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PROCEEDINGS OF THE
EIGHTH
INTERNATIONAL CONFERENCE
OF
AGRICULTURAL ECONOMISTS

HELD AT
KELLOGG CENTER
MICHIGAN STATE COLLEGE
U.S.A.

15-22 AUGUST 1952

GEOFFREY CUMBERLEGE
OXFORD UNIVERSITY PRESS

LONDON NEW YORK TORONTO

1953

WORLD PURCHASING POWER IN RELATION TO FOOD PRODUCTION

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THE subject with which we are concerned this evening requires us to consider the terms on which food is bought and sold. Over the world as a whole, probably only a minority of those engaged in producing food do so for the purpose of selling their output, and probably only a minority of the world's consumers obtain their food by purchase. But whether or not this is so, the question of purchasing power in relation to food is of great concern to the wealthier part of the world because it is there that commercial agriculture and the exchange economy is most fully developed. Those who buy their food make their purchases with money, and their buying power depends on their money incomes in relation to the prices of food. Their money incomes in turn depend upon the value of what they themselves produce; thus their ability to buy food is ultimately determined by the exchange ratio or relative price level of food and of other products. What I should like to do is to examine some of the changes since the close of the war which affect these ratios of exchange and bear upon the general relation of purchasing power to food production and consumption.

I. World Food Production

The first difficulty we confront is that we have no adequate measure of world food production since the war. The series of index numbers published before the war by the League of Nations have not been continued, and the available statistics, particularly in regard to livestock products, are too fragmentary to permit reliable estimates of world totals of food production. For crop production the information is more complete. The index numbers given in my first table have been calculated principally from statistics published by the F.A.O. and the U.S.D.A. with weighting based as far as possible on pre-war dollar export prices.

The picture they present is familiar in its main outline. World production of food crops in recent years has been about 10 per cent. higher than in the five years preceding the war. This increase however is somewhat less than the increase in world population. Moreover, it

should be noticed that the five-year period 1934-8 used as the base for this comparison includes three years, 1934 to 1936, in which world crop output was abnormally low in relation to the output reached both in the preceding and in the following years. It is possible that the two years 1937 and 1938 might provide a better indication of the pre-war average output from normal harvests. This level of output has not been appreciably exceeded in any post-war year.

Output of livestock products, as would be expected, has lagged behind crop output and does not appear to have kept pace with population growth in any continent except North America. Food output per head of population is below pre-war standards in Asia, South America, and Europe; North America is the only continent in which output per head has substantially increased.

TABLE I
Index Numbers of World Food Production
(1934-8 = 100)
A. *World Production of Food Crops (excl. U.S.S.R.)*

	1947	1948	1949	1950	1951
Wheat	101	113	109	113	114
Rye	67	90	94	94	93
Barley	96	109	105	112	120
Oats	91	109	106	110	111
Maize	107	137	125	117	120
Rice	96	102	101	100	102
Potatoes	85	104	92	107	96
Sugar	105	115	117	130	136
Oilseeds	113	110	118	113	127
Total, food crops	96	111	106	110	110
World Population* (excl. U.S.S.R.)	109	110	111	112	

* 1937 = 100.

B. *Production by Continents*

	Food crops (1949-51)	Meat (1950-1)	Milk (1950)	Population* (1950)
Europe (excl. U.S.S.R.)	101	97†	95†	107
North America	146	137	112	120
South America	99	119	‡	130
Asia	100	‡	‡	111
Africa	125	‡	‡	117
Oceania	129	105	108	119

* 1937 = 100. † Western Europe. ‡ Not available.

This classification by continents, however, is unduly favourable to North America and probably somewhat unfair to western Europe. North American output experienced very wide fluctuations during the 1930's, and crop failures in North America were largely responsible for the low world output in 1934-6. If measured from the

TABLE II
World Food Crop Production Before and After Two World Wars
A. *World Production (excl. U.S.S.R.)*

	1923-5 as % of 1909-13	1949-51 as % of 1934-8
Wheat . . .	109	112
Rye . . .	86	94
Barley . . .	100	112
Oats . . .	107	109
Maize . . .	104	121
Rice . . .	108	101
Potatoes . . .	103	98
Sugar . . .	130	128
Oilseeds . . .	128	119
Total . . .	108	109

