.8	74.4	33.2	0.0	7.2	3.6	4.8	25.9	106.4	62.4	30.4
1929.....	278.9	144.8	89.1	33.4	0.0	9.1 ^b	.2	3.3 ^b	42.8	92.0	86.7	31.0 ^c

* Shipments figures are Broomhall's cumulative totals for eighteen weeks from the *Corn Trade News*. These totals and their distribution differ slightly from the totals in Table 3, p. 447, and the weekly data given in Appendix Table V. Net exports are official data.

^a Includes also shipments from other areas.

^b Approximate distribution.

^c June and July exports estimated from Broomhall's shipments.

was of about the magnitude to be expected from analysis of the seasonal movement of net exports in past years, but slightly larger on account of a considerable spurt of exportation in May, when net exports reached 14.6 million bushels. Some 6 million bushels of the May exports consisted of wheat (presumably durum) moved from Duluth at the opening of navigation. Without these exports from Duluth, the April-June exports of 30.3 million bushels would have approximated our estimate of 25 million more closely, and net exports (including shipments to possessions) for the crop year July-June would have fallen almost exactly at our May estimate of 140 million bushels rather than 7 million above. No complete readjustment of Chicago futures prices to those at Liverpool occurred in July, and July net exports of 12.6 million bushels were accordingly small in view of

Canadian net exports of 92.0 million bushels during the four closing months of the year were notably small in view of the accumulation of stocks remaining in the country on March 31. In 1928, when Canadian stocks on March 31 were 225 million bushels, net exports in April-July reached the record figure of 106 million bushels. This year, with stocks on March 31 almost 20 million bushels larger, net exports might reasonably have been expected to prove larger, but in fact they were 14 million bushels smaller. In general, the smaller exports this year reflect the much less favorable outlook for the new crop, particularly in June-July, and the attendant increase in Canadian prices relative to those in other export markets. Canadian net exports of 20.7 million bushels in July especially were smaller in 1929 than in 1928, by some 15 million bushels. The distinctly unfavorable progress of the new crop thus serves largely to explain why Canadian net exports of 406 million bushels for the crop

¹ See above, however, p. 438. We shall deal more fully with this subject later, in our review of the crop year 1928-29.

year August–July 1928–29 fell below our May forecast of 430 million bushels.

Argentine net exports of some 87 million bushels in April–July were of record size for the period, as December–March exports had been. The huge crop of 1928, by far the largest of any on record, was clearly responsible for the extremely large exports in both periods. There is no evidence suggesting that wheat has at any time been hurried out of Argentina at a more rapid rate than usual; stocks seem to have been built up; and the export movement might indeed have been greater in the absence of a dockers' strike at Rosario, the leading shipping port, during the last half of July. As we have attempted to show above,¹ the crop of 1928 now seems to have been larger than the evidence earlier available led us to suppose, and this accounts for the fact that April–July and August–July net exports from Argentina somewhat exceeded our May forecasts.

Australian exports of some 31 million bushels were somewhat smaller than was to be expected from the size of the crop of 1928 and the usual seasonal movement of exports. Net exports in April, 11.7 million bushels, were not strikingly small; but with declining prices in May they fell to a much lower level and, so far as can be judged from Broomhall's shipments, were smaller in June and July 1929 even than in 1928. Unfavorable new-crop prospects seem to have restrained the export movement somewhat in June and July.

Among the minor countries ordinarily listed as exporters, the Danube and northern African countries continued to export moderate quantities of wheat. Hungary and Jugo-Slavia, in particular, with large stocks of old wheat and with fair new crops in prospect, shipped rather large quantities in June and July as world wheat prices rose sharply. In July, for the first time in the crop year 1928–29, appreciable exports were shipped by these countries to western Europe; and for some weeks Danubian wheat was offered at even lower c.i.f. prices than Argentine, which had persistently undersold comparable types for months. In-

dia shipped very little, some of her shipments being re-shipped Australian wheat, and was a net importer in April, May, and June. As in earlier months, Russia neither exported nor imported appreciable amounts of wheat. Confidently expressed and frequently reiterated expectations that Russia must import considerable quantities in the course of the crop year were not fulfilled.

DISTRIBUTION OF IMPORTS

An outstanding feature of the distribution of April–July imports was the relatively large quantity of wheat shipped to ex-European destinations. According to Broomhall's shipments data summarized in Table 3 (p. 447), ex-European countries took some 65 million bushels of wheat during the period, 15 million more than in 1928, when April–July shipments to these countries were previously largest. This quantity was 23.4 per cent of all shipments, as against 18.7 per cent in 1928. In August–March, shipments to ex-Europe constituted 24.6 per cent of total shipments; hence there was a slight decline in the relative proportion of ex-European takings. That the proportion remained so large was due chiefly to heavy purchases encouraged by declining prices in April–May. With rising prices in June–July, purchases became much smaller in amount, but shipments of supplies previously contracted continued at a high level.²

The distribution of Broomhall's shipments to ex-Europe in the closing eighteen weeks of 1928–29 is as follows, in million bushels:

Destination	April–July	
	1927–28	1928–29
Central America ^a	25.2	24.9
China and Japan	10.2	17.2
Brazil	8.7	10.8
Egypt	3.8	5.0
North and South Africa.....	2.2	1.6
India ^b	0.0	4.7
Others	0.1	1.0
Total	50.2	65.2

^a Includes Venezuela, West Indies, Dutch East Indies, etc.

^b Chile, Peru, Syria, Palestine, New Zealand.

Larger shipments to China and Japan, India, Brazil, and Egypt in 1929 than in 1928 account for the major part of the increased ex-European takings. In the aggregate the

¹ See p. 439.

² See Appendix Table V.

increase over 1928 reflects the relatively low prices of wheat which prevailed until near the close of the crop year 1928-29. It is worthy of note that shipments of 4.7 million bushels to India, though larger than in 1928, were much smaller than they had been in December-March, on account of the advent of the new crop in March-May.

A satisfactory analysis of the distribution of European imports during April-July is not at the moment feasible in the absence of official net import statistics for July. Broomhall's distribution of shipments is inadequate because so much wheat is recorded as shipped "to orders," and because wheat does not reach the designated destinations in the quantities set forth. Shipments to Europe by destination in the closing 18 weeks of 1928-29 and 1927-28 were, however, as follows, in million bushels:

Destination	April-July	
	1928	1929
Orders	53.7	45.8
United Kingdom	55.0	49.2
France	10.4	15.2
Italy	24.4	21.2
Germany ^a	19.7	19.7
Belgium	20.2	23.9
Holland	17.2	19.3
Scandinavia	5.1	6.1
Greece ^b	5.8	5.7
Spain ^c	2.0	3.1
Austria ^d	4.5	4.5
Total	218.0	213.7

^a Includes Poland and Czecho-Slovakia.

^b Includes Turkey.

^c Includes Spanish colonies and Portugal.

^d Includes Malta.

In the aggregate, shipments of 214 million bushels to Europe were relatively small, quite the reverse of shipments to ex-Europe. In absolute terms, larger shipments to Europe had been made in four of the preceding eight years, not only in 1928, but also in 1927, 1924, and 1921. In terms of the percentage of the total crop year's shipments to Europe, April-July shipments in the past eight years have constituted from 33 to 40 per cent except in 1925, when the percentage was 26.5. This year the April-July shipments were only 30.4 per cent of the crop year (53-week) total, so that the movement of wheat and flour to Europe in the last third of the year in relation to the movement in the preceding

months was distinctly on the small side. This resulted from the rising prices of June-July, together with the promising outlook for the European crop. In the same months of 1925, the causes of reduced takings by Europe were falling rather than rising prices, together with a favorable outlook for domestic wheat crops.

According to Broomhall's data, most European countries imported rather more wheat in April-July 1929 than in 1928. Great Britain, Italy, and Greece were the chief exceptions, and it was the smaller takings of these countries combined with smaller shipments to orders that brought the 1929 total below that of 1928.

Net import statistics for April-June in some instances support inferences to be drawn from Broomhall's data, but in other instances they do not. For the principal importing countries of Europe, April-June net imports were as follows, in million bushels:¹

	April-June	
	1928	1929
Great Britain ^a	75.9	76.0
Italy	34.3	26.3
Germany	21.8	20.9
France	6.3	17.2
Belgium	9.8	10.6
Holland	7.2	7.0
Switzerland	3.2	4.8
Scandinavia ^b	6.6	10.8
Czecho-Slovakia	4.9	3.8
Poland	5.0	.3
Total	175.0	174.7

^a April-July, including an estimate of July net imports of the Irish Free State.

^b Norway, Denmark, and Sweden.

British imports were not smaller this year than last, as Broomhall's data suggest, but were a trifle larger. April-May imports were not only larger this year, but were the largest in five years; but June and July imports, especially the July, were the smallest in five years. Apparently British importers succeeded in concentrating their imports in the periods of lowest prices.

Italian imports were much reduced this year in April-June. Imports earlier in the year had been extraordinarily heavy, when imported wheat was cheap in relation to domestic on account of the marketing tac-

¹ See Appendix Table IV for monthly data in 1929.

tics of Italian producers. In the final months of the year domestic supplies became cheap in relation to foreign, as these tactics were altered on the prospect of a large new crop, and imports were reduced. An increase of the tariff effective on May 23 induced fairly heavy imports in anticipation of it. The marked increase in French imports was in part a reflection of the relatively low world prices of wheat prevailing throughout most of 1928-29; but some stimulus to importation in April-June was afforded by an increase of the tariff, also on May 23, as well as by restricted offerings by domestic producers. The German tariff was

raised on July 10, and here also imports were heavy in anticipation of the change; prior to April, German imports had been much smaller in 1928-29 than in 1927-28. For other countries the contrasts require no comment, the differences between April-June imports in 1929 and 1928 being much the same as those between August-March imports, and traceable to factors bearing on the two crop years rather than the final months of either. The absence of July net import statistics precludes analysis of the effect of rising prices and new-crop prospects upon importation into the various countries at the end of the crop year.

V. OUTLOOK FOR THE NEW CROP YEAR

NORTHERN HEMISPHERE CROPS OF 1929

Available data on crop production in 1929, though by no means complete or accurate at the date of writing, are nevertheless adequate to illustrate certain sharp contrasts and similarities between the supply position this year and those of other years, especially 1924 and 1928. Table 5 shows in a tentative form an important feature of the supply situation, the size and distribution of Northern Hemisphere wheat crops. The italicized figures for 1929 contain a considerable element of our own estimation, on bases set forth above;¹ for earlier years such figures represent our own corrections of standing official crop estimates in Argentina, Canada, and the United States.² Figures in roman type for all years are official or predominately so. The distribution of the Northern Hemisphere crop of 1929 on the whole resembles that of 1925 more closely than any other crop of recent years. In 1925 the North American crop was larger than that of 1929, though not strikingly so; and the crops of the Danube countries, European importing countries, northern Africa, and India were much the same in size, though a little larger in the aggregate.

¹ See pp. 432-34.

² See Appendix Table XI.

³ In this comparison we give weight to apparent official underestimates of the crops of the United States and Canada in 1928. See above, pp. 438-39.

Less is known of the outturns of direct and indirect substitutes for wheat, which are of greater importance in Europe than in North America. Current reports suggest that the rye crop in Europe will be above average in size, probably not so large as in 1928 or 1925, but much larger than in 1924. The corn crop also promises well, much better than in 1928 and perhaps as well as in 1924 and 1925; and outturns of barley and oats seem likely to be above the average of recent years. All told, European outturns of rye and the feed grains may reasonably be expected to equal or perhaps slightly to exceed those of 1928, to prove far larger than they were in 1924, and at least to equal those of 1925.

The total crop of the Northern Hemisphere (excluding Russia, China, and Asia Minor) roughly approximates 2,900 million bushels, one of the smallest in recent years. At this figure, it is over 200 million bushels larger than the short crop of 1924, but probably 450 million bushels or more smaller than the huge crop of 1928.³ By comparison with 1928, the crop of 1929 is notably shorter only in the spring-wheat belt of North America and in the Danube countries, areas which produced exceptionally large crops in 1928. Other areas apparently have somewhat larger crops. By comparison with 1924, the striking contrasts are more numerous. The United States and India have much smaller crops this year, while European importing countries, the

TABLE 5.—WHEAT PRODUCTION IN PRINCIPAL PRODUCING AREAS, PRE-WAR AND POST-WAR*
(Million bushels)

Year	United States	Canada	Soviet Russia	Lower Danube ^a	Other Europe	North Africa	India	Japan, Chosen	Northern Hemisphere ex-Russia ^b	Argentina	Australia	Southern Hemisphere	World ex-Russia ^b
1922.....	868	400	...	224	815	71	367	40	2,800	196	109	354	3,155
1923.....	797	474	419	260	989	106	372	35	3,050	248	125	427	3,475
1924.....	864	275	472	204	846	85	361	35	2,685	191	165	407	3,090
1925.....	700	430	730	296	1,094	105	331	40	3,010	191	115	360 ^c	3,370 ^c
1926.....	870	415	820	294	910	90	325	41	2,955	221	161	435 ^c	3,390 ^c
1927.....	878	480	749	272	988	106	335	40	3,115	275	117	460 ^c	3,575 ^c
1928.....	902	534	860	369	1,040	104	293	39	3,295	307	161	529 ^d	3,825 ^d
1929.....	774	260	...	297	1,080	120	318	41	2,900	...	...	...	.....
Average													
1909-13...	690	197	759 ^e	330	1,017	93	352	32	2,725	147	90	280	3,004
1923-27...	822	415	638	265	965	98	345	38	2,960	225	137	418	3,380

* Summarized from most recent official data for individual countries (see Appendix Table I), as reported by the U.S. Department of Agriculture, and International Institute of Agriculture, but figures in italics represent our adjustments for apparent underestimates of crops, as shown in Appendix Table XI, for years prior to 1928. Italicized figures for 1929 represent our approximations. Totals exclude China, Asia Minor, Brazil, and a number of small producers. All estimates are for areas within post-war boundaries.

^a Hungary, Bulgaria, Roumania, Jugo-Slavia.

^b Rounded figures.

^c Includes our estimate for Peru.

^d Includes our estimate for Peru and Chile.

^e Regarded as too low by some Soviet officials, whose estimate is 908 million bushels.

Danube countries, North Africa, and Russia¹ as well have much larger ones.

THE STATISTICAL POSITION

Any attempt to evaluate with precision the statistical position for 1929-30 in contrast with earlier years is tentative at this season. Further information is needed bearing upon the harvests in most Northern Hemisphere countries, and the crops of the Southern Hemisphere remain to be made. Certain aspects of the position have already become obvious, however.

The margin between export surpluses and import "requirements" can hardly prove as wide as it was in 1928-29. Both import "requirements" and export surpluses are clearly smaller for 1929-30 than for 1928-29. Europe needs to import less wheat because larger crops of wheat and perhaps of feed grains, and larger carryovers of rye and wheat, must more than offset the annual increase in consumption. Ex-European countries also need to import less, if only because India, Egypt, and Asia Minor have larger crops. On the other hand, exporting countries will have much less wheat to export; inward carryovers,

it is true, were far larger in the aggregate this year than last, but the reduction in the North American and Danubian crops much more than offsets this and even the best possible weather in the Southern Hemisphere could hardly result in crops there sufficiently large to compensate the deficiency. The probable net reduction in export surpluses is large enough considerably to exceed the net reduction in import requirements. A tighter international statistical position in 1929-30 than in 1928-29 is already established, whatever subsequent crop progress may be. How much tighter the position will prove this year than last is another matter, and in this determination the development of Southern Hemisphere crops in particular, but also of the European, will be of vital significance.

In the past seven years the statistical position was clearly tightest in 1924-25 and 1925-26, easiest in 1923-24 and 1928-29. The striking resemblances between the transitions from 1923-24 to 1924-25 and from 1928-29 to 1929-30 have evoked much comment from observers of the world wheat situation. In both years the transition was from a decidedly easy to a tighter international statistical position; in both years Canada experienced a reversal of crop prospects; in both years prices rose precipitously in June and July, and the

¹ Although no Russian production forecast is available for 1929, it seems clear that the crop will far exceed the short one of 1924.

movement of wheat in international trade fell off sharply; in both years carryovers were large in exporting and importing countries.

But there are no less striking differences. The most significant among these is that the world carryover on about August 1 was far larger in 1929 than in 1924; that European importing countries are harvesting crops of wheat so much larger than those of 1924 as to bring the Northern Hemisphere crop (ex-Russia and China or ex-China alone) well above that of 1924; and that the European crop of rye and the feed grains promises much to exceed the crop of 1924. Even with distinctly liberal allowances for growth in wheat requirements, it seems reasonable to suppose that world import requirements in 1929-30 must prove smaller than they were in 1924-25, partly because Russia seems less likely to require imports in the coming year. With Southern Hemisphere crops still to be made, it is more difficult to perceive whether export surpluses will prove larger or smaller than they were in 1924-25. If crops alone determined export surpluses, there would be less wheat available for export in the Northern Hemisphere in 1929-30 than in 1924-25; increases in the Danube and northern African crops might about offset decreases in the Indian, but North America could furnish less. But carryovers as well as new crops are important; and on the whole the inward carryover in the United States and Canada seems so far to exceed the carryover into 1924-25 that it fully offsets the smaller crops. Thus total exportable surpluses in the Northern Hemisphere in 1929-30 are presumably as large as or larger than those of 1924-25. If these alone needed to be considered, the statistical position would clearly be easier than it was in 1924-25, since export surpluses would be approximately similar in size while import requirements are smaller. The final outcome depends partly upon further developments in Northern Hemisphere crops, which may finally prove either smaller or larger than the tentative figures shown in Table 5; but the outturns in Argentina and Australia are of major importance. If these countries together harvest crops about like those of 1924 or

considerably larger, the statistical position in 1929-30 is likely to prove easier than in 1924-25. Seemingly only a decidedly short crop could make it equally tight.

As we have seen, the distribution of the Northern Hemisphere wheat crop of 1929 resembles that of 1925 more closely than any other in recent years. Taken alone, this distribution suggests a statistical position in 1929-30 not far different from that of 1925-26—if anything a little tighter because import requirements may well be larger this year and export surpluses smaller. But inward carryovers, especially in North America, were far larger this year than in 1925. Moreover, to some degree the tight position in 1925-26 was attributable to the poor quality of European crops, which thus far in 1929 seem to be of fairly good quality. In 1925-26 the Southern Hemisphere crops were the smallest of any harvested during 1922-28, and the Argentine in addition was of notably poor quality. If Argentina and Australia this year harvest equally poor crops, the statistical position may differ little from that of 1925-26, but it can hardly prove tighter in view of the far larger world inward carryover this year.

Thus, so far as we are able to adjudge the situation, the international statistical position in 1929-30 on the whole seems likely to prove somewhat easier than those of 1924-25 and 1925-26, but tighter than those of 1923-24 and 1928-29. The range of possibilities remains a rather wide one; but more precise comparisons will become feasible only when the approximate size of new crops in the Southern Hemisphere can be anticipated more confidently, and when more is known about outturns in North America and Europe.

INTERNATIONAL TRADE

The foregoing analysis of the distribution of 1929 wheat crops and of the international statistical position carries certain implications concerning the movement of wheat in international trade during 1929-30. The contrasts with 1928-29 will necessarily be marked.

The total volume of trade must unquestionably fall far below that of 1928-29.

European importing countries require less wheat because they have larger crops and inward carryovers; ex-European countries will import less partly because India, Egypt, and Asia Minor have larger crops, and partly because a higher level of wheat prices will lead most other ex-European countries, especially China, to purchase much less freely; exporting countries have less wheat to export. Smaller ex-European imports imply a smaller volume of trade in flour especially, and therefore a less satisfactory year for American and Canadian millers.

With her short crop Canada will inevitably export less wheat and flour than in 1928-29. Less Canadian wheat will be imported into the United States for milling in bond; and much smaller shipments from Vancouver are in prospect. The United States will probably export more at a higher level of prices, despite the smaller crop. The existence and possible operations of the new Federal Farm Board may change the outlook. The Danube countries as a group may also export more than in 1928-29, despite the smaller wheat crop. Whether Russia will export wheat is uncertain; exports are conceivable if world prices rule sufficiently high and the collecting agencies choose to pay high prices to producers, and imports are unlikely both because of the prospective level of world prices and the (apparently) good crop of cereals. India may import (net) a little if prices decline from the level of early August, but is unlikely to import as much as in 1928-29 unless the crop of 1930 is decidedly small. She may export (net) a little if prices remain high or rise appreciably and the crop of 1930 promises well. Poland may possibly become a net exporter, as she was in 1925-26, if her crop is large enough and prices are sufficiently high. The French dependencies of northern Africa seem to be in a position to export more than in any other year. Argentina is unlikely to export as much wheat as in 1928-29 if only because a wheat crop of 1929 as large as the bumper one of 1928 is improbable. The outlook for Australian exports is less clear.

Among the European importing countries, Spain, Portugal, France, and Italy are almost certain to import less than in 1928-

29 on account of their larger crops as well as higher prices of import wheat. Most other European countries may be expected to cut down their imports with higher prices. Great Britain, Holland, and Belgium, however, are possible exceptions, especially Great Britain.

The extent to which the volume of international trade in 1929-30 will fall below the record movement of 1928-29 depends in a large degree upon the course and level of prices and upon the outcome of crops remaining to be harvested and measured. That the volume of trade in 1929-30 must fall below that in 1928-29 may be taken for granted. In the five crop years preceding 1928-29, net exports ranged, in rounded figures, from about 700 million bushels in 1925-26 to about 850 million bushels in 1926-27. Exports in 1929-30 as small as those of 1925-26 are probable only in the event that prices rule even higher; for importing countries presumably would take somewhat more wheat at equivalent prices. At the moment, with the outcome of crops in many countries uncertain, and the course and level of international wheat prices obscure, the evidence scarcely justifies a guess at probable net exports in 1929-30 within a smaller range than 750-850 million bushels. The volume of trade in the closing months of 1929-30 will necessarily be affected by the prospects for crops in 1930.

PRICES

Our analysis of the international statistical position implies little with respect to the probable level or course of wheat prices in 1929-30. At this date of writing, as we have seen, the statistical position can be adjudged only within a rather wide range of possibilities, for the size of too many important crops remains uncertain. Moreover, other less ponderable factors usually influence the level and course of prices. The most that can be said with assurance is that the statistical position of 1929-30 must certainly prove tighter than those of 1923-24 and 1928-29 even if the later harvested crops prove to be of record size. Whether the statistical position in 1929-30 will prove as tight as it was in

1924-25, when mid-winter prices reached the highest point in the past seven years, depends chiefly upon the outcome of Southern Hemisphere crops; but it seems likely to be equally tight only if these crops are extremely short. It seems unlikely, then, that the statistical position for 1929-30 will eventuate in a level of prices as high as in the winter months of 1924-25 or 1925-26. The price-making factors apart from the statistical position are less tangible and more difficult to appraise than the position itself, but appear to us unfavorable to a strong increase in prices during the autumn and winter months. In particular, the huge world carryover of wheat leaves little possibility of development of such fear of near-famine as played a large part in carrying prices sharply upward in 1924-25.

In view of the apparent similarities between the oncoming crop year and 1924-25, it is perhaps desirable to pursue further the comparisons which have been presented in earlier pages, with special reference to price movements. Chart 7 shows the fluctuations of British parcels prices in terms of weekly averages from November 1923 to February 1925, and from November 1928 to the middle of August 1929. The striking similarity of the upward movement in June-July 1924 and 1929 requires no further comment. The break in the upturn in August was similar in both years, and was apparently due largely to the same cause—extremely heavy marketing in the United States. But for present purposes the significant feature of the chart is the advance of prices during September-February 1924-25, and the pertinent question is whether or not the present situation so resembles that of August 1924 that an advance of equal magnitude may reasonably be anticipated this year.

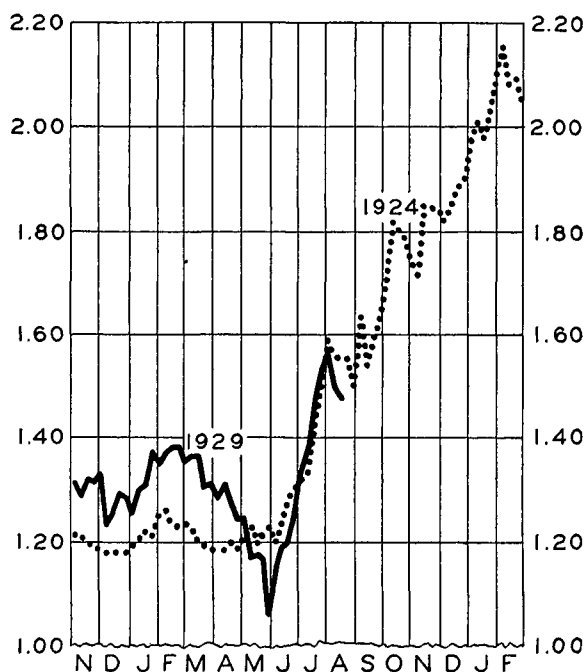
In this connection one fact requires particular emphasis. The September-January advance in prices in 1924-25 was caused predominately by panicky buying by European importers.¹ This buying was induced partly by the decidedly short crop in Europe, together with a late and wet harvest, partly by over-pessimistic views

¹ For a discussion of the factors influencing wheat price movements in 1924-25, see *WHEAT STUDIES*, November 1925, II, especially pp. 18-20, 34-40, and 48-49.

respecting the inward carryover of domestic wheat, and partly by financial and economic recovery following the inauguration of the Dawes plan, which involved large loans especially to Germany. Speculative activity also contributed to the advance. Comparable developments clearly are not to be anticipated this year. European importing countries are assured of a large

CHART 7.—WEEKLY AVERAGE PRICES OF WHEAT PARCELS IN BRITISH MARKETS, NOVEMBER 1923 TO FEBRUARY 1925, AND FROM NOVEMBER 1928*

(U.S. dollars per bushel)



* Averages of sales from *London Grain, Seed and Oil Reporter*. The last two figures for August 1929 are estimated from Liverpool futures prices.

crop; the harvest is perhaps somewhat earlier and so far has encountered much less damage, though rain could still prove unfavorable; the inward carryover is admitted to be a large one; and the United States is seemingly in the process of contracting rather than expanding her loans to European countries. If prices in 1929-30 are to rise as extensively in September-January as they did in 1924-25, the advance must be induced by a far different set of circumstances from those operating in that year.

It is not altogether impossible that such an advance should occur. If persistently heavy rains should hamper the harvest in Canada and Europe, if threshing returns should prove present expectations of yields in the Northern Hemisphere considerably too optimistic, and especially if the growing crops in the Southern Hemisphere should deteriorate markedly, a rise in prices broadly similar to that of 1924-25 seems possible. But it can be made to seem probable only on the assumption that some such developments as the above are themselves probable.¹ And since sufficiently detailed long-range weather forecasts seem not yet to have become feasible, one cannot say with assurance that such developments are probable; they remain merely possible. On the other hand, it is equally possible that European weather should prove exceptionally favorable, that present expectations of yields should be considerably exceeded, and that crops in the Southern Hemisphere should show marked and progressive improvement. Under this set of circumstances international wheat prices might be expected to decline from their average level of the first half of August. The outlook, in short, is obscure.

It is obscure not only because crop outturns are not yet accurately known, but also because the year opens in the presence of certain elements never before witnessed in the price situation. The Canadian Pool in 1924-25 had not yet developed its facilities or technique for marketing wheat; hence, for the first time it will undertake, in 1929-30, the marketing of its fraction of a notably short Canadian crop under its newly developed methods. A recent merger of Canadian elevator interests has greatly concentrated control of that portion of the crop not handled by the Pool. These circumstances possibly have a bearing on the fact that Winnipeg new-crop futures, both October and December, have sold since mid-July at higher prices than Liverpool futures of the same delivery month; but it is also important to note that Argentina was never before in a position to ship so

much wheat of good quality, that Liverpool futures were based chiefly upon Argentine wheat, and that the Canadian crop of 1929 is a very small one. Another element without precedent is the new Federal Farm Board in the United States; its direct or indirect influence upon wheat prices is not predictable.

In the course of the ensuing few months it will be of interest to observe whether Chicago futures prices continue to sell, as they have done for months, at prices only 10 cents or less below Liverpool futures, or whether the spread will widen appreciably. A wider spread seems necessary if American wheat is to move to export in large volume; yet it is clear that a great deal can move even at prevailing spreads—much Pacific wheat, durum, and various low grades, and considerable hard winter from the Gulf if cash wheat at Gulf ports is relatively cheap. On the whole, it is reasonable to count upon larger exports from the United States this year than last, and upon a reduction of the heavy stocks in the course of the year, with an accompanying tendency toward the reduction of the exceptionally large premiums of distant over near futures in American markets. This general development would be accelerated by a widening of the Chicago-Liverpool spread, but in our judgment is not dependent upon it.

In view of the exceptionally important rôle played by Argentina on the European wheat market for many months, we take it that a widening of the Chicago-Liverpool spread would occur in the event of notably poor progress of the growing Argentine crop. Such crop developments might bring Winnipeg futures prices into a more usual relationship with Liverpool prices; and might cause a marked upward movement in Liverpool futures or British parcels prices likewise. In the absence of serious crop damage in Argentina it seems probable that no drastic departure should be made from the recent level of international wheat prices, and it is possible that approximately the existing relationships of Chicago and Winnipeg to Liverpool futures prices should persist for some time to come.

Whatever the course and level of international wheat prices during the next six

¹ It is unnecessary to consider such eventualities as a war scare, inflation of currency, or a drastic increase in ocean freight rates, though any of these might give rise to an extreme advance in wheat prices.

months, fluctuations are likely to be more marked than in 1923-24 or the earlier part of 1928-29. Speculation in wheat will be more active, and markets will be more noticeably sensitive to news items such as revisions of crop estimates, most of which were given little attention in 1928-29, regardless of their magnitude.

This study is the work of M. K. Bennett, with the advice of Alonzo E. Taylor and Holbrook Working, and with the aid of Robert D. Calkins

APPENDIX

TABLE I.—WHEAT PRODUCTION IN PRINCIPAL PRODUCING AREAS, 1920-29*
(Million bushels)

Year	United States	Canada	India	Australia	Argentina	Chile	Uruguay	Hungary	Bulgaria	Jugoslavia	Romania	Soviet Russia	Mexico
1920.....	833.0	263.2	377.9	145.9	156.1	23.2	7.8	37.9	29.9	43.0	61.3	.....	15.0
1921.....	814.9	300.9	250.4	129.1	191.0	23.6	10.0	52.7	29.2	51.8	78.6	.....	5.1
1922.....	867.6	399.8	367.0	109.5	195.8	25.9	5.2	54.7	32.6	44.5	92.0	.....	13.6
1923.....	797.4	474.2	372.4	125.0	247.8	28.1	13.3	67.7	29.1	61.1	102.1	419.1	13.7
1924.....	864.4	262.1	360.6	164.6	191.1	24.5	9.9	51.6	24.7	57.8	70.4	472.3	10.4
1925.....	676.4	395.5	331.0	114.5	191.1	26.7	10.0	71.7	41.4	78.6	104.7	729.9	9.2
1926.....	831.0	407.1	324.7	160.8	220.8	23.3	10.2	74.9	36.5	71.4	110.9	819.6	10.3
1927.....	878.4	479.7	335.0	116.7	239.2	33.5	15.4	76.9	42.1	56.6	96.7	749.0	11.9
1928.....	902.2	533.6	293.3	160.8	307.4	27.0	14.7	99.2	50.7	103.3	115.5	859.8	11.0
1929.....	773.9	.....	317.6	.....	.....	.....	.....	70.8	37.4	96.9	91.9	.....	11.5
Average													
1909-13.....	690.1	197.1	351.8	90.5	147.1	20.1	6.5 ^a	71.5	37.8	62.0	158.7 ^a	758.9 ^b	11.5 ^c
1923-27.....	809.5	403.7	344.7	136.3	218.0	27.2	11.5	68.6	34.8	65.1	97.0	638.0	11.1

Year	Morocco	Algeria	Tunis	Egypt	British Isles	France	Germany	Italy	Belgium	Netherlands	Denmark	Norway	Sweden
1920.....	17.9	16.2	5.2	31.7	56.8	236.9	82.6	141.3	10.3	6.0	7.4	1.00	10.3
1921.....	23.2	28.5	9.0	37.0	73.8	323.5	107.8	194.1	14.5	8.6	11.1	.97	12.3
1922.....	12.9	18.9	3.7	36.0	65.2	243.3	71.9	161.6	10.6	6.2	9.2	.64	9.5
1923.....	20.0	35.8	9.9	40.7	58.5	275.6	106.4	224.8	13.4	6.2	8.9	.59	11.0
1924.....	28.8	17.3	5.2	34.2	53.9	281.2	89.2	170.1	13.0	4.7	5.9	.49	6.8
1925.....	23.9	32.7	11.8	36.2	53.7	330.8	118.2	240.8	14.5	5.6	9.7	.49	13.4
1926.....	16.2	23.6	13.0	37.2	52.2	231.8	95.4	220.6	12.8	5.5	8.8	.59	12.2
1927.....	24.6	28.3	8.3	44.3	57.2	276.1	120.5	195.8	16.3	6.2	9.4	.60	16.2
1928.....	24.7	30.3	12.1	37.3	50.9	277.7	141.6	228.6	18.0	7.3	12.1	.68	19.5
1929.....	28.6	40.6	12.1	.....	41.8 ^a	.....	110.0 ^d	238.8	16.0	3.8	.....	.....	.....
Average													
1909-13.....	17.0	35.2	6.2	34.2	59.6	325.6	131.3	184.4	15.2	5.0	6.3	.31	8.1
1923-27.....	22.7	27.5	9.6	38.5	55.1	279.1	106.0	210.5	14.0	5.6	8.5	.55	11.9

Year	Spain	Portugal	Switzerland	Austria	Czechoslovakia	Poland	Finland	Latvia	Estonia, Lithuania	Greece	Japan, Chosen	South Africa	New Zealand
1920.....	138.6	10.4	3.6	5.4	26.4	22.7	.27	.39	2.58	11.2	41.1	7.6	6.9
1921.....	145.1	9.3	3.8	6.5	38.7	37.4	.58	.78	3.34	10.3	39.7	8.7	10.6
1922.....	125.5	10.0	2.6	7.4	33.6	42.4	.71	.96	4.17	9.0	39.8	6.3	8.4
1923.....	157.1	13.2	3.8	8.9	36.2	49.7	.69	1.64	3.70	8.8	35.2	6.0	4.2
1924.....	121.8	8.6	3.1	8.5	32.2	32.5	.79	1.58	3.86	7.7	35.3	7.1	5.4
1925.....	162.6	12.1	3.5	10.7	39.3	57.8	.93	2.16	6.08	11.2	40.0	9.2	4.6
1926.....	146.6	8.6	4.2	9.4	34.1	47.1	.92	1.86	5.02	12.4	40.7	8.0	8.0
1927.....	144.8	11.4	4.1	12.0	40.4	54.2	1.06	2.64	6.35	13.0	40.1	6.6	9.5
1928.....	122.6	6.6	4.3	12.9	51.5	59.2	.88	2.50	7.36	15.7	41.3	6.9	8.4
1929.....	139.8	.....	5.8	11.6 ^d	.....	64.7	.96	.....	.....	16.8	41.1	...	...
Average													
1909-13.....	130.4	11.8 ^a	3.3	12.8	37.9	63.7	.14	1.48	3.63	16.3 ^c	32.0	6.3 ^e	6.9
1923-27.....	146.6	10.8	3.8	9.9	36.5	48.3	.88	1.98	5.00	10.6	38.3	7.4	6.3

* Data of U.S. Department of Agriculture and International Institute of Agriculture. For 1909-13, including U.S. Department of Agriculture estimates for area within post-war boundaries. Dots (.....) indicate that data are not available.