B. *Production by Continents*

	Crop production 1923-5 as % of 1909-13	Population 1924 as % of 1913	Crop production 1949-51 as % of 1934-8	Population 1950 as % of 1937
Europe (excl. U.S.S.R.)	94	104	101	107
North America .	115*	119*	146	120
South America .	155†	125†	99	130
Asia . . .	107	104	100	111
Africa . . .	126	107	125	117
Oceania . . .	137	117	129	119
World (excl. U.S.S.R.)	108	106	109	112

* Excludes Caribbean countries. † Includes Caribbean countries.

average of 1937 and 1938 instead of the five-year average the increase in North American crop output in 1949-51 becomes 25 per cent. instead of 46 per cent.

Output in western Europe, however, has increased by a larger amount than is suggested by the figure for the continent as a whole. Index numbers of total agricultural production in 17 west European countries (and Turkey) have been published by the Economic Commission for Europe. The weighted average for the area as a whole has risen rapidly in the last few years and in 1950-1 was about 10 per

cent. higher than the pre-war average. This is an increase about equal to the aggregate population increase in the group of countries concerned. It is the result, in large measure, of the relatively big expansion in output achieved by such countries as the United Kingdom, Denmark, the Netherlands, and Turkey.

It is of interest to compare the general changes in crop output since the 1930's with the similar changes in output following the war of 1914-18. This comparison is attempted in Table II, which utilizes

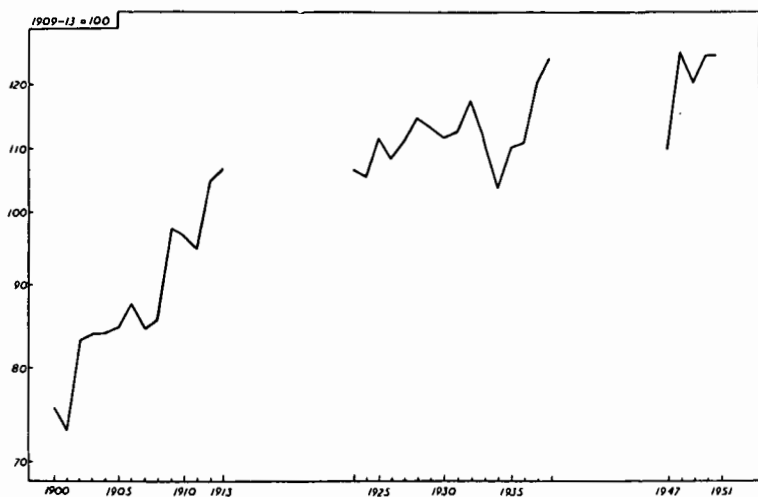


DIAGRAM I.

World Production of Food Crops (U.S.S.R. omitted after 1913). *Ratio Scale.*

index numbers of food crop production for 1923-5 published by the League of Nations. The aggregate production in 1949-51 of the commodities covered by the comparison (which are in the main the same in both periods) bore approximately the same relation to that of 1934-8 as the production of 1923-5 to that of 1909-13. But if allowance is made for the abnormally low output of 1934-6 the comparison swings definitely in favour of the earlier period. European production has recovered more rapidly after the second than after the first war, and there has also been a more rapid increase in output in North America even if allowance is made for the pre-war crop failures. But the rate of increase in production elsewhere has been considerably slower. On the other hand population has grown more rapidly in all areas. In 1923-5 Europe was the only continent in which crop output per head of total population was significantly

lower than in 1909-13. Today output per head is below the level of 1934-8 not only in Europe but in Asia and South America as well.

To conclude this survey of world production, a long-period comparison for the whole of the first half of the twentieth century is given in the accompanying diagram (Diagram I), which is based on a series of linked index numbers covering substantially the same group of commodities throughout. This diagram shows quite clearly that the rate of increase in world crop production has fallen considerably since the early years of the century. Between 1900-2 and 1911-13 world production rose by over 30 per cent.; in the somewhat longer period between 1922-5 and 1937-8 the increase was only about 14 per cent.

II. *World Trade in Food*

Measures of aggregate world trade in foodstuffs are another of the statistical casualties of the war.¹ Once again I have attempted calculations of my own in order to illustrate the changes which have occurred since 1934-8. The figures in Table III are based on value aggregates for 35 leading commodities at 1934-8 prices in exporting countries and have been calculated from data published by the F.A.O. The value of the pre-war exports of the articles covered by Table III, at the prices used for the computation, was about \$3,600 million, which is roughly equal to 70 per cent. of total pre-war world exports of food and drink (Classes I and II of the Brussels international trade classification).