^a Four-year average.

^c England and Wales only.

^b Regarded as too low by some Soviet officials, whose estimate is 908 million bushels.

^d Winter wheat only.

^e One year only.

TABLE II.—MONTHLY WHEAT RECEIPTS AT PRIMARY MARKETS IN THE UNITED STATES AND CANADA*
(Million bushels)

Month	United States primary markets				Fort William and Port Arthur				Vancouver			
	1925-26	1926-27	1927-28	1928-29	1925-26	1926-27	1927-28	1928-29	1925-26	1926-27	1927-28	1928-29
Aug.	43.3	71.6	81.6	84.2	1.2	1.5	2.4	3.5	.55	.12	.09	1.07
Sept.	57.9	48.7	79.7	73.3	45.7	32.8	8.6	39.1	.28	.29	.32	2.61
Oct.	36.1	37.1	73.3	84.4	53.2	56.1	51.4	81.4	7.04	6.37	6.17	12.69
Nov.	34.1	29.8	44.8	43.6	51.5	60.5	71.0	72.9	9.79	7.22	10.78	14.65
Aug.-Nov.	171.4	187.2	279.4	285.5	151.6	150.9	133.4	196.9	17.66	14.00	17.36	31.02
Dec.	34.9	22.4	26.5	33.0	53.5	26.3	41.0	51.6	6.14	6.63	11.81	13.53
Jan.	21.6	24.6	23.5	22.5	10.5	14.0	21.1	11.0	10.03	6.83	16.49	13.90
Feb.	16.2	21.0	22.5	28.7	4.0	8.6	9.5	2.9	7.74	4.27	12.54	9.25
Mar.	15.1	16.6	26.3	27.2	3.2	6.3	3.3	5.2	6.98	5.94	10.50	15.46
Dec.-Mar.	87.8	84.6	98.8	111.4	71.2	55.2	74.9	70.7	30.89	23.67	51.34	52.14
Apr.	14.0	14.4	18.0	17.5	1.8	12.6	.9	9.7	3.58	3.58	10.88	7.31
May	15.7	19.2	25.9	18.6	17.2	17.3	17.6	13.8	1.20	1.56	7.43	3.91
June	21.0	20.7	15.6	25.7	13.6	7.3	20.1	14.7	.22	.61	3.66	3.04
July	77.0	58.8	72.6	....	6.4	10.7	14.4	14.6	.27	.14	2.44	3.30
Apr.-July	127.7	113.1	132.1	....	39.0	47.9	53.0	52.8	5.27	5.89	24.41	17.56
Aug.-July	386.9	384.9	510.3	....	261.8	254.0	261.3	320.4	53.82	43.56	93.11	100.72

* United States data are unofficial figures compiled from *Survey of Current Business*; Canadian data are official figures from *Reports on the Grain Trade of Canada* and *Canadian Grain Statistics*. Vancouver figures include receipts at Prince Rupert after October 1, 1926.

TABLE III.—WEEKLY WHEAT RECEIPTS AT PRIMARY MARKETS IN THE UNITED STATES AND CANADA*
(Million bushels)

Month	United States				Fort William and Port Arthur				Vancouver			
	1926	1927	1928	1929	1926	1927	1928	1929	1926	1927 ^a	1928 ^a	1929 ^a
Apr.	2.61	3.78	5.48	5.35	.51	.83	.48	1.59	1.19	1.15	2.78	3.06
	3.27	3.49	4.42	4.86	.68	.64	.23	1.50	1.10	1.27	1.96	2.69
	2.79	2.98	4.48	4.12	.52	.59	.26	1.17	.93	.54	2.77	2.00
	3.52	3.41	4.17	3.55	.29	4.34	.26	.51	.69	.77	2.92	1.37
	3.75	3.38	4.07	3.66	.18	6.86	.09	4.80	.86	.94	2.81	1.41
May	3.51	3.60	4.86	3.84	2.17	6.42	.25	4.10	.56	.34	2.41	1.47
	3.09	3.89	6.70	4.03	4.00	3.87	3.13	3.11	.35	.14	1.95	1.09
	3.60	5.20	7.46	4.08	4.75	2.96	6.56	3.54	.22	.49	1.45	.74
	4.83	4.92	4.83	4.16	5.13	2.82	4.72	2.51	.07	.50	1.39	.58
June	3.68	4.93	4.32	4.56	4.89	2.49	4.22	2.43	.06	.23	1.56	.77
	3.71	4.09	3.87	5.45	2.81	1.99	4.54	2.60	.04	.11	.72	.66
	3.51	4.03	3.10	5.67	2.94	1.48	5.08	3.32	.04	.17	1.21	.49
	5.67	4.15	2.89	6.30	2.74	1.33	4.38	4.16	.08	.18	.64	.67
July	8.80	7.65	4.24	7.51	1.95	1.33	4.93	4.46	.05	.06	.46	.98
	13.79	8.54	7.40	11.45	2.04	2.07	4.28	3.25	.10	.07	.69	.75
	14.25	10.35	14.24	16.49	1.63	2.89	3.14	3.61	.06	.04	.50	.57
	19.26	11.35	18.76	17.84	1.19	3.10	3.07	3.42	.01	.02	.46	.85
	25.25	26.01	23.93	29.69	.92	2.61	3.03	2.89	.05	.00	.72	1.00

* United States data are unofficial figures compiled from *Grain World*; Fort William and Port Arthur data are official figures for net receipts furnished by Canadian Board of Grain Commissioners; Vancouver data are official figures compiled from *Canadian Grain Statistics*. United States and Fort William and Port Arthur data begin with figures for weeks ending April 3, 1926, April 2, 1927, March 31, 1928, and March 30, 1929; Vancouver figures are for weeks ending one day earlier.

^a Receipts at Prince Rupert included.

TABLE IV.—INTERNATIONAL TRADE IN WHEAT AND FLOUR, MONTHLY FROM JULY 1928*

(Million bushels)

A.—NET EXPORTS

Month	United States	Canada	India	Australia	Argentina	Roumania	Hungary	Jugo-Slavia	Poland	Algeria	Tunis	Egypt
July	5.13	35.92	1.19 ^a	5.02	9.56	.04	.62	.17	(1.41) ^b	.58	.96	(.44) ^b
Aug.	13.94	29.18	.51 ^a	4.43	6.51	.36	2.46	2.96	(.53) ^b	.70	1.05	(.74) ^b
Sept.	21.25	30.89	.25 ^a	2.79	8.29	.29	2.38	2.03	(.53) ^b	.74	.78	(.73) ^b
Oct.	26.65	48.89	.05	4.55	12.00	.47	2.32	.58	(.20) ^b	.42	.56	(.75) ^b
Nov.	13.62	80.56	(1.36) ^b	5.93	12.73	.18	2.14	.22	(.13) ^b	.47	.41	(1.10) ^b
Dec.	10.97	53.22	(1.29) ^b	8.39	38.27	.09	2.44	.06	(.20) ^b	.45	.25	(1.37) ^b
Jan.	6.70	24.93	(6.50) ^b	18.66		.08	1.58	.03	(.18) ^b	...		(1.60) ^b
Feb.	7.18	19.19	(5.18) ^b	16.68	27.25	.09	1.55	.01	(.18) ^b	...	.15	(1.50) ^b
Mar.	7.90	27.37	(3.88) ^b	16.12	29.63	.01	2.14	.15	(.09) ^b	...	.07	(1.70) ^b
Apr.	7.73	10.43	(3.16) ^b	11.67	25.36	... ^c	2.45	.78	(.09) ^b	...	.12	(1.28) ^b
May	14.55	31.05	(1.64) ^b	7.89	23.27	...	2.04	....	(.11) ^b	....	....	(1.15) ^b
June	7.98	29.76	(.76) ^b	....	23.02	...	1.95	....	(.09) ^b	(.04) ^b	.57	(.86) ^b
July	12.56	20.73	....	....	15.04	...	....	....	....	....	....	....

B.—NET IMPORTS

Month	Irish Free St.	United Kingdom	France	Germany	Belgium	Italy	Netherlands	Scandinavia	Switzerland	Czechoslovakia	Baltic States ^d	Japan
July	1.37	19.36	3.26	6.96	3.68	8.57	1.71	1.78	1.41	1.33	.64	.63 ^a
Aug.	1.42	16.44	4.41	6.67	3.73	5.33	2.25	2.67	1.12	1.57	.88	.45 ^a
Sept.	1.77	14.17	5.13	7.71	3.95	5.56	3.52	2.87	1.24	1.88	.90	.43 ^a
Oct.	2.09	13.44	4.31	7.15	3.39	7.44	2.52	2.55	1.50	2.52	1.31	.85
Nov.	.73	15.92	3.83	4.99	3.79	7.21	2.55	2.85	1.14	1.73	1.17	.64
Dec.	1.57	20.54	3.47	4.54	3.65	7.09	2.54	3.16	1.69	1.36	.81	1.40
Jan.	1.44	18.13	3.92	4.43	2.89	6.96	2.80	2.78	1.30	1.25	.87	1.96
Feb.	1.59	14.14	2.51	2.18	2.90	5.94	1.69	1.71	.46	.94	.73	2.57
Mar.	1.43	18.14	3.48	3.02	3.13	8.88	2.55	2.34	.84	1.10	.63	2.87
Apr.	1.66	19.98	4.97	9.00	3.08	8.57	2.14	4.45	1.97	1.54	.72	2.14
May	1.45	18.96	5.64	6.05	4.20	9.67	2.29	3.59	1.55	1.16	.64 ^a	2.35
June	1.48	15.13	6.55	5.88	3.34	8.10	2.53	2.71	1.28	1.14	.77 ^a	1.28
July	....	15.85	....	....	....	....	....	....	....	....	....	....

* Data from official sources and International Institute of Agriculture.

^a Gross, not net.^b Net import.^c Net export of 4,700 bushels.^d Finland, Esthonia, Latvia.^e Excluding Latvia.

TABLE V.—WEEKLY WHEAT AND FLOUR SHIPMENTS BY AREAS OF ORIGIN AND DESTINATION, APRIL–JULY 1929*

(Million bushels)

Week ending	North America	Argentina, Uruguay	Australia	Russia	Danube	India	Other countries	Total	To Europe	To ex-Europe
Apr. 6	6.21	5.93	3.15	...	.02	...	.65	15.96	11.42	4.54
13	7.80	5.94	2.84	...	.06	...	.86	17.50	13.03	4.47
20	5.62	5.21	3.92	...	.01	...	.74	15.50	9.45	6.05
27	7.59	4.15	2.32	...	...	...	.58	14.64	9.74	4.90
May 4	6.59	4.27	2.66	...	...	...	.51	14.03	10.00	4.03
11	7.18	6.22	1.86	...	.25	...	.62	16.13	13.56	2.57
18	8.03	6.50	1.65	...	.12	...	.77	17.07	13.77	3.30
25	10.47	6.67	1.80	...	.02	...	.64	19.60	16.67	2.93
June 1	9.65	3.65	.50	...	...	...	.74	14.54	12.44	2.10
8	10.73	6.12	2.26	...	...	...	.53	19.64	15.47	4.17
15	9.38	5.97	1.63	...	...	...	.63	17.61	14.06	3.55
22	8.95	4.80	1.39	...	.03	...	.67	15.84	12.41	3.43
29	6.44	6.09	.69	...	...	...	.56	13.78	10.84	2.94
July 6	8.67	5.33	1.55	...	.12	.10 ^a	.68	16.45	13.18	3.27
13	7.82	4.31	1.18	...	...	.06	.66	14.03	10.16	3.87
20	7.99	2.99	1.16	...	.12	...	.51	12.77	9.52	3.25
27	7.48	2.39	1.27	...	.01	.04	.50	11.69	8.25	3.44
Aug. 3	6.89	2.62	.59	...	.21	.01	.57	10.89	8.47	2.42

* Here converted from data in Broomhall's *Corn Trade News*. Broomhall's weekly figures do not always check with his cumulative totals, which presumably include later revisions. Shipments from "other countries" apparently include a part of the shipments from the Danube and Russia in most weeks.

^a Australian re-shipped.

TABLE VI.—WEEKLY VISIBLE SUPPLIES OF WHEAT IN NORTH AMERICA, UNITED KINGDOM PORTS, AND AFLOAT TO EUROPE, APRIL–JULY 1929*

(Million bushels)

Date	United States	Canada	U.K. ports	Afloat to Europe	Total	Date	United States	Canada	U.K. ports	Afloat to Europe	Total
Apr. 6	127.7	187.2	7.0	69.6	616.5	June 1	100.0	139.9	9.4	59.8	309.1
13	126.2	184.3	8.0	65.3	383.8	8	97.9	133.5	8.4	65.2	305.0
20	123.0	171.9	8.2	60.5	363.6	15	96.6	124.4	7.6	61.9	290.5
27	119.3	165.7	8.5	58.7	352.2	22	95.1	119.4	8.6	58.3	281.4
						29	95.7	117.4	10.1	53.2	276.4
May 4	116.6	161.0	9.6	55.2	342.4	July 6	99.3	113.1	6.6	53.3	272.3
11	112.1	158.7	9.4	53.8	334.0	13	105.5	110.5	6.7	48.9	271.6
18	107.2	153.4	10.0	53.7	324.3	20	111.3	108.9	6.1	46.1	272.4
25	102.1	147.2	8.8	60.4	318.5	27	125.4	107.4	6.0	42.5	281.3

* United States data are *Bradstreet's*; Canadian data from *Canadian Grain Statistics*; United Kingdom and Afloat data from Broomhall's *Corn Trade News* and *Milling*. Canadian figures are for the days preceding the dates indicated in the above table, and include stocks in some elevators for the preceding week, but are adjusted to bring stocks in western country elevators to the correct week.

TABLE VII.—WORLD VISIBLE WHEAT SUPPLIES, AUGUST 1, 1920-29, AND MONTHLY, 1928-29*

(Million bushels)

Date	United States	Canada	Argentina	Australia	United Kingdom ports	Afloat to Europe	North America	Argentina, Australia	U. K. and afloat	Grand total	Total ex-Australia
1920 Aug. 1	42.7	8.2	3.7	27.5	12.8	76.2	50.9	31.2	89.0	171.1	143.6
1921 Aug. 1	56.2	8.9	3.7	30.0	7.6	57.9	65.1	33.7	65.5	164.3	134.3
1922 Aug. 1	43.1	19.3	2.2	3.0	7.1	48.9	62.4	5.2	56.0	123.6	120.6
1923 Aug. 1	73.3	14.1	4.4	18.0	8.2	39.0	87.4	22.4	47.2	157.0	139.0
1924 Aug. 1	72.1	31.6	6.8	30.0	9.9	41.8	103.7	36.8	51.7	192.2	162.2
1925 Aug. 1	57.3	23.4	7.7	8.4	9.2	33.3	80.7	16.1	42.5	139.3	130.9
1926 Aug. 1	64.2	28.3	4.1	6.2	4.3	38.6	92.5	10.3	42.9	145.7	139.5
1927 Aug. 1	65.9	42.7	5.9	12.7	7.8	46.1	108.6	18.6	53.9	181.1	168.3
1928 Aug. 1	88.1	69.2	5.9	9.5	10.1	44.7	157.3	15.4	54.8	227.5	218.0
Sept. 1	135.9	30.5	8.5	5.2	9.5	43.7	166.4	13.7	53.2	233.3	228.1
Oct. 1	181.8	76.5	7.3	3.4	7.8	41.1	258.3	10.7	48.9	317.9	314.5
Nov. 1	204.4	155.1	7.3	1.3	5.9	50.3	359.5	8.6	56.2	424.3	423.0
Dec. 1	208.0	169.5	4.4	8.0	5.7	63.5	377.5	12.4	69.2	459.1	451.1
1929 Jan. 1	204.7	218.6	5.9	75.0	6.2	54.4	423.3	80.9	60.6	564.8	489.8
Feb. 1	186.7	208.2	10.3	76.5	6.5	64.8	394.9	86.8	71.3	553.0	476.5
Mar. 1	179.8	195.2	12.8	63.0	5.8	70.1	375.0	75.8	75.9	526.7	463.7
Apr. 1	173.1	177.1	14.7	53.0	8.0	71.0	350.2	67.7	79.0	496.9	443.9
May 1	165.4	158.3	14.3	48.0	9.6	55.2	323.7	62.3	64.8	450.8	402.8
June 1	136.7	137.9	14.0	39.0	9.8	59.8	274.6	53.0	69.6	397.2	358.2
July 1	131.9	112.5	15.4	30.0	8.2	53.2	244.4	45.4	61.4	351.2	321.2
Aug. 1	190.3	99.8	16.2	20.0	6.2	37.6	290.1	36.2	43.8	370.1	350.1
Average, Aug. 1											
1910-14	58.8	10.8	1.3	5.9 ^a	15.4	35.2	69.6	7.2 ^a	50.6	127.4 ^a	121.5
1924-28	69.5	39.0	6.1	13.4	8.3	40.9	108.5	19.5	49.2	177.2	163.8

* A joint compilation by Broomhall, the *Daily Market Record*, Minneapolis, and the *Daily Trade Bulletin*, Chicago, here summarized from Broomhall's *Corn Trade News* and the *Daily Trade Bulletin*. Includes some flour stocks.

^a For Australia, 4-year average, 1911-14.

TABLE VIII.—UNITED STATES AND CANADIAN CARRYOVERS OF WHEAT, 1919-29*

(Thousand bushels)

Year	United States (July 1)				Canada (August 31, 1919-23; July 31, 1924-29)				
	Total	On farms	In country mills and elevators	Commercial visible (Bradstreet's)	Total	On farms	In elevators	In transit	In flour mills
1919	49,806	19,261	19,672	10,873	.....^a	2,149	3,305	.....^a	.....^a
1920	110,254	49,546	37,304	23,404	.....^a	2,122	6,930	.....^a	238
1921	93,840	56,707	27,167	9,966	13,727	2,144	4,831	6,032	720
1922	81,457	32,359	28,756	20,342	20,590	2,360	11,024	4,578	2,628
1923	102,414	35,894	37,117	29,403	11,690	1,441	5,051	2,758	2,440
1924	106,204	30,981	36,626	38,597	45,159 ^b	7,363 ^c	27,400 ^b	5,856 ^b	4,539 ^b
1925	86,447	29,357	25,287	31,803	26,483	2,709	17,939	3,835	2,000
1926	65,949	20,973	28,490	16,486	35,601	3,987	25,451	3,163	3,000
1927	74,507	27,215	21,776	25,516	50,586	4,264	37,079	5,243	4,000
1928	84,514	23,729	18,856	42,208	76,484	4,186	53,570	13,728	5,000
1929	180,561	44,741	40,136	95,684	104,426	5,617	82,640	8,669	7,500
Average									
1910-14	89,411	32,485	31,600	25,326	.....^a	.....^a	.....^a	.....^a	.....^a
1924-28	83,524	26,395	26,207	30,922	46,863	4,502	32,288	6,365	3,708

*Bradstreet's visible, and official data of U.S. Department of Agriculture and Dominion Bureau of Statistics. See especially *Agriculture Yearbooks*, *Canada Yearbooks*, *Grain World*, and press releases.

^a Not available.

^b July 31, as for later years.

^c For 1924 quantities in farmers' hands relate to August 31; for subsequent years to July 31.

TABLE IX.—WEEKLY CASH PRICES OF REPRESENTATIVE WHEATS IN LEADING EXPORTING AND IMPORTING MARKETS, APRIL—JULY 1929*

(U.S. dollars per bushel)

Month	United States				Canada		Argentina	Liverpool				
	No. 2 Red Winter (St. Louis)	No. 2 Hard Winter (Kansas City)	No. 1 Northern Spring (Minneapolis)	No. 2 Amber Durum (Minneapolis)	No. 1 Manitoba (Winnipeg)	No. 3 Manitoba (Winnipeg)	Barletta (Buenos Aires)	No. 1 Manitoba	No. 3 Manitoba	Pacific White	Argentine Rosafe	Australian
Apr.	1.30	1.10	1.20	....	1.23	1.16	1.12	n.q.	1.39	1.36	1.30	1.37
	1.30	1.14	1.21	1.18	1.25	1.17	1.12	n.q.	1.39	1.36	1.26	1.37
	1.28	1.13	1.22	....	1.24	1.15	1.11	n.q.	1.40	1.35	1.26	1.40
	1.22	1.07	1.18	1.19	1.21	1.13	1.09	n.q.	1.34	1.31	1.21	1.36
May	1.18	1.07	1.18	1.12	1.21	1.13	1.08	n.q.	1.33	1.32	1.19	1.35
	1.22	1.04	1.14	1.13	1.12	1.05	1.03	n.q.	1.29	1.30	1.20	1.30
	1.18	1.03	1.13	1.09	1.14	1.07	1.04	1.36	1.25	1.26	1.17	1.29
	1.16	1.00	1.11	1.14	1.14	1.07	1.02	1.36	1.26	1.26	1.19	1.30
	1.10	.94	1.05	1.02	1.08	1.02	.98	1.32	1.23	1.24	1.12	1.25
June	1.11	.98	1.07	1.14	1.16	1.11	1.00	n.q.	1.26	1.21	1.14	1.24
	1.21	1.02	1.12	1.25	1.15	1.10	.99	n.q.	1.25	1.26	1.13	1.26
	1.21	1.02	1.14	1.09	1.18	1.12	1.00	1.32	1.26	1.24	1.14	1.25
	1.27	1.09	1.22	1.12	1.26	1.19	1.05	1.44	1.36	1.30	1.20	1.30
July	1.23	1.13	1.29	1.16	1.41	1.33	1.14	n.q.	1.40	n.q.	1.29	1.36
	1.24	1.17	1.32	1.23	1.46	1.38	1.17	1.59	1.54	n.q.	1.34	1.41
	1.43	1.30	1.50	1.46	1.69	1.61	1.27	1.83	1.73	1.52	1.48	1.50
	1.41	1.29	1.49	1.44	1.74	1.66	....	1.91	1.77	1.55	1.47	1.58
Aug.	1.40	1.31	1.50	1.44	1.72	1.66	....	n.q.	1.87	1.54	1.49	1.60

*United States prices are weekly averages of daily weighted prices for weeks ending Friday, compiled from *Crops and Markets*. Canadian prices are averages for weeks ending Saturday, compiled from *Canadian Grain Statistics*. Liverpool prices are for Tuesday of the same week, parcels to Liverpool or London, and are from *Broomhall's Corn Trade News*. Argentine prices are averages for weeks ending Saturday, from *Revista Semanal*. No quotation is signified by "n.q."

TABLE X.—MONTHLY PRICES OF DOMESTIC WHEAT IN EUROPE, FROM AUGUST 1926*

(U.S. dollars per bushel)

Month	Great Britain			France (Chartres)			Italy (Milan)			Germany (Berlin)		
	1926-27	1927-28	1928-29	1926-27	1927-28	1928-29	1926-27	1927-28	1928-29	1926-27	1927-28	1928-29
Aug.	1.76	1.63	1.33	1.61	1.75	1.60	1.85	1.75 ^a	1.72	1.75	1.78 ^b	1.49
Sept.	1.46	1.43	1.19	1.77	1.57	1.58	2.03	1.73	1.81	1.71	1.68	1.36
Oct.	1.48	1.37	1.24	1.88	1.54	1.61	2.21	1.77	1.88	1.72	1.62	1.38
Nov.	1.62	1.32	1.28	1.96	1.48	1.60	2.20	1.90	1.87	1.78	1.57	1.37
Dec.	1.55	1.29	1.25	1.78	1.58	1.56	2.31	1.88	1.87	1.74	1.53	1.33
Jan.	1.55	1.29	1.25	1.88	1.58	1.59	2.13	1.93	1.92	1.72	1.52	1.35
Feb.	1.54	1.26	1.27	1.81	1.56	1.64	2.11	1.94	1.96	1.72	1.49	1.40
Mar.	1.52	1.27	1.27	1.70	1.65	1.68	2.11	2.00	1.95	1.73	1.59	1.44
Apr.	1.50	1.34	1.28	1.82	1.74	1.60	2.02	2.09	1.93	1.76	1.72	1.45
May	1.58	1.43	1.29	1.91	1.87	1.65	2.16	2.14	1.89	1.92	1.73	1.41
June	1.65	1.43	1.25	1.88	1.85	1.60	1.99	2.10	1.91 ^a	1.96 ^c	1.66	1.39
July	1.64	1.41	1.35	1.81	1.76	1.63 ^c	1.80	1.77	1.80 ^c	n.q.	1.60	1.56 ^d

*Data for Great Britain are averages of weekly average *Gazette* prices as given in the *Economist*; for France, averages of Saturday prices furnished directly by Federal Reserve Board, and our French correspondent, M. Augé-Laribé; for Italy, averages of Friday prices of soft wheat as given in *International Crop Report and Agricultural Statistics*; for Germany, monthly average prices as given in *Wirtschaft und Statistik*, except for July 1929 which is an average of Friday prices as given in *International Crop Report and Agricultural Statistics*. All data are converted, for convenience, from the domestic currency in which they are quoted in the above sources into U.S. money by monthly average exchange rates. No quotation is signified by "n.q."

^a Three-week average.
^b Second half of August.

^c First half of June.
^d Two-week average.

TABLE XI.—APPROXIMATE DISPOSITION OF WHEAT SUPPLIES IN FOUR LEADING EXPORTING COUNTRIES, 1924-25 TO 1928-29*

(Million bushels)

Item	United States (July-June)					Canada (August-July)				
	1924-25	1925-26	1926-27	1927-28	1928-29	1924-25	1925-26	1926-27	1927-28	1928-29
Initial stocks	165	135	111	138	142	41	26	35	48	78
New crop	864	676	831	878	902	262	395	407	480	534
Total supplies	1,029	811	942	1,016	1,044	303	421	442	528	612
Net exports	258	95	209	194	147	192	324	292	332	406
Seed requirements	84	83	89	95	88	38	40	39	42	45
Consumed for food	479	492	492	505	507	42	42	43	42	44
Unmerchantable, lost in cleaning, fed on farms.....	73	30	14	80	40	22	18	31	34	44
Apparent error in crop estimate						-17	-38	-11	...	-31
Stocks at end	135	111	138	142	262	26	35	48	78	104
Total disappearance	1,029	811	942	1,016	1,044	303	421	442	528	612

Item	Argentina (August-July)					Australia (August-July)				
	1924-25	1925-26	1926-27	1927-28	1928-29	1924-25	1925-26	1926-27	1927-28	1928-29
Initial stocks	66	56	61	65	80	38	36	30	41	40
New crop	191	191	221	239	307	165	115	161	117	161
Total supplies	257	247	282	304	387	203	151	191	158	201
Net exports	123	94	143	178	221	124	77	103	70	108
Seed requirements	23	25	24	25	23	11	11	12	14	14
Consumed for food	53	54	57	59	61	29	29	30	30	31
Feed and waste	2	10	3	3	4	3	4	5	4	5
Apparent error in crop estimate	...	+3	-10	-41	-22	...	...	...	...	...
Stocks at end	56	61	65	80	100	36	30	41	40	43
Total disappearance	257	247	282	304	387	203	151	191	158	201

*Based so far as possible upon official estimates for the various items of supply and disposition. Estimates for 1928-29 are preliminary. For detailed explanation of our method of estimation and adjustment of items in the disposition table, see notes in WHEAT STUDIES, V, 111 f.

ANALYTICAL INDEX

VOLUME V, 1928-29

ANALYTICAL INDEX

A

Acreage, 51, 54, 95, 99, 100, 207, 227; abandonment of, 99, 207, 227, 228; relation of, to flour for domestic consumption, 170-71; effect of export debenture plan on, 322-24; world, 51, 149; *see* Forecasting crop yields

Adkins, Congressman, 301

Africa, crops of, 50; *see* country headings

Agricultural Marketing Act, 301, 341; *see* Wheat under the Agricultural Marketing Act

Agricultural Surplus Control Bill, 307

Alfalfa: tap root system of, 10; reproductive and vegetative growth of, 11; under irrigation, 33

ALGERIA:

Acreage in, 95, 228

Crops of, 97, 141, 208, 211, 228, 235, 428, 459

Domestic utilization, 110

Exports of, 83, 105, 144, 213-14, 237, 461

Flour exports, 85; imports, 103

Imports, 102

Yield per acre, 96

Alimentary pastes, in the diet, 152

Allard, H. A., 6

Alsberg, Carl L., contributor to *Wheat Studies*, 44

Anderson, Sydney, 66

ARGENTINA:

Acreage, 51, 52, 95, 119, 434-35

Carryovers, 61, 435, 439, 441; practices regarding, 272

Consumption, 55, 57, 89

Crop estimates, official, 50, 83, 97, 114, 119, 141, 209, 235, 453, 459; errors in, 57, 83, 134, 210; unofficial, 119

Crop prospects, 434

Crop value, 76, 77

Disappearance of wheat supplies, 83

Disposition of wheat supplies, 57, 112, 146, 240, 465

Domestic utilization, 110

Exports, 81, 83; to Brazil, 104; forecasts of net, 137, 212, 213, 231-32; volume of net, 102, 105, 126, 127, 144, 209, 218, 237, 449, 450, 461

Flour: consumption of, 89; exports of, 57, 85, 89, 103; rate of extraction, 89

Forecasting in, 38-40

Merchandising of exports, practices of, 411

WHEAT STUDIES, Vol. V, 1928-29

Milling, 89

Prices, *see* Buenos Aires prices

Quality of wheat, 50, 210, 445

Rye, 98

Shipments from, 101, 123 n., 127, 144, 209, 218, 219, 237, 449, 462

Stocks, 57, 66, 120, 123, 221, 233, 439

Visible supplies, 107, 143, 238, 435, 463

Yield per acre, 52, 96, 435

Asia, dietary habits of, 148, 160

Asia Minor, crops of, 434

Augé-Laribé, M., 217 n.