TABLE III
World Exports of Food
(Index Numbers of Quantities, 1934-8 = 100)

	1949	1950	1951
Wheat and wheat flour	150	123	221
Rice	43	45	52
Other cereals	75	66	77
Sugar	106	117	137
Coffee, tea, and cocoa (raw)	114	102	*
Oilseeds	54	57	(57)†
Vegetable Oils	87	114	(112)†
Meat	90	90	*
Dairy Produce	79	90	(86)†
Total of above groups	94	92	(120)†
World Exports of all commodities	108‡	121‡	*

* Not available. † Estimate based on partial information. ‡ 1937 = 100.

¹ Since this sentence was written, a series of index numbers of the volume of world trade in agricultural products has been published by the F.A.O. in *The State of Food and Agriculture*, 1952.

Except for wheat and sugar, world exports of the most important foods in 1949 and 1950 were considerably below their pre-war totals. The proportion of the aggregate output of most foods which enters into international trade is thus much smaller than before the war. On the other hand, the volume of world exports of all commodities was 21 per cent. higher in 1950 than in 1937. Trade in commodities other than foodstuffs thus appears to have increased substantially in volume since the pre-war period, perhaps by something of the order of 30 per cent.

The continental distribution of world trade in foodstuffs is indicated in Table IV, which shows for each continent the net export or import balance (in terms of value at pre-war dollar prices) for the foodstuffs covered by the calculation. Europe remained in 1949 and 1950, as before the war, the only continent with a large import balance of these foods, but the quantum of its net imports has not reached its pre-war magnitude. Among the other continents, as might be expected from the production figures already presented, North America and Oceania are the only areas whose net exports are above pre-war levels. But the increased supplies reaching world markets from these continents have not been enough to make good the loss of supplies from other continents. Net exports from South America and Asia, the continents with the largest pre-war export balances, have fallen in volume by nearly 50 per cent.

TABLE IV
Export and Import Balances of Food by Continents
(millions of dollars at 1934-8 prices)
+ = net import, - = net export

	1934-8	1949	1950
Europe	+ 1694.3	+ 1661.5	+ 1411.3
North America	+ 41.5	- 534.6	- 290.9
South America	- 705.1	- 465.5	- 409.8
Asia	- 475.8	- 76.1	- 151.2
Africa	- 172.1	- 166.6	- 166.8
Oceania	- 382.6	- 445.4	- 440.8

III. *Food Crop Production in Relation to Industrial Output*

The world index of food crop production already described is compared in the next table and in Diagram II with index numbers of world mining and manufacturing production.

World industrial output has increased rapidly since the close of the war. The total has risen by over 50 per cent. since 1946 and over the

whole period since 1937-8, even including the war years, the average annual rate of increase has averaged about 4 per cent. Thus the world output of industrial products per unit of its output of food crops has increased by about two-thirds compared with the years before the war.

The increase in industrial output has been much greater in the rest of the world than in Europe. This is largely due of course to the

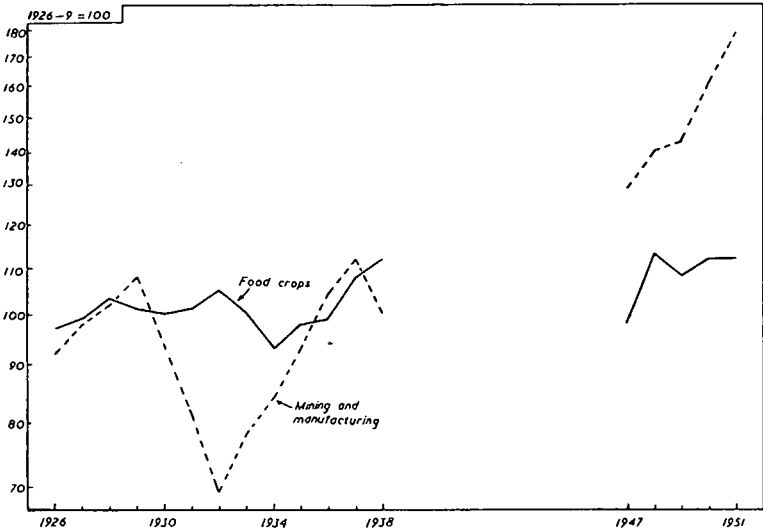


DIAGRAM II.