AUSTRALIA:

Acreage, 51, 52, 57, 95, 119, 434

Carryovers, 61, 435, 441; practices regarding, 272

Consumption, 55, 56-57

Crop estimates, official, 97, 114, 119, 141, 208, 209, 235, 453, 459; unofficial, 50

Crop value, 76, 77

Disposition of wheat supplies, 112, 146, 240, 465

Domestic utilization, 110

Exports: to Japan, 104; forecasts of net, 137, 138, 210, 212, 213, 232; volume of net, 81, 83, 102, 104, 105, 127, 144, 218, 237, 449, 450, 461

Flour exports, 85, 89, 103, 104

Forecasting, results and studies in, 38

Harvest early in 1928-29, 213

Hay, 57

Merchandising of exports, practices regarding, 411

Milling, 89

Prices, 109, 129, 130, 213, 239

Quality of wheat, 50, 210

Shipments from, 101, 127, 144, 218, 237, 449, 462

Stocks, 66, 123, 221, 233, 439

Visible supplies, 66-67, 107, 143, 221, 238, 435, 463

Yield per acre, 50, 96

AUSTRIA:

Acreage, 95

Crop estimates and forecasts, 97, 141, 235, 433, 459

Domestic utilization, 110

Flour imports, 90, 103

Imports, volume of net, 80, 102

Milling, 90

Rye, 98

Shipments to, 125, 216, 451

Yield per acre, 52, 96

Azzi, G., 12, 16

B

Bakeries: flour specifications for, 392, 403; standard formulas of, 153; superseding home-baked products, 153

Baltic States: imports of, 80, 105, 144, 237, 461; shipments from, 127, 218, 449; *see also* Estonia, Finland, Latvia, Lithuania

Barkley, H., 21, 38

Barley, crops of, 49, 118; price variability of, 243

BELGIUM:

Acreage, 95

Crops, 97, 141, 235, 433, 459

Domestic utilization, 110

Flour trade, 92; imports, 103

Imports, volume of net, 80, 102, 105, 144, 237, 451, 461

Milling, 92

Potato crop, 98

Rye, 97

Shipments to, 125, 451

Stocks, 222

Yield per acre, 96

Bennett, Merrill K., contributor to *Wheat Studies*, 94, 140, 192, 234, 346, 425, 458

Beveridge, Sir William, 26

Black, J. D., 366, 408, 420

Blackman, V. H., 33

Blair, T. A., 38

Bradstreet's commercial visible, 65, 106, 220, 232, 435, 463

Bran cult, 163, 164

Brazil: imports, 104; shipments to, 126, 217, 450

BREAD:

Advocates of health-breads, 164

Bakery, 152

Demand for, inelasticity of, 167

Digestibility, 154

Failure of the perfect bread, 165

Graham, 173

Place in the diet, 153, 170

Price, related to price of flour, 153; return to 5-cent loaf, 86

Whole wheat vs. white, 154, 156, 162-63, 164, 170

Yeast-risen, 152

Brinton, J. W., 400

BROOMHALL'S ESTIMATES:

Crop, in Argentina, 209

Exportable surpluses, 53, 100, 439

Exports, net, 137, 214

Importers' purchases, 53, 100

Margins between exportable surpluses and importers' requirements, 53, 100

[469]

BROOMHALL'S ESTIMATES (*cont.*):

- Shipments, 78, 101, 124, 125, 126, 127, 128, 139, 214, 216, 217, 218, 447, 448, 449, 450
- Stocks: in ports of United Kingdom, 67; world, 441
- Visible supplies, 66-67
- Bronoff, P., 10, 12, 16, 17, 19, 25
- Brown, H. T., 6, 32
- Bryant, George C., 99, 114 n., 115
- BUENOS AIRES PRICES:
 - Cash, monthly, 109, 129; weekly, 145, 239, 464
 - Futures, 71, 72, 131, 132, 443; relationships, 225, 427
- Buffalo, visible supplies at, 122
- BULGARIA:
 - Acreage, 95
 - Corn crops, 98
 - Crop prospects, 433
 - Crops, 83, 90, 97, 141, 235, 433, 459
 - Domestic utilization, 58, 67, 110
 - Exports, volume of net, 83, 102, 213
 - Flour exports, 103
 - Milling, 90
 - Rye, 98
 - Stocks, 67
 - Yield per acre, 96
- Butter, duties against Australian, in United States, 336-37

C

- California Fruit Growers' Exchange, classification and merchandising methods of, 404
- Calkins, Robert D., contributor to *Wheat Studies*, 458
- Call, L. E., 22
- Calories, total in the diet contributed by cereals, 150; in the form of wheat flour per day, 151
- CANADA:
 - Acreage, 48, 51, 77, 95, 230, 433
 - Carryovers, 61, 64, 66, 82, 106, 138, 233, 435, 438-39, 441, 463
 - Consumption, 55, 56, 111, 146, 240, 465
 - Crop estimates and forecasts: official, 46, 48, 52, 82, 97, 100, 114, 115, 141, 209, 210, 235, 432, 438, 453, 459; errors in, 39, 48 n., 56, 116, 134, 208, 209, 439; unofficial, 48, 115, 116, 432
 - Crop prospects, 227, 230-31, 427, 431-32
 - Crop value, 76, 77
 - Disposition of wheat supplies, 56, 110, 111, 146, 240, 465
 - Exports: forecasts of net, 137, 138, 212, 213, 231; increases of, 288; volume of net, 81, 82, 83, 100, 102, 104, 105, 126, 144, 218, 237, 449-50, 461
 - Flour exports, 85, 88, 103, 104, 219

- Freight rates lowered, 88, 89, 213
- Grades, distribution of, 113, 116, 175, 177, 178, 179, 210
- Heading and flowering of wheat, time of, 17
- Inspection divisions, 177
- Marketing, rate of, 64, 116, 120, 121, 220-21
- Milling, 56, 88-89, 117
- Mixing, 251
- Prices, 69, 71, 109, 129, 130, 145, 239, 436, 445, 464; *see also* Winnipeg and Weighted Series of Cash Wheat Prices at Winnipeg
- Quality of wheat, 48-49, 56, 77, 116, 117, 210
- Receipts at primary markets, 101, 116, 121, 142, 436, 460
- Rye, 98
- Shipments, 82
- Stocks, 46, 123, 436; elevator, 66, 123, 240, 416; farm, 209, 221, 240; total, 221; in transit, 66, 240
- Visible supplies, 62, 64, 65, 107, 122-23, 143, 219, 220, 221, 238, 436, 439, 462, 463
- Yield per acre, 48, 52, 77, 96, 433; governed by weather conditions of September-April, 431; not proportional to rainfall, 21

Canadian Grain Act, Campbell amendment to, 251

Canadian Grain Statistics, 178

Canadian National Millers Association, 88

CANADIAN WHEAT POOL:

- Condition estimates, 432
- Control of crop under new sign-up, 368
- Influence of: on exports, 64; on prices, 225
- Range of payments for delivery, 249
- Sales policy, 64, 73, 88
- Stocks, 66
- Wheat inspected at Winnipeg passed to, 184; *see* Wheat under the Agricultural Marketing Act

Capper, Senator, on export debenture plan, 322

Capper-Volstead Act, 347, 366, 369, 379

Carrying charges, 264-66, 271-74, 287-88, 384-89; costs and profits, 376, 381-91; effect of, on wheat prices, 275; in terminals, 383-84; in relation to recurring seasonal price advance, 386-89

CARRYOVERS:

- Afloat, 61, 441
- "Carryover surplus," 355
- In exporting countries, 61, 441

- In United States and Canada, 1923-28, 65; 1919-28, 106, 441, 463
- Outlook for 1928-29 outward, 138, 332-34
- World: 1927-28 inward, and outward, 46; 1928-29, 435-39
- Central America, shipments to, 126, 217, 450; *see also* North America
- Cereal culture and trade, development of, 147
- CEREALS:
 - Biologically considered, 173-74
 - Calories contributed in the diet by, 159
 - Consumption of, in national economy, 171-73
 - Deficiencies of, 157; in relation to diseases, 161-62
 - In the diet, for various countries, pre-war, 150; range of use of, 166
 - Digestibility, 153-54
 - Mineral elements, 157
 - Outstanding food fuel, 147-48
 - Poor in fatty substances, 154-55
 - Protein value, 156
 - Trends in consumption, 148-49
 - See also* production statistics, Barley, Corn, Oats, Rice, Rye, Wheats

Charlier, C. V. L., 30

CHARTS:

- Forecasts of exporters' surpluses and importers' purchases, 53
- Prices, 69, 72, 74, 75, 130, 131, 133, 187, 190, 191, 224, 225, 226, 255, 258, 280, 442, 445, 446, 456
- Shipments, 79, 125, 216, 448
- Stocks in the United States, 65, 437
- United States wheat crop and domestic requirements, 363
- Visible supplies, 62, 122, 220, 436
- Wheat yields per acre, 52
- World wheat acreage, 51
- World wheat production, 1900-1927, 51

Chemistry of plant growth, *see* Plants

CHICAGO:

- Elevator charges, 265, 267, 383; insurance rate in, 384
- Prices: cash, 267, 447; futures, 71, 72, 73, 131, 132, 225, 226, 227, 442-43
- Visible supplies, 122, 436
- Wheat deliverable on contracts, 250

CHICAGO BOARD OF TRADE:

- Abuses in, 374
- Classification of wheats, 290
- Records, on high and low prices throughout crop year, 259

- Visible supply statement, 63, 122, 220, 436
- Chilcott, E. C., 9, 21, 36, 37
- CHILE:
- Acreage, 95
 - Crops, 50, 83, 97, 141, 235, 459
 - Domestic utilization, 110
 - Exports, 54, 214, 218
 - Flour exports, 103
 - Shipments to, 126; from, 127, 218, 449
 - Yield per acre, 96
- CHINA:
- Consumption, 93
 - Crops, 50, 85, 94, 126, 215, 217, 434
 - Exports from, 83, 93, 102
 - Flour: trade in, 93-94; imports of, 85, 94, 104
 - Importance of whole vs. milled cereals, 171, 172
 - Imports to, 94, 104
 - Milling, 93-94
 - Prices, 93
 - Shipments to, 126, 217, 450
- Combines, harvester-thresher, 63-64, 121; problems created by, 368, 385, 386, 404, 418
- Connor, A. J., 16, 17
- CONSUMPTION OF WHEAT:
- "Consumption surplus," 355
 - In 1927-28, 54-60, 207
 - Nutritional reason for increased, 166
 - Trends, 54-56, 59, 148-49, 169
- See also Disposition of wheat supplies; Domestic utilization; Flour; Per capita consumption and disappearance of wheat
- Co-operative marketing associations, see Wheat under the Agricultural Marketing Act
- CORN (MAIZE):
- Corn meal: retail prices of, 168; calorie price of, per dollar, 168
 - Crops, 49, 83, 98, 118
 - Price variability, 243
 - Protein value, 155
 - Rainfall value for, in corn belt, 21, 33
- "Corn bounty" legislation in England, 333-34
- Corn Trade News, see Broomhall's estimates
- Correlation, see Forecasting of crop yields
- Cotton: trend in change of yield of, 30; forecasting of, from favorable conditions, 34, 38; under the export debenture plan, 311
- Cromwell, R. O., 99, 114 n., 115, 429, 430 n.
- Crop insurance, 1-2, 352
- Crops: condition estimates, 4; estimates and forecasts, 98, 99, 114-19, 134, 208, 209, 235, 453; prospects for 1929, 134, 227-31, 452; quality of, in relation to environment, 13 n.; see Forecasting of crop yields
- CROPS OF WHEAT:
- Distribution, 52, 97
 - In 1928, 113; outlook for, in 1929-30, 427
 - Of principal producing countries, 97, 99
 - Value of, in different years, 76-78
 - World total, 50-51, 114, 134; relation of, to price, 420
- See also Crops, production statistics, Production of wheat, Forecasting Wheat Yields from the Weather
- CZECHO-SLOVAKIA:
- Acreage, 95
 - Crops, 97, 141, 208, 235, 459
 - Domestic utilization, 110
 - Flour imports, 103
 - Imports, volume of net, 80, 102, 105, 144, 237, 451, 461
 - Milling, 90-91
 - Potato crop, 98
 - Rye, 98
 - Stocks, 222
 - Yield per acre, 96
- D
- Dakotas, forecasting of wheat, barley, and oats in, 38
- DANUBE BASIN:
- Barley, 134
 - Consumption, 55, 211, 440
 - Corn, 440
 - Crop estimates and forecasts, 52, 114, 134, 209, 433, 453
 - Exportable surplus, 54, 134
 - Exports: forecasts of net, 137, 212, 213; volume of net, 81, 83, 218, 450
 - Marketing, 126
 - Oats, 134
 - Quality of wheat, 419
 - Rye, 134
 - Shipments from, 101, 128, 144, 237, 462
 - Stocks, 219, 221, 435, 440
- See also Bulgaria, Hungary, Jugo-Slavia, Roumania
- Davis, Joseph S., contributor to *Wheat Studies*, 94, 140, 234, 289, 346, 425
- Debenture, see Export Debenture Plan for Wheat
- Deficiency diseases, 160-63
- DENMARK:
- Acreage, 95
 - Crops, 97, 141, 208, 235, 459
- Domestic utilization, 110
 - Flour imports, 103
 - Imports, 102
 - Milling, 92-93
 - Rye, 98
 - Yield per acre, 96
- DIET:
- Alimentary pastes in, 152
 - American, 154, 155, 157, 166-67, 174; in 1911-17, 150, 151
 - Bread in, 153
 - Carbohydrates in, 151, 154
 - Changes in post-war, 169
 - Deficiency diseases due to, 160-63
 - Fat in, 151, 154-55
 - Food requirements of adult male, 151-52
 - Habits of diet, 148
 - Ingestion of foodstuffs, total, 149-50
 - Milk, importance of, 156, 158, 162
 - Mineral elements in, 156
 - Nutritional competency of foodstuffs, 165-67; factors in, 154; components of, 150
 - Price relationship to selection of foodstuffs, 168-70
 - Proteins, best for body, 155, 156
 - Roughage, 163-64
 - Sugar in, 151
 - Values, esthetic and psychological, 165
 - Vegetable constituents, 146
 - Vitamin sources, 155
 - Wheat: forms of ingestion of, 152-54; vitamin B in, 159
 - White flour, 158, 162; calories per person per day, 155
- Disposition of wheat supplies: in 1924-25 to 1928-29, 146; in 1927-28, 45; in 1928-29, 208; in exporting countries, 111, 240, 465
- Domestic utilization in various countries, 110; see also Carryovers; country headings; Imports; Production of wheat; Seed; The Place of Wheat in the Diet
- Dominion Bureau of Statistics, on Canadian crop of 1928, 439
- Donovan, H. C., 429, 430 n.
- Dubnietzky, N., 67
- Duluth: as exporter of substandard spring wheat, 314; futures market at, 406; receipts at, 121; shipments from, 82, 449; stocks in Duluth-Superior, 63, 448; visible supplies in, 63 n., 122, 220, 436
- Dumping, see Export dumping
- DURUM WHEAT:
- Acreage, 230, 430
 - Crop estimates and forecasts, 99, 115

DURUM WHEAT (*continued*):

- Effect, of export debenture plan on, 322-23; of the Agricultural Marketing Act, 406
- Exports, 82, 105, 406
- Flour and semolina production, 87
- Prices, 75
- Quality, 115

E

EGYPT:

- Acreage, 50, 95
- Crops, 50, 97, 126, 141, 215, 228, 235, 459
- Domestic utilization, 110
- Exports, 105, 144, 237, 461
- Flour imports, 85, 103, 104
- Imports, 102, 104
- Shipments to, 126, 217, 450
- Stocks, 223
- Yield per acre, 96

ELEVATORS:

- Charges, 265, 383-89
- Farmer-owned, 285
- Line elevator companies, 284
- Mixing practices, 273
- Successful operation of, 274
- Terminal and public, 273
- See Wheat under the Agricultural Marketing Act

Engberg, R. C., 241

Equalization fee plan, 301, 302

ESTHONIA:

- Acreage, 95
- Crops, 97, 141, 235, 459
- Domestic utilization, 110
- Imports, 102
- Rye, 98
- Yield per acre, 96

EUROPE:

- Acreage, 51, 228, 229, 433
- Barley, 118, 215, 452
- Consumption, 54, 222; trend of cereal, 148, 173
- Corn, 118, 215, 222, 452
- Crop estimates and forecasts, 49, 117, 118, 209, 211, 222, 229, 433-34
- Crop prospects, 227, 228-29, 427, 433
- Crops of other grains and wheat substitutes, 49-50, 118, 211
- Diet in, 155, 160; during the war, 172
- Imports, volume of net, 80
- Marketing, rate of, 120
- Milling, 90-93
- Oats, 118, 215, 452
- Potato crop, 49, 118, 215
- Prices, 240, 444-45
- Quality of wheat, 113, 117, 210, 222, 434

- Rye, crops of, 117-18, 134, 222, 452
- Shipments to, 101, 124, 144, 214, 215, 237, 462
- Stocks, 46, 67-68, 120, 135, 219, 222, 234, 435, 440-41
- Supplies of wheat, afloat to, 107, 143, 238, 462, 463
- Yield per acre, 52

EX-EUROPE:

- Consumption, 219
- Import requirements, 136
- Imports of and exports to, 80, 215; distribution of, 80
- Shipments to, 101, 124, 126, 144, 214, 215, 217, 237, 450, 462
- Stocks, 223

EXPORT DEBENTURE PLAN FOR WHEAT, THE, 301-46:

- Anti-bounty legislation, 336-37
- Arguments for, 304-8, 318, 331
- Bills providing for, 301, 302, 303, 309, 313, 319, 327, 328
- Bonuses to speculators and others, 310-11
- Costs to consumers and the Treasury, 345
- Debenture rates under, 303, 311, 316, 319-20, 326-29
- Discounts on debentures, 309, 310
- Distribution of advantages, 317
- Diversity in wheats as affecting, 314-18
- Effects of discontinuance, 311, 325, 344
- Effects on competing wheat-growing countries, 326
- Exports, 312, 320, 334, 338; competition among exporters under the plan, 312-14; effect of counter-legislation, 337
- Features of, 302-4
- Flexible provisions, 309, 326-29
- Flour under, 319-21, 339
- Foreign experience with analogous devices, 330-36, 344
- Foreign reactions, potential and probable, 336-41, 345
- History and authorship, 301
- Influence on acreage, 322-24, 326, 344
- Influence on exportable surpluses, 304, 341-42
- Influence on production, 308, 317, 322-30, 338, 343, 344
- Objections to, 301, 303, 321-22, 328-30, 337, 339, 340-41, 343, 344-46
- Price effects: theory, 306-8; on farm prices, 308-22, 324, 325-26, 337, 342-44; on premiums, 317; on world prices, 324, 326, 338, 344
- Price stabilization, relation to, 342-43

- Scope of, 302, 303, 323, 341
- Surplus control as, 341-42
- Export dumping, 377-78, 414-15
- Export parity, 317-19
- Exportable surpluses, 45, 54, 123, 207, 417; forecasting of, 53, 100, 134, 210, 211, 355-56, 454

EXPORTS:

- Estimates and forecasts of probable net, 137-40, 212-14, 427
- Flour, 128
- Outlook for 1928-29, 139
- Sources, 81-84, 104, 125-28, 217-19, 448-50
- Volume of net, 80, 105, 127, 144, 214, 218, 237, 449, 461
- See also country headings, Shipments, Trade, international, The Export Debenture Plan for Wheat
- Extraction, degree of, in relation to digestibility, 153
- Ezekiel, Mordecai, 421

F

- Farm storage, 385, 386
- Farmers: importance of forecasting crop yields to, 2, 26; psychology of, on crop forecasting, 4; returns to, see Wheat under the Agricultural Marketing Act
- "Farmers' National Grain Corporation," 371
- Fecundity, Darwin's law of, 12, 13
- Federal Farm Board, 303-4, 346; see Wheat under the Agricultural Marketing Act
- FEDERAL TRADE COMMISSION:
 - On average margins for different types of elevators, by years, 286, 287
 - On carrying charges in terminal elevators, 383
 - Report on the Grain Trade, 266-68
 - On seasonal variation, 286, 388
 - On variability of wheat prices, pre-war, 242

FINLAND:

- Acreage, 95
- Crops, 97, 141, 235, 459
- Flour imports, 103
- Imports, 102
- Rye, 98
- Yield per acre, 96
- Fisher, R. A., 10-11, 13, 21, 29, 31-32, 36, 37, 39

FLOUR:

- Baking quality of, 162
- Blended vs. whole wheat, 157-58
- Calories, per dollar, 1927-28, 168
- Composition of different types, 250, 391-92
- Exports, 82, 85, 87, 88, 91, 104, 108, 128

- Hard wheat, protein value of, 155
- Ingestion, per capita, 152
- Prices, 85, 87; considerations, in use of, 152; retail, 168; rye, 168
- Production, 87, 108
- Protein content from different varieties of wheat, 403
- Sales, 124 n.
- Stocks, 66, 107
- Trade in, 85, 103, 139
- White vs. whole wheat, 157-58, 168
- See also Exports, Milling, Shipments, The Export Debenture Plan for Wheat, Wheat under the Agricultural Marketing Act
- Flowering of wheat, time of, critical to growth, 17-18, 19
- "Fobbers," 314
- FOOD RESEARCH INSTITUTE:
- Estimates of consumption of wheat for human food, 1927-28, 56
- Estimates of crops in four leading countries, 134
- Estimates of net exports, 137, 139, 214
- Estimates of per capita flour consumption in the United States, 151
- Estimates of wheat stocks, 61, 66, 67, 439
- Experiments on spring-wheat growth, 6, 14, 17, 25
- Food resources of the world, development of, 147
- Foodstuffs, retail prices of, 168-69
- Forbes, E. B., 157-58, 170
- FORECASTING OF CROP YIELDS:
- Bibliography on, 42-44
- Correlation: analyses of, pitfalls, 30-37; coefficients of, 27, 28; curvilinear correlation, 33-34, 41; definition of, 27; deviation from normal employed, 28-29; environmental factor best suited for studies in, 29, 33; equation of regression, 27, 28, 31, 36; partial correlation coefficients, 31; probable error of coefficients, 29; relations not linear, 32-34, 41; secular trends, 31, 41; significance of, 29-30; treatment of crop failures in, 34-36; treatment of hail and hurricanes in, 36-37; trends of the weather, 31; variate difference method of, 30; between weather in months preceding sowing and wheat yields, 13
- Cotton, 34
- Crop growth and crop yield dispersion, 36
- Environmental factor, 29
- Importance of, 2
- Laws of growth of plants most accurate basis for, 24
- Methods, 3-5, 23-30, 37, 39-41
- Phenological records, 22-23
- To prevent famines, 1
- Rainfall, effect upon probable yield, 9
- For reproductive and vegetative crops, 11-12
- Results: reasons for conflicting, 23; lines of improvement, 39-41; present forecasts, 37-39
- Sugar, 35
- Weather: effect of wet weather near harvest, 13; limiting factors, 21-22; interrelation of weather factors, 31-32
- Wheat: action of winds on, during time of flowering, 9; aspects of certain stages of growth of, 12-19; critical stages, 19-20; best methods of forecasting, 40; effects of cool weather and moisture, 16; optimum conditions for, 21, 23; relation of crop yields to kernels, 13-14, 18; weather factors at non-critical stages, 20; trend of yields, changing of, 30; see also Winter wheat, Spring wheat
- Forecasting Wheat Yields from the Weather, Elements of an Unsolved Problem, 1-41
- Fort William and Port Arthur: grain in store at, 448; wheat receipts at, 101, 116, 117, 121, 142, 236, 460
- FRANCE:
- Acreage, 95
- Consumption, 55, 60; pre-war, of other cereals and wheat in the diet, 150
- Crop estimates and forecasts, official, 60, 97, 118, 141, 235, 433-34
- Crop value, 76, 77
- Domestic utilization, 59, 110
- Flour: imports of, 85, 92, 103; trade in, 92
- Imports, 80, 81, 102, 105, 144, 237, 216-17, 451, 452, 461; in 1926-27, 61; overstatement of, 1927-28, 61 n.
- Marketing, 120
- Milling, 92; regulation of, 60, 217
- Potato crop, 98
- Prices, domestic wheat, 68, 70, 109, 129, 130, 145, 224, 239, 464
- Purchasing power, 92
- Quality of wheat, 59, 81, 92, 217
- Rye, crops of, 98
- Shipments to, 125, 216, 451
- Stocks, 59-60, 67, 222, 440
- Tariffs, 68, 70, 73, 92
- Yield per acre, 96
- Freight rates on grain: ocean, 46, 65, 70, 106, 214, 443, 447; rail, 212, 232
- Futures trading, volume of, 132 n., 444 n.
- Futures contracts, grades deliverable on, 250, 290
- G
- Garner, W. W., 6
- Gericke, W. F., 11
- German Agricultural Council, 67
- GERMANY:
- Acreage, 95
- Consumption, 55, 59, 81; pre-war, of other cereals and wheat in the diet, 150
- Crop estimates and forecasts, 97, 141, 235, 433, 459
- Crop prospects, 433
- Crop value, 76, 77
- Domestic utilization, 59, 110
- Exports, 125, 219
- Flour: consumption of, 91; imports of, 85, 92, 103
- Import certificate system (*Einfuhrscheine*), 125, 219; compared to export debenture plan, 330-33
- Imports, volume of net, 80, 81, 102, 105, 144, 237, 451, 452, 461
- Marketing, 120
- Milling, 91-92
- Potato crop, 98
- Prices, domestic wheat, 109, 129, 130, 145, 224, 239, 445, 464
- Rye, crops of, 98
- Shipments to, 125, 216, 451
- Stocks, 67, 222, 440
- Tariffs, 452
- Yield per acre, 96
- Germination, conditions for, 14-15; a critical period of growth, 19
- Gilbert, J. H., 10
- Gluten, disadvantage of, in breakfast cereal, 153; advantage of wheat protein, 156
- Goldstein, B. F., author of *Marketing: a Farmer's Problem*, 388
- Grades and grading, 49, 99, 175, 183, 285, 290, 398, 402
- Grain exchanges, appraisal of, 374
- Grain Futures Administration, on fluctuations in wheat prices, post-war, 242
- Grain Standards Act, 253
- Grain trade, conducted on differential basis, 284-85; see Wheat under the Agricultural Marketing Act
- Great Britain, see United Kingdom

- Great Plains area: importance of evaporation in, on wheat yields, 9; yields not proportional to rainfall in, 21, 37
- GREECE:
- Acreage, 95
 - Crops, 97, 141, 235, 433, 459
 - Domestic utilization, 110
 - Flour imports, 85, 93, 103
 - Imports, volume of net, 80, 102
 - Milling, 93
 - Rye, 98
 - Shipments to, 125, 126, 216, 451
 - Tariff, 80, 93
 - Yield per acre, 96
- Griffing, E. P., contributor to *Wheat Studies*, 44
- H**
- Hail and hurricanes, factors in forecasting crop yields, 36-37
- Halsted, A. L., 22
- Hard Federation, experiments on, at Food Research Institute, 14, 15, 17; normal growth curve of, 25
- HARD RED SPRING WHEAT:
- Crops, 99
 - Exports, 82, 105
 - Percentages of various grades to total wheat, in Canada, 49, 116, 178; in United States, 398
 - Premium on, 1927-28, 47
 - See also Minneapolis
- HARD RED WINTER WHEAT:
- Amounts and percentages grading Nos. 1 and 2, to total inspections, United States, 398
 - Crops, 99, 431
 - Exports, 82, 105
 - Quality, 47, 86, 227
- Hard spring wheat, price effect on, of export debenture plan, 317
- Heat: effect of, on growth of green plants, 6-8; a factor in determining soil moisture, 9; at time of flowering, 16; minimum for wheat and sugar cane, 28
- Hedging, by dealers and millers, 265, 271, 272, 273, 274, 368, 390; exporters protection by, 314
- Hessian fly, factors favorable and unfavorable to, 16, 37
- Hessling, N. A., 38
- Holland, see Netherlands
- Hooker, R. H., 12, 13, 21, 27, 30, 35, 37, 38
- Hoover, President, on the export debenture plan, 301, 303, 310, 311, 312, 325, 337, 346; on the Agricultural Marketing Act, 347
- HUNGARY:
- Acreage, 95
 - Corn, 98
 - Crop estimates, 97, 141, 235, 433, 459
 - Domestic utilization, 58, 67, 110
 - Exports: forecasts of net, 139; volume of net, 83, 102, 105, 144, 213, 237, 461
 - Flour exports, 85, 90, 103
 - Marketing, 120
 - Milling, 90
 - Prices, 224, 445
 - Quality of wheat, 83
 - Rye, 98
 - Stocks, 67, 120
 - Yield per acre, 96
- Hyde, Secretary, on the export debenture plan, 312; on farm problems, 348, 420
- I**
- Importers: bonus to, under the export debenture plan, 310
- IMPORTERS' REQUIREMENTS:
- Ambiguity of term, 210
 - European, 45, 100, 134-35
 - Ex-European, 45, 54, 80, 100, 135
 - Forecasting, 53, 100, 135, 211
 - In 1928-29, 113, 207, 212
 - In 1929-30, 454
- IMPORTS:
- Allocation, 80
 - Data on, 100, 104
 - Distribution, 79-81, 125-26, 216-17, 450-52
 - European, 61, 80, 216-17, 451
 - Ex-European, 104, 217, 450
 - Forecasts, see Importers' requirements
 - Volume of net, 105, 144, 237, 461
 - See also country headings, Trade, international
- INDIA:
- Acreage, 3 n., 50, 51, 95, 428
 - Carrying practices, 272
 - Consumption, 55, 57; of cereals, 171
 - Crop estimates and forecasts, 50, 52, 83, 97, 114, 141, 209, 228, 235, 428, 453, 459
 - Crop prospects, 227, 228
 - Domestic utilization, 110
 - Exportable surpluses, 54
 - Exports: forecasts of net, 137, 212, 213; volume of net, 81, 83, 102, 105, 144, 218, 237, 461
 - Flour exports, 103
 - Imports, 83, 126
 - Shipments: from, 101, 127, 144, 217, 218, 237, 449, 462; to, 126, 450
 - Sowing, time of, 14-15
 - Stocks, 221, 435
 - Yield per acre, 96, 428; forecasting of, 34, 38; low, 50, 52
- International Institute of Agriculture, data on gross exports of flour, 85
- International Trade, see Trade, international
- Irish Flour Mills Association, 91
- IRISH FREE STATE:
- Flour imports, 103
 - Imports, 102, 105, 144, 237, 461
 - Milling, 91
 - Tariff, demand for, 91
- ITALY:
- Acreage, 95
 - Consumption, 55, 60, 217; pre-war, of other cereals and wheat in the diet, 150
 - Corn, 60, 98, 217
 - Crop estimates and forecasts, official, 92, 97, 141, 235, 433, 459
 - Crop prospects, 433
 - Crop value, 76, 77
 - Domestic utilization, 59, 110
 - Flour: imports of, 92, 103; exports, 92
 - Imports, volume of net, 80, 81, 102, 105, 144, 217, 237, 451, 452, 461
 - Marketing, 120
 - Milling, regulation of, 92, 217
 - Prices, domestic wheat, 60, 92, 109, 129, 130, 145, 224, 239, 464
 - Purchasing power, 60
 - Rye, 98
 - Shipments to, 125, 216, 451
 - Stocks, 60, 67, 222, 440
 - Tariffs, 92, 126, 129, 452
 - Wheat-growing conditions, 16-17
 - Yield per acre, 96
- J**
- Jacob, S. M., 27, 34, 38
- JAPAN AND CHOSEN:
- Acreage, 95
 - Consumption, 55, 94; of other cereals and wheat in the diet, 150
 - Crops, 50, 52, 97, 114, 141, 209, 235, 434, 453, 459
 - Domestic utilization, 94, 110
 - Flour: imports, 103; exports, 85, 94, 104
 - Imports, 102, 104, 105, 144, 237, 461
 - Milling, 94
 - Rice, critical month for crop, 26
 - Shipments to, 126, 450
 - Tariff restrictions, 94
 - Yield per acre, 96
- Jardine, Secretary, 121, 349
- Jones, Representative Marvin, 301; bills of, 309, 313, 328
- JUGO-SLAVIA:
- Acreage, 95
 - Crop estimates and forecasts, 83, 97, 141, 208, 211, 235, 433, 459
 - Domestic utilization, 58, 110

Exports: forecasts of net, 139; volume of net, 83, 102, 105, 144, 213, 237, 461
 Flour: imports of, 90; exports of, 85, 103
 Milling, 126
 Prices, 445
 Quality of wheat, 126
 Rye, 98
 Shipments to, 217
 Stocks, 223
 Yield per acre, 96

K

Kansas, correlation of yields and rainfall in, 22

KANSAS CITY:

Carlot sales of hard winter wheat, 248; controlling market for, 252

Classification of wheats, 290

Elevator charges, 383; insurance rate, 384

Premiums for protein, 252

Prices: annual average, adjusted by wholesale index numbers on 1913 base, 279; average changes between cash sales, 269; cash, annual weighted average, 129; cash, monthly, 109; cash, weekly, 130, 145, 239; deviations, 256, 257, 297; for hard winter and hard spring wheats, 252; May-June price of hard winter wheat, pre-war, 268; mean change, 268; net change between average cash sales prices at beginning and end of crop year, 269; variability, 258, 260, 289; weighted average price of reported cash sales of No. 2 Hard Winter, 292

Production of flour, 87

Visible supplies, 122, 220, 436

Ketcham, Representative, 301, 307; bills of, 303, 309, 313, 327, 328

Kincer, J. B., 28, 34, 38

King, P. Stanley, contributor to *Wheat Studies*, 192

L

LATVIA:

Acreage, 95

Crops, 97, 141, 235, 459

Domestic utilization, 110

Imports, 102

Rye, 98

Yield per acre, 96

Lawes, J. B., 10

Liebig's law of the minimum, 20-21, 32

Light, effect of, on maturity of green plants, 5-6

LITHUANIA:

Acreage, 95

Crops, 97, 141, 235, 459

Rye, 98

Yield per acre, 96

LIVERPOOL PRICES OF WHEAT:

Annual average, adjusted by wholesale index numbers on 1913 base, 279

Cash: monthly, 109; weekly, 145, 239, 464

Deviations of monthly average prices of red wheat, 298

Futures: prices of, 71, 72, 107, 131, 443; relationships between different, 225, 227; relationships between near and distant, 74

Month-to-month variations, 260, 261

Range of variations, 282

Spot prices of imported red wheat, 260, 293; as shown by Broomhall, 270 n.

Lubin, David, 307

M

MacPhail, A. J., 394

McKinley, Senator, 301

McKinley-Adkins bills, 303, 309

McNary bill, 301, 303, 319-20, 327

Manchuria, *see* China

Manitoba Free Press, 114, 115

Margin between exportable surpluses and importers' requirements, 45, 46, 52-54, 100, 113, 133-36, 207, 208, 210-12, 226, 428, 453-54

MARKETING OF WHEAT:

Rate of, in 1927-28, 120

See also Receipts at primary markets, Wheat under the Agricultural Marketing Act

Mauritius, correlation of rainfall in, with yield of sugar in, 35

Melbourne, prices of wheat at, 109

Mellon, Secretary, on export debenture plan, 309, 310, 325, 338

Merriam, Katharine, contributor to *Wheat Studies*, 94, 140, 234

MEXICO:

Acreage, 95

Crops, 97, 141, 235, 434, 459

Yield per acre, 96

Milk, biological importance of, 171; relation of supply to agricultural progress, 166

MILLERS:

Blending and mixing practices of, 250-51, 273, 353

Problems of, under the export debenture plan, 319-21, 339; under the Agricultural Marketing Act, 398

Millers National Federation, 124 n.