World Industrial and Food Crop Production (excluding U.S.S.R.). *Ratio Scale.*

tremendous increase in the industrial output of the United States, where production before the war was further below capacity than in most other countries and where the handicaps of war-damaged industries and post-war dislocation have been less severely felt. But the relative output of industrial and food products has probably changed in the same direction in all parts of the world. Even in Europe, although West German industrial production in 1951 was still well below that of other countries in relation to the pre-war total, the aggregate relative increase in production since the war has been much greater for industry than for agriculture.

This very large relative increase in industrial output, though it is the kind of result which is to be expected in a long-period comparison, stands in the sharpest possible contrast to the general development of the pre-war decade. This is shown by section B of Table V which uses the pre-war League of Nations series of index

numbers of world mining and manufacturing production. Owing primarily to the world industrial depression of the 1930's, world industrial output per unit of its food crop output was actually lower for almost the whole of the decade than in 1926-9. But it now appears to be nearly $2\frac{1}{2}$ times as great as at the low point of the pre-war depression in 1932.

TABLE V
Index Numbers of Industrial and Crop Production

A. (1937-8 = 100)

	<i>World (excl. U.S.S.R.)</i>			<i>Europe (excl. U.S.S.R.)</i>		
	(1) <i>Mining & manufacturing*</i>	(2) <i>Food crops</i>	<i>Ratio of (1) to (2)</i>	(1) <i>Mining & manufacturing*</i>	(2) <i>Food crops</i>	<i>Ratio of (1) to (2)</i>
1946	110					
1947	122	89	1.37	77		
1948	132	103	1.28	92		
1949	134	98	1.37	105	92	1.14
1950	151	102	1.48	119	98	1.21
1951	168	102	1.65	133	113	1.18

B. (1926-9 = 100)

World (excl. U.S.S.R.)

	(1) <i>Mining & manufacturing*</i>	(2) <i>Food crops</i>	(3) <i>Ratio of (1) to (2)</i>		(1) <i>Mining & manufacturing*</i>	(2) <i>Food crops</i>	(3) <i>Ratio of (1) to (2)</i>
1930	93	100	.93	1937	112	108	1.04
1931	81	101	.80	1938	100	112	.89
1932	69	105	.66				
1933	78	100	.78	1947	129	98	1.32
1934	84	93	.90	1948	140	113	1.24
1935	93	98	.95	1949	142	108	1.31
1936	104	99	1.05	1950	160	112	1.43
				1951	178	112	1.59

* World index of mining and manufacturing production—1937-8 to 1951 United Nations; 1926-9 to 1938 League of Nations.

Industrial output and agricultural output are of course only two out of the complex of items which make up the sum total of aggregate production, and it would be misleading to take the change in industrial production as an indication of the change which has occurred in the aggregate of all forms of non-agricultural production. This aggregate would include the output of many 'service' industries such as distribution and transport whose real product is not likely to have increased at a rate nearly comparable with that of industrial output.

If the world output of all forms of economic activity could be statistically measured, food crop output and industrial output might well be found at the opposite ends of the scale in respect of relative production today and before the war.

Nevertheless, the significance of the contrast presented in the above table can hardly be disputed. The two most fundamental changes affecting the world food situation since the war are that food output has failed to keep pace with population growth while the output of manufactured products has enormously expanded. These two facts, together with the inflationary tendencies which have been dominant throughout the world since the war, explain most of the economic contrasts presented by a comparison of world food markets today and before the war.

IV. World Prices of Food

The most obvious of these contrasts is the change in the prices of food in relation to those of manufactured products. It is not easy to secure a reliable measure of this change, for under post-war conditions the number of markets in which trade is free from government regulation of one kind or another is small, and representative collections of price quotations which accurately reflect market conditions are in many cases unobtainable. The index numbers of prices given in section A of Table VI are based on such statistics as are available of market prices in exporting countries. The figures in section B are calculated from the average declared values of British imports of the different foodstuffs. Those in sections C and D are official United States and British index numbers reduced to the base year 1938.