Millets, means of protection of, against desiccation, 10

Millfeeds, 85; selling of, 319

MILLING:

Extraction, 56

Modern tendencies in respect to quantity and quality of protein content, 353, 402

In 1927-28, 84-94

Statistics, inadequacy of, 84

See also country headings

Mills, F. C., 243, 286

Mills, R. W., 25, 33

MINNEAPOLIS:

Carlot sales of spring wheat, 247; prices of, 315

Classification of wheats, 290

Elevator charges, 383

Prices: annual average, adjusted by wholesale index numbers on 1913 base, 279; cash, monthly, 109; average changes between cash sales, 269; cash weekly, 145, 239, 446; cash spreads of, 76; net change between average cash sales prices at beginning and end of crop year, 269; for hard winter and hard spring wheats, 252; May-June price of hard spring wheat, 268; mean changes, 268-69; price deviations, 256, 257, 295; price variability, 258, 259, 260, 289; ranges, between high and low cash closing, of No. 1 to No. 3 Spring, 248; ranges on wheat grading No. 1, based on protein, 251; weighted average prices of reported cash sales of No. 1 Northern Spring wheat, 292

Receipts, 121

Representative market for hard spring wheat, 252

Stocks, 63

Visible supplies, 63 n., 122, 220, 436

Mixing, 184; in Canada, 251; of durum, 406; interests of grain dealers and millers divergent in, 251, 272, 403; objective of, in terminal markets, 250, 273

Moisture, effect of, on growth of green plants, 8-11, 13, 16, 18, 21, 32, 33; as index for forecasting yields, 39, 40

Moore, H. L., 26, 30-31, 38

MONROCCO:

Acreage, 95, 228

Crops, 97, 141, 228, 235, 428, 459

Domestic utilization, 110

Exports, 83, 102, 214

Yield per acre, 96

Murray, Janet, contributor to *Wheat Studies*, 94, 140, 192, 234

Murray, Nat C., 56, 99, 114 n., 115, 120, 230, 429, 430 n.

N

- National Grange, 301; support of the export debenture plan by, 305, 306, 329
- Navigation on the Great Lakes, opening and closing of, 1927-28, 64
- Nebraska Wheat Growers' Association, 400
- NETHERLANDS:
- Acreage, 95
 - Crops, 97, 141, 235, 433, 459
 - Domestic utilization, 110
 - Flour imports, 103
 - Imports, volume of net, 80, 102, 105, 144, 237, 451, 461
 - Milling, 92-93
 - Potato crop, 98
 - Rye, 98
 - Shipments to, 125, 216, 451
 - Stocks, 222
 - Yield per acre, 96
- NEW ZEALAND:
- Crops, 50, 95, 97, 141, 208, 235, 459
 - Flour, duty on, 89
 - Yield per acre, 96
- Norris, Senator, 302; amendment of, to McNary bill, 303, 327, 328
- NORTH AFRICA:
- Acreage, 51, 228, 428
 - Crop prospects, 227, 228, 428
 - Crops, 50, 52, 114, 209, 453
 - Shipments: from, 127, 218, 449, 450; to, 126, 217
 - See also Algeria, Egypt, Morocco, Tunis
- NORTH AMERICA:
- Carryovers, 65-66, 207
 - Crop prospects, 427
 - Crops, 46-49
 - Exports from, 81, 104; to Japan, 104; to China, Hong-kong, and Kwantung, 104
 - Marketing, 120-21
 - Shipments from, 101, 127, 144, 218, 237, 449, 462
 - Visible supplies, 107, 143, 207, 219, 238, 435, 462, 463
- Northern Hemisphere, crops of, 50, 52, 114, 209, 227, 228, 427, 452-53
- Northwest Grain Dealers' Association, 115, 116, 131-32
- NORWAY:
- Acreage, 95
 - Crops, 97, 141, 235, 459
 - Domestic utilization, 110
 - Flour imports, 103
 - Imports, 102
 - Rye, 98
 - Yield per acre, 96
- Nutritional competency of food-stuffs, 165-67; of milk, 171

O

- Oats: crops of, 49, 118; in food preparations, 153; calorie price of rolled, per dollar, 168; protein values in, 155; price variability of, 243
- Ohio, data on germination of winter wheat in, 15, 19, 20
- Oil-seed resources and trade, 147
- Okada, 26
- Omaha: prices at, 133; visible supplies in, 122
- Orient, milling in, 93-94

P

- PACIFIC COAST:
- Carrying practices in, 272
 - Crops, 78
 - Exports to China, Japan, and Philippines, 87-88, 128, 219
 - Kinds of wheat and uses of, 315
 - Quality of wheat, 405
 - Shipments from, 46, 405
 - Stocks, 121
- Pacific white wheat: crops of, 48, 99; exports of, 82, 105, 405
- Palestine, shipments to, 126
- Parcels prices, British, see Prices
- Pearl, Raymond, 149-50, 151, 166
- Pearson, Karl, 27
- Per capita consumption and disappearance of wheat and flour, 45, 55 ff., 59, 81, 139, 148, 149, 165, 167, 174, 215; daily, 150 n.; of flour, 151, 363; relation of, to prices of other foodstuffs, 167-70; trends in, 45
- Persons, W. M., 30
- Peru, shipments to, 126
- Peterson, G. M., 364, 366, 420
- Phenological records, importance of, 22-23
- Photosynthesis, formation of sugar in plants, 5
- Place of Wheat in the Diet, The, 147-75
- PLANTS:
- Growth, factors determining, 5-11
 - Law of the threshold, 34-35
 - Methods used to discover laws of growth, 24
 - Normal growth curves, 25
 - Phenomenon of growth, complications, 32-34
 - Reactions to environment, 11, 33
 - Reactions to weather factors, 11-20
 - Reproductive and vegetative growth, 11-12
 - Stages of growth, 12-19; critical periods, 19-20; interrelations of growth factors, 20-23; weather factors at non-critical stages, 20

POLAND:

- Acreage, 95
- Consumption, 67
- Crops, 97, 141, 208, 235, 433, 459
- Domestic utilization, 67, 110
- Exports, 105, 144, 237, 461
- Flour imports, 91, 103
- Imports, volume of net, 80, 102, 451
- Milling, 91
- Potato crop, 98
- Rye, 97
- Stocks, 67, 222
- Yield per acre, 96

PORTUGAL:

- Acreage, 95
 - Crops, 97, 141, 235, 459
 - Domestic utilization, 110
 - Imports, 102, 217
 - Rye, 98
 - Stocks, 222, 435, 440
 - Yield per acre, 96
- Potatoes: crops of, 49, 98, 118; price variability of, 243; use of, in China and India, 148
- Precipitation, effects of, upon crop yields, 9, 10
- Premium wheats, 249-50
- Premiums: on hard spring and hard red winter, 47; for protein content, 76, 86, 402-3, 447
- PRICE SPREADS OR MARGINS:
- Between cash and futures prices, 74-75, 131, 447
 - Between grades at Winnipeg, 76, 187
 - Chicago-Liverpool, 63, 72, 73, 457
 - Chicago-Winnipeg, 72, 73
 - Country elevators, 286-87
 - Minneapolis-Winnipeg, 76
 - Between near and distant futures, 74-75, 132
 - Winnipeg-Liverpool, 72, 73, 457

PRICES:

- Adjusted to calorie basis for cereals and sugar, 168-69
- Annual average, in different countries, 70, 73; deviations of adjusted, from corresponding prices of previous years, 300
- British parcels, 69, 129, 223, 445, 446, 456
- Cash, 69, 75-76, 109, 145, 227, 239, 251, 464; relation to futures, 74; sales, the basis of, 252, 272
- Comparisons: of British import, 69; of domestic wheat in Europe and British parcels, 74; between markets in different countries, 109, 130, 427
- Course of, 70-74, 130-32, 224-27, 441-45

- Export, 46, 68, 70, 71, 137; *see also* various markets
- Farm, *see* Variations in Wheat Prices, The Export Debenture Plan, Wheat under the Agricultural Marketing Act
- Futures: closing prices of, 130, 442; effect of, 263, 278; effect of absence of, 271 n.; influence of trade opinion on, 263; premiums on, 227; relation to hedges, 273; visible supply and prospective carryover on, effects of, 271, 387; volume of trading in, United States markets, 111; *see also* Wheat under the Agricultural Marketing Act
- Growers', 76-78
- Import, 70; *see also* Prices, British parcels, Liverpool prices
- Influences: of foodstuffs and other cereals, 283; of speculation, 283-84; of world, on domestic, 421
- International, 427
- Level of, 68-70, 124, 128-30, 136, 207, 223-24, 231, 445-46; concept of, 276-78, 387; fluctuations around, 242, 244, 262, 283, 284, 289; mean price, 242; relation to differences of variability, 258, 259; remuneration, 356-57
- New-crop, 270-71, 387; influence of prospects of, 277
- Outlook for, 136-37, 140, 231, 428
- Quotations, character of, 246-54
- Range, 247-49; within a grade, 252, 285
- Reflection of terminal to country wheat, 285, 286, 287
- Seasonal, relation to carrying charges, 386-89
- Series, Cash Wheat, at Winnipeg, 125-206; showing inter-seasonal variations, 278-82
- Spreads, relation to carrying cost, 275, 383
- Stability, 65; in various countries, 224
- Trends, long-term, 241-42
- Weighted average in United Kingdom, 1922-28, 68; in United States, 77, 129, 133, 223, 392; *see* Weighted Series of Cash Wheat Prices at Winnipeg, A
- "World," 46, 129; expression of prevision and insurance against disaster, 277
- See* Variations in Wheat Prices, various markets, The Export Debenture Plan for Wheat, The Agricultural Marketing Act
- PRODUCTION OF WHEAT:**
Forecasts, errors in, 50 n., 51 n.
- Profitableness, 76-78
- Statistics, 49, 52, 97, 99, 100, 114, 134, 141, 209, 453, 459
- Trend of world, 51
- See* The Export Debenture Plan for Wheat, Wheat under the Agricultural Marketing Act
- PROTEIN:**
Animal and cereal, 151
Competency of, 155
Composition, 155
In the dairy, 170
Legumes, as a source of, 148
Milk, as a source of, 162
In milled preparations, other than wheat, 155
Quality, 403
Source of energy, 155
Soy beans, as a source of, 172 n.
Use of, in the body, 167
In wheat: low in Canada, 48-49; percentage, dependence upon time of flowering, 18; premiums for, 76, 87, 447; source of, 155-56
- Q**
Quality of wheat: control of, 418; of crops of 1927-28, 47-49; of 1928-29, 210
- R**
Rainfalls, *see* Moisture
Receipts at primary markets, 63, 101, 142, 236, 460
Report on the Grain Trade, by Federal Trade Commission, 266-68
Representative and sub-standard wheats, 392
RICE:
August, critical month for, in Japan, 26
Calorie price of, per dollar, 168
Crops, 93, 215, 217
Diet of polished, 160
Monthly price variability, 243
Retail prices, 168
Use of, 148
Rogers, Thorold, on English bounty system, 334
Rothamsted, field experiments at, 25-26, 32, 37
ROUMANIA:
Acreage, 95
Corn, 98
Crop prospects, 433
Crops, estimates of, 83, 97, 141, 235, 433, 459
Domestic utilization, 58, 110
Exports, volume of net, 83, 102, 105, 144, 213, 237, 461
Flour exports, 85, 103
Forecasting, inaugurated in, 25
- Marketing, 120
Milling, 90
Rye, 97
Stocks, 120
Yield per acre, 96
- RUSSIA, SOVIET:**
Acreage, 50, 58, 95, 229, 434
Carrying practices, 272
"Collections," 120
Consumption, 57-58, 119
Corn, 98
Crop estimates and forecasts, official, 50, 52, 58, 97, 114, 119, 141, 209, 218, 235, 453, 459
Disappearance, 57-58
Exportable surpluses, 54, 93
Exports: forecast of probable, 137, 212, 213; volume of net, 58, 81, 83, 102
Imports, 68, 83
Flour, prices of export, 93
Milling, 93
Potato crop, 50, 98
Quality, 419
Rye, 50, 98, 119
Rye flour, replaced by wheat, 58
Shipments from, 101, 127, 144, 218, 237, 449, 462
Stocks, 58, 62, 67, 221, 425, 441
Yield per acre, 50, 96, 229
- Russian Bureau of Agricultural Meteorology, 25
Rutherford, P. C., 140, 234
Rye: crops of, 49, 98, 117-18, 134, 136, 211; production of, 98; shipments of, 101; price variability of, 243
- S**
St. Joseph, flour production in, 87
St. Louis:
Classification of wheats, 290
Elevator charges, 383
Net change between average cash sales prices at beginning and end of crop year, 269; average changes, 269
Preferred market for cash quotations of soft red winter wheat, 252
Prices: annual average, adjusted by wholesale index numbers on 1913 base, 279; cash, monthly, 109; cash, weekly, 145, 239, 446, 464; deviations, 256, 257, 296; May-June price of soft red winter wheat, pre-war, 268; mean changes, 268; variability, 258, 260, 289; weighted average prices of reported cash sales of No. 2 Red Winter wheat, 292
Visible supplies, 122
Sachs, J., 14
Sahara, arid areas of, 10

- Sande-Bakhuyzen, H. L. van de, 14, 17
- Sanford Evans Statistical Service, 115, 116
- SCANDINAVIAN COUNTRIES:
- Domestic utilization, 59
 - Imports, 80, 105, 144, 237, 451, 461
 - Shipments to, 125, 216, 451
 - Stocks, 222
 - See Denmark, Norway, Sweden
- Seed: requirement of wheat, 138; use of, for sowing, 54, 56, 57, 58, meteorological requirements for, 11-12
- Semolina, 87, 152
- Shaw, Sir Napier, 26, 35
- SHIPMENTS:
- Course of, 124
 - To European destinations, 124, 125-26, 216, 447, 451; to ex-European destinations, 124, 126, 447
 - From exporting countries, 124, 127, 214
 - Outlook for, 1928-29, 232
 - Seasonal variation, 78-79, 215-16, 448
 - Wheat and flour, 78, 124, 144, 214, 215, 218, 237, 449, 462
 - Wheat and rye, 101
- Sicot, Ernest, 67
- Smith, J. Warren, 12, 21, 30, 33, 34, 38
- Smoot, Senator, 337
- Snow, B. W., 99, 114 n., 429, 430 n.
- SOFT RED WINTER WHEAT:
- Acres, 229
 - Amount grading Nos. 1 and 2 to total inspections, United States, 398
 - Crops, 65 n., 70, 99, 115, 230, 431, 446
 - Exports, 82, 105
 - Milling characteristics, 252
 - Premiums, 70, 71, 75
 - Prices, 75
 - Quality, 70
 - Regional characteristics, 252
 - Soil requirements: temperatures, 7-8, 14; see Moisture
- Sorghums, 148; means of protection against desiccation, 10
- SOUTH AFRICA, UNION OF:
- Acres, 95
 - Crops, 50, 97, 141, 235, 459
 - Imports, 104
 - Shipments to, 126, 217, 450
 - Yield per acre, 96
- SOUTHERN HEMISPHERE:
- Crops, 50, 52, 114, 119, 209, 453
 - Outlook for crops, 1928-29, 227; 1929-30, 434
 - Stocks, 66-67, 439-40
- Sowing, effects of too early, 16; dates of, for forecasting, 41
- Soy bean, 172 n.
- SPAIN:
- Acres, 95
 - Crops, 93, 97, 118, 141, 208, 235, 433, 459
 - Domestic utilization, 59, 110
 - Export restrictions, 60, 93
 - Flour imports, 73, 103
 - Imports, 93, 102, 217
 - Milling, 93
 - Rye, 98
 - Shipments to, 125, 216, 451
 - Stocks, 222, 435, 440
 - Yield per acre, 96
- SPECULATION AND SPECULATORS:
- Amateur and professional, 263; pool, 395
 - Carrying charges, in part, borne by, 265, 271
 - Day-to-day fluctuations ascribed to, 246, 374
 - Effect of, 264, 283-84, 395
 - In 1927-28, 71, 72, 132; course of, 444 n.
 - Short selling, 271
 - Significance for export debenture plan, 310-12
 - See also Futures, Wheat under the Agricultural Marketing Act
- SPRING WHEAT:
- Acres, 47, 99, 100, 430; farmers' intentions to plant, 230, 430
 - Basis of world trade, 288
 - Condition of crop, estimates of, 431-32
 - Crop estimates and forecasts, 47, 99, 100, 114, 230-31, 430
 - Crop prospects, 227, 288, 430, 446
 - Germination, manner of, 15
 - Grades, 47, 99
 - Growth, Food Research Institute experiments on, 6, 14, 17, 25; factors in, 16
 - Prices, 75; variability of, 243
 - Quality, 47, 115, 210
 - Visible supplies, 63
 - Weight per measured bushel, 115
 - Yield per acre, 47, 100
 - See also Hard red spring wheat, Durum wheat
- Statistical position, see Margin between exportable surpluses and importers' requirements
- Stewart, Charles L., author of the export debenture plan, 301, 306-7, 346
- Stocks:
- Afloat, 46, 436-37
 - In exporting countries, 61, 123, 219-21, 233-34, 437-40
 - In importing countries, 46, 59, 61, 62, 67, 221-23, 440
 - World, 120, 207, 441
 - See also Carryovers, Visible supplies
- Stone, George F., 307
- SUGAR:
- Bounties on, compared to export debenture plan, 334-36
 - Caloric price per dollar, 168
 - Consumption, 148, 165
 - Correlating rainfall for, 35
 - Effect of tariff on, 321
 - Effects of cyclones on, 36
 - As an energy food, 165
 - Importance of crop yield forecasts of, 2
 - Minimum temperature for cane, 28
 - Retail prices, 168
 - World resources, 147
- Sugar beet, tap root system of, 10
- Supply and demand: cause of wheat price fluctuations, 263; adjustment of, under Agricultural Marketing Act, 416-21
- SUPPLY POSITION, INTERNATIONAL:
- In 1927-28, 46-54; in 1928-29, 14, 113, 114, 208
 - See also Margin between exportable surpluses and importers' requirements
- Surpluses, types of, 355-59; problem of, 359-60; world, 365
- SWEDEN:
- Acres, 95
 - Crops, 98, 141, 208, 235, 459
 - Domestic utilization, 110
 - Flour imports, 103
 - Forecasting, 38
 - Imports, 102
 - Introduction of improved varieties of seeds, 31
 - Rye, 98
 - Yield per acre, 96
- SWITZERLAND:
- Acres, 95
 - Crops, 97, 141, 235, 433, 459
 - Domestic utilization, 110
 - Imports, volume of net, 80, 102, 105, 144, 237, 451, 461
 - Rye, 98
 - Yield per acre, 96
- Syria: crops of, 434; shipments to, 126
- T
- Taber, L. J., on export debenture plan, 304, 307, 341
- Tariffs on wheat, 129-30; see The Export Debenture Plan for Wheat, Wheat under the Agricultural Marketing Act