The table shows that for all the product groups for which comparison is possible the rise in United Kingdom import prices has for nearly the whole of the period been smaller than the rise in market prices in exporting countries. British import prices represent values on a c.i.f. basis, and are thus influenced by changes in freight and other charges as well as in the actual prices paid to exporters. A more important reason for the smaller rise in British import prices is probably the fact that imports of the majority of foodstuffs have remained under government control and in a number of cases the terms of purchase have been settled by negotiations between Governments rather than by the old-fashioned influences of demand and supply. As is well known, the bulk contracts on which certain foods have been supplied have kept their prices below what would otherwise have had to be paid in a rising market. A further reason for the difference is that the two sets of prices in many cases relate to different varieties

and different sources of supply. The market price quotation used for raw cocoa for instance (the only one available) is the wholesale price in Brazil, which is a relatively unimportant supplier to the United Kingdom market.

TABLE VI
Index Numbers of World Food Prices
(In terms of U.S. dollars, 1938 = 100)

	1947	1948	1949	1950	1951
A. Prices in exporting countries (1934-8 = 100)					
Cereals	317	262	251	261	289
Oilseeds	374	393	344	343	333
Tea, coffee, and cocoa	324	326	315	466	495
Meat	225	271	269	256	297
B. United Kingdom import prices					
Cereals	260	288		212	259
Sugar—Commonwealth	242	259		192	159
Sugar—Other	483	451		422	534
Oilseeds	326	379		268	358
Tea, coffee, and cocoa	181	210		216	255
Meat	172	181		166	174
Dairy Products	163	206		149	164
Total, above groups	245	262		210	252
C. United States:					
Wholesale prices of foods	229	243	219	226	254
Wholesale prices of farm products	277	288	253	261	301
Unit values, imports of crude food-stuffs	339	374	361	496	
Unit values, exports of crude food-stuffs	267	275	242	210	
D. United Kingdom:					
Unit values, imports of food, drink, and tobacco	210	232		175	200

British import prices for food in 1951 were, generally speaking, from $1\frac{3}{4}$ to $3\frac{1}{2}$ times the 1938 prices. The average level of prices in exporting countries, so far as this is accurately indicated by the figures available, was from 3 to 5 times the pre-war level. Both sets of figures appear to show a considerably smaller rise in the prices of livestock products than in those of foods of vegetable origin. If this evidence of a relative cheapening of livestock products is accepted, there has been a reversal of the long-established trend in the opposite direction which has been dominant over most of the period since the 1870's.

Figures illustrating the changes since 1938 in the prices of raw

materials and manufactured goods are given in Table VII. So far as it goes the evidence suggests that British manufactured goods have fallen in price relatively to those of the United States since the devaluation of sterling in 1949; that the general price level for manufactured goods in 1950 ranged in the two countries from about $1\frac{1}{2}$ times to about double the pre-war level, and that it rose by 10-20 per cent. from 1950 to 1951. All these measures are well below the general range of the increase in food prices for the same years. But both in the United States and in Britain raw materials have risen in price even more than foodstuffs. The relative cheapening of manufactured goods since the war has been a cheapening in terms not of food only but of primary products in general.

TABLE VII

*Index Numbers of Prices of Raw Materials and Manufactured Goods**(In terms of U.S. dollars, 1938 = 100)*

	1947	1948	1949	1950	1951
<i>A. Raw materials</i>					
U.S. wholesale prices	236	254	233	246	258
Unit values, U.S. imports of crude materials	191	215	206	225	
Unit values, U.K. imports of raw materials and unmanufactured goods (Cl. II.)	231	265		237	346
U.K. wholesale prices (basic materials)	203	266		246	
<i>B. Semi-manufactures</i>					
U.S. wholesale prices	197	210	199	207	235
Unit values, U.S. exports of semi-manufactures	177	191	181	177	
U.K. wholesale prices (intermediate products)	176	196		161	
<i>C. Manufactured goods</i>					
U.S. wholesale prices	182	198	188	195	217
Unit values, U.S. exports of finished manufactures	181	191	182	178	
Unit values, U.K. exports of manufactures	182	201		148	171
U.K. wholesale prices (manufactured goods)	139	156		119	

V. Some Results of these Changes

The relative prices of primary and of manufactured products determine the ratio at which goods of the two kinds are exchanged for one another. But even if a country were wholly dependent for its food supply on imports purchased by the export of manufactured

goods, a worsening of the terms on which it conducted its trade would diminish its ability to consume food only in so far as it was not offset by an increase in the efficiency of its manufacturing production. On the other hand, a country dependent on imports of manufactured goods in exchange for food exports would be prevented from profiting by a relative cheapening of the former, only if the efficiency of its food production fell.