- Taussig, F. W., 245
- Taylor, Alonzo E., contributor to *Wheat Studies*, 94, 140, 234, 289, 346, 425, 458
- Taylor, Elizabeth Brand, contributor to *Wheat Studies*, 289
- Thatcher, R. W., 17
- Threshold, law of, 20, 33, 34, 36
- Tillering, of winter wheat, 16
- Times of Argentina*, 119, 209, 439
- TRADE, INTERNATIONAL, IN WHEAT AND FLOUR:
- Adjusted to price registration on grain exchanges, 374
 - Annually from 1920-21, 102-4
 - Changes in character, 288
 - Distribution of imports, 79, 125-26, 216-17, 451-53
 - Factors affecting, 124
 - In flour only, 85, 103
 - Monthly, 105, 144, 237, 461
 - Movements in, 45-46, 78
 - Outlook for, 113, 231-32, 428, 454-55
 - Sources of exports, 78, 81-84, 104, 126-28, 217-19, 448-50
 - Volume and course of, 78-79, 84, 124, 207, 214, 215, 447-48, 455
 - See also Exports, Imports, Shipments
- TUNIS:
- Acreage, 95, 229
 - Crops, 97, 141, 228, 235, 428, 459
 - Domestic utilization, 110
 - Exports, 83, 105, 144, 214, 237, 461
 - Imports, 102, 103
 - Yield per acre, 96
- Turkey, shipments to, 126, 215
- U
- UNITED KINGDOM:
- Acreage, 95
 - Consumption, 55, 60; pre-war, of other cereals and wheat in the diet, 150
 - Crop estimates and forecasts, 97, 141, 235, 433, 459
 - Crop value, 76, 77
 - Diet in, 172-73
 - Domestic utilization, 59, 110
 - Flour, imports of, 85, 91, 103
 - Grain export bounties, compared to the export debenture plan, 333-34
 - Imports, 80, 81, 102, 105, 125, 144, 172, 217, 237, 451, 461
 - Marketing, 120
 - Milling, 91
 - Potato crop, 98
 - Prices: changes in, 261; deviations of monthly average, imports, 299; domestic wheat, 60, 69, 71, 109, 129, 130, 145, 223, 239, 441-42, 469; import wheat, 260, 279, 282, 294; import parcels prices, 130; stability of import, 261, 262; weighted average, 68, 445; see Variations in Wheat Prices
 - Quality of wheat, 60, 217, 223-24
 - Shipments to, 65, 124, 125, 216, 451
 - Stocks, 60, 67, 222, 435, 437, 440, 441
 - Visible supplies, 65, 107, 143, 462, 463; United Kingdom and afloat, 62, 65, 107, 122, 143, 238, 463
 - Yield per acre, 96; relation of weather to, 12-13, 21, 38; see Rothamsted
- UNITED STATES:
- Acreage, 51, 77, 95, 99, 100, 115, 323, 361; abandonment of, 99, 207, 230, 352, 417, 429; relation to world, 420
 - Carryovers, 61, 65, 66, 106, 232, 233, 435, 437, 438, 441, 463; carrying charges, 272
 - Consumption, 55, 56, 363, 438
 - Cost of production, 77 n.
 - Cotton, trend of yields, 30
 - Crop estimates and forecasts: official, 46, 52, 97, 99, 100, 114, 115, 141, 208, 209, 210, 230, 235, 361, 362, 427, 429, 430, 438, 453, 459; errors in, 46 n.; unofficial, 364, 429
 - Crop prospects, 227, 229-30, 429
 - Crop value, 76, 77
 - Disposition of wheat supplies, 111, 146, 240, 465
 - Domestic utilization, 110, 356 n.; compared to crops, 363, 364
 - Elevators, see Wheat under the Agricultural Marketing Act
 - Exports: distribution by classes of wheat, 82, 358-59, 404, 410; by ports, 82, 120; to ex-Europe, 449; forecasts and estimates, 137, 212, 231; prices of, to Europe, 279, export, 282; volume of, 63, 81, 82, 102, 104, 105, 127, 144, 218, 219, 237, 448, 449, 461
 - Farmer's intentions to plant, 77, 130, 230
 - Flour: consumption of, 86, 363; disappearance of, 108; seasonal variation of, 86; exports of, 82, 85, 87-88, 103, 104, 108, 315; imports of, 86; production of, 85-86, 87, 108; rate of extraction from wheat, 86; shipments of, 108; stocks of, 66, 86; types of, for export, 315
 - Grades and grading in, 99, 100, 251
 - Imports, 105; from Canada, 83, 100
 - Marketing, 82, 120-21, 411, 435; see Wheat under the Agricultural Marketing Act
 - Millfeed, 56, 86
 - Milling in 1927-28, 85-88, 121
 - Prices: average cash, 63, 69, 71, 75-76, 109, 111, 129, 130, 132-33, 145, 219, 227, 239, 446-47, 448-49, 464; export price parity, 318; influenced by prospective legislation, 207, 219, 225, 226, 443; other influences, 288; outlook for, 1929-30, 137; relationships between, compared for crop years, 75; weighted average, annual, 77, 129, 133, 445; see also various markets, Variations in Wheat Prices
 - Quality of wheat, 47-48, 115, 210, 359, 377, 392, 410-11, 417, 431
 - Receipts at primary markets, 101, 120, 142, 236, 460
 - Rye, crops of, 98
 - Stocks: city mill, 66, 107, 123-24, 220, 232, 437; country mill and elevator, 65, 66, 107, 219, 240, 437, 438; farm, 65, 219, 220, 240, 437; flour, 65; movements of, 120-21, 219-20; terminal, 66, 107, 240, 438; total, 138
 - Studies on wheat, 38
 - Supplies, 438
 - Surpluses in, 363; relation to world, 365
 - Tariff, see The Export Debenture Plan for Wheat, Wheat under the Agricultural Marketing Act
 - Types of wheat, 314-15
 - Visible supplies, 62-63, 65, 107, 121-22, 143, 219, 220, 232, 238, 435, 437, 462, 463
 - Wheat in the food supply, 149-54
 - Yield per acre, 52, 96, 100, 115, 352, 361, 362
 - See The Export Debenture Plan for Wheat, Wheat under the Agricultural Marketing Act
- U.S. BUREAU OF THE CENSUS:
- Estimates of milling ratios, 47
 - Estimates of stocks held by city mills, 65, 66, 107, 124, 220; mill stocks, 438; wheat and flour, 3
- U.S. DEPARTMENT OF AGRICULTURE:
- On average producers' prices of wheat, 285
 - Estimates of area sown in Europe, 228
 - Estimates of carryover, 441
 - Estimates of "country mill and elevator" stocks, 65
 - Estimates of farm stocks, 65
 - Estimates of international statistical position, 135
 - Estimates of world wheat crop, 50-51

U.S. DEPARTMENT OF AGRICULTURE
(continued):

- Forecasts of Argentine crop, 119, 439; of Canadian crop, 431; of French crop, 433; of Australian stocks, 439
- Forecasts of net exports in 1928-29, 137, 139
- Method of correlation used in forecasting yields of crops in foreign countries, 38
- On weighted average prices per bushel of carlot sales, 253
- U.S. Department of Commerce, on debenture plan, 337; flour export statistics of, 82
- U.S. Department of Labor, average retail prices of cereal preparations and sugar of, 168
- URUGUAY:
 - Acreage, 95
 - Crops, 83, 97, 141, 208, 235, 459
 - Exports, 83
 - Shipments from, 101, 144, 237, 462
 - Yield per acre, 96
- Utah, average temperature rise in, 23

V

VANCOUVER (AND PRINCE RUPERT):

- Cash wheat transactions at, 180
- Exports, 82-83, 100
- Receipts of wheat, 101, 116, 121, 142, 180 n., 436, 460
- Stocks, 123
- As a terminal market, 186
- Vandenberg, Senator, on reactions of foreign governments to export debenture plan, 338
- Van't Hoff's Law, 7, 28

VARIATIONS IN WHEAT PRICES:

- American, 256, 258, 260, 281-82, 283, 288
- "Annual price cycle," 266
- Averages: annual, 262-63, 279, 289; of arithmetic means, 259; of month-to-month changes, 257-58; use of, as expression of wheat price level, 276
- British, 261 281, 282
- Cash wheats, 249
- Causes of, 263-64
- Classes of, 241, 249-51
- Comparative variability, 242-44
- Day-to-day, 245, 246, 259
- For different grades, 249
- Effects of, on different kinds of wheat, 259
- In exceptional years, 256
- Farm prices, 284-88
- Inter-seasonal, 244, 275-84
- Intra-seasonal, 244, 264
- Margins, 286-87
- Means, averages of, 259

- Measures of price variability of leading agricultural and industrial commodities, 243
- Medians of month - to - month changes, 258-59
- Month-to-month, 245, 254-64, 278, 288
- Pre-war and post-war, 288-89
- Range of, 282
- Relation between business conditions and wheat prices, 241
- Relation of speculation to, 246
- Seasonal, 244-45, 259, 286; recurring price movement, 264-75
- Short-term fluctuations, 245-46
- In terminal markets, 244
- Types, 244-46, 262
- Vegetative crops, meteorological requirements of, 11-12
- Victoria (Australia), milling in, 89; yields not proportional to rainfall in, 21
- Visible supplies, 62-65, 107, 121-23, 143, 219-21, 238, 435-37, 462, 463; see Bradstreet's commercial visible, Charts, country headings, Stocks
- VITAMINS:
 - A, in wheat, 155; 159, 172
 - B, 159, 160, 161, 162-63, 172, 174
 - C, 159
 - D, 159, 162
 - E, in wheat, 155, 159
 - Wheat as a source of, 158-63

W

- Wallen, A., 30, 38
- Walter, A. H., 28, 35, 36
- Watson, Senator, 301
- Weather: influence of reports of, on wheat prices, 263; factors of, 5-11; factors limiting, 21-22; favorable for reproductive and vegetative crops differentiated, 11-12; phenological records, 22-23; see Forecasting Wheat Yields from the Weather
- WEIGHTED SERIES OF CASH WHEAT PRICES AT WINNIPEG, A, 175-206:
 - Average cash closing prices and weighted averages weekly, compared, 193
 - Grades of wheat determined by primary inspection, 179; weekly, from August 1922, 200-206
 - Percentages of all wheat inspected in higher-priced and tough grades, 189
 - Prices: normal relations between various grades, 187-88; estimated weights for prices of tough wheats, 183; relation of physical receipts to sales, 185; relation of sales to inspections, 180; causes of variations in spreads, 188

- Weighting, 179-81; by inspections rather than sales, 183-85
- Wells, F. B., 367
- West Indies, 104
- Wheat Stabilization Corporation, 313, see Wheat under the Agricultural Marketing Act
- WHEAT UNDER THE AGRICULTURAL MARKETING ACT, 347-425:
 - Accounting, system of, 370; international, 411
 - Acreage and yield surplus, 360-65, 419; control of, 365-66, 417-21; limitation of, 365-66
 - Arguments for, 351
 - Assessments, to members, 370
 - Co-operative marketing associations; farmers', 348, 369-71, 372, 379, 381, 394, 417; relation of Farm Board to farmers', 369; regional, 369, 396
 - Canada: experience of wheat pools in, as example to proposed organizations in United States, 367, 368, 371, 372, 380, 393, 395, 410, 411
 - Carryovers, control of, 375-76, 406-8
 - Contrast with domestic allotment, equalization fee, and export debenture plan, 347, 348, 350, 424
 - Control of crop, 370; of production, by restraint of acreage, 417, 419-21, 423
 - Credits, 371, 378, 379
 - Elevators: charges in terminal, 383-84; commercial elevator system, 368; overextended in United States, 367; private and public, 389; sources of profits, 389-90; terminal, business departments of, 389
 - Farm Board, see topics; relation of, to grain exchanges and futures trading, 373-75
 - Flow of wheat to export, control of, 408-14
 - Futures trading, 374-75, 393-95
 - Grain trade: appraisal and abuses in exchanges, 373; relation of, to Farm Board, 366-69, 373; implications for, under reorganized co-operative marketing by growers, 367, 368, 397; merchandising, the source of profit of, 389-90
 - Growers, wheat: dissatisfaction of, with prices, 349; financial situation of, 349; variation of returns to, 352-53; views of, on handling of wheat, 367, 380
 - Hedging, 368-69, 390
 - History of, 347
 - Losses, operative, 370, 371, 378, 379, 380
 - Marketing: centralized, 403-4; for premium grade wheats, 404; for special wheat, 404-6;

- policy of, under the Act, 373, 409-10, 411, 414-15; position of United States, in world market, 358; source of profits in, 390
- Mixing practices, 398
- Objectives, 348, 351, 354
- Organization and policy, 366-81; administration, 402-15; procedure, 391-402
- Price - influencing procedures, 375, 377, 390, 391-402, 409, 412-14; price insurance, 378
- Profits, distribution of, 370, 379, 402
- Relation to tariff, 376, 405, 420
- Reprisals, in foreign countries, 377, 415
- Segregation, of wheats, 399, 400-401
- Speculation, 374, 395, 397
- Stabilization corporation, 348, 369, 371, 372, 377, 379-80, 381, 396, 407, 410, 414
- "Stabilization" of prices: vs. elevation of prices, 353, 377; limitations, 351-54; meaning of, 350, 402; objective, 350-51, 424; remedial efforts for, 352
- Surplus and export problems, 360
- Trading tactics, 373
- Yields, stabilization of wheat, 352
- Wichita, visible supplies in, 122
- Wind, effects of, on crop growth, 9, 16, 18
- WINNIPEG:**
- Dominant terminal market in Canada, 185
- Exchange at, 179
- Greatest single cash wheat market in the world, 177, 181
- Prices: annual average, adjusted by wholesale index numbers on 1913 base, 279; cash, 251; cash, daily, 293; cash, determination of, 251; cash, monthly, 109; cash, weekly, 145, 239, 464; change between average sales at beginning and end of crop year, net, 269; changes, average, 269; comparison of, with international prices, 129; deviations of monthly average closing prices of No. 1 Manitoba northern wheat, 297; futures, course of, 71, 72, 131, 132; futures, daily closing, 131; futures, relationship between different, 74, 225, 227, 441, 443; median change in prices, 260; month-to-month changes, 259, 260, 261, 289; spreads, 76; *see* A Weighted Series of Cash Wheat Prices at Winnipeg
- Wheat inspected, destination of, 184
- Winnipeg Grain Exchange, sample market of, 404 n.
- WINTER WHEAT:**
- Acreage, 47, 99, 100, 228, 229; abandonment of, 47, 99, 429; dependence of, on autumn rainfall, 3 n.; reduction of, in fall, 10
- Condition estimates, 47, 429
- Crop prospects, 227, 228
- Germination and growing period, 15, 16
- Grades, 47, 99
- Protein content, 115
- Quality, 47, 115
- Weather factors at non-critical stages, 20
- Weight per measured bushel, 115
- Yield per acre, 47, 100
- See also* Hard red winter, Soft red winter, Pacific white
- Winterkilling, causes of, 20
- Working, Holbrook, contributor to *Wheat Studies*, 289, 346, 425, 458
- WORLD WHEAT SITUATION:**
- Review of the crop year, 1927-28, 45-112
- Summaries of, 50-52
- Surveys of, August to November, 1928, 113-46; December 1928 to April 1929, 207-40; April to July, 1929, 427-65
- Y**
- Yield per acre of wheat, world, 51-52; stabilization of, 352; *see* Forecasting Wheat Yields from the Weather.
- Yule, G. U., 27, 29
- Z**
- Zapoleon, L. B., contributor to *Wheat Studies*, 346