In general the world's manufacturing efficiency must certainly be greater now than before the war. Indeed greater efficiency is in part the cause of the greatly increased output of manufactured products which is in turn part of the cause of their relative cheapening. But different countries have not progressed equally in this respect. Obviously in such a situation the less efficient industrial exporting countries will suffer in competition with the more efficient. They will share in the general adverse movement of the terms of trade but not in the increased output which enables the more efficient countries to offset it.

In practice of course no country is wholly dependent on food imports. Even in those which are least self-sufficient the greater part of the total food supply is almost always locally produced.

That part of the country's total food consumption which it produces for itself is sold at prices which need not be wholly determined by world market conditions. Some part of the local production will be protected from the possible competition of imports by perishability and high transport costs, and products which lack this natural protection may be artificially protected by government action. During the periods of falling relative prices of food, in the late nineteenth century and the 1930's, the Governments of almost all food importing countries sooner or later found it expedient to prevent the prices received by their domestic agricultural producers from falling in correspondence with world prices. In this way they established within their own borders a price-level for food higher in relation to the prices of industrial goods than that which existed in the world outside and less advantageous to their own non-agricultural populations. A reversal of this policy is likely to seem desirable with a reversal of the relationship of industrial and agricultural prices. If imported food becomes considerably dearer in relation to the prices of industrial products and to the incomes dependent on them, the interests of those in receipt of such incomes will demand the removal or moderation of the protective measures formerly designed to make imported food artificially dear. Subsidies may be paid in addition in order to lower the retail cost of food still further. Consumers in such countries,

having been prevented from taking full advantage of the previous favourable movement of the terms of trade, will not now feel the full effects of its reversal. Obviously this general pattern of changes in policy is particularly likely to occur if the relative fall in world food prices takes place, as it did during the 1870's, 1890's, and above all in the 1930's, against a general background of deflation and depression while its subsequent reversal is accompanied, as has been the case since the war, by widespread inflation and full employment. In the

TABLE VIII
Prices of Cereals in Exporting and Importing Countries
(U.S. dollars per metric ton)

	<i>Wheat</i>		<i>Barley</i>		<i>Oats</i>	
	1938	1950	1938-9	1950-1	1938-9	1950-1
Exporting Countries	25.8*	75.0*	18.7†	53.7†	18†	52†
Belgium	41	84	..	..	33	61
Denmark . . . . .	..	..	32	74	29	63
France	57	74	33	50	34	47
Germany	83	78	85	83	71	73
Italy	71	100	53	68	..	..
Netherlands	55	60	..	..	..	..
Sweden	44	60	34	56	29	53
United Kingdom	47	73	44	62	35	52

* Average of Argentina, Australia, Canada, and U.S.A.

† Average of Argentina, Canada, and U.S.A.

first situation the falling money incomes of agricultural producers and in the second the pressure of rising food and living costs on the incomes of consumers will be among the major economic problems confronting Governments.

Table VIII suggests that there has in fact been a marked change of this kind in government price policy, at least as far as wheat is concerned, in a number of importing countries since 1938. Before the war differences in prices of cereals between importing and exporting countries of 100 or 200 per cent. were not unusual. In 1950 the differences were much smaller and there were even some cases in which prices in importing countries were actually lower than in exporting countries. This phenomenon was more noticeable in the case of wheat than in that of oats or barley, partly no doubt because of the great importance of wheat in the consumer's cost of living, and partly owing to the effects of the International Wheat Agreement.

In Table IX a comparison is made of the farm price levels in the United States and the United Kingdom before and since the war for

an identical group of products, weighted by British post-war output quantities. Before the war British crop prices were on the average 25 per cent. higher than American, and British livestock product prices 43 per cent. higher. In 1950 the average level of crop prices was about the same in the two countries while that of livestock products was actually lower in the United Kingdom.

If the Governments of importing countries have been able in this

TABLE IX
Prices of Farm Products in the United Kingdom and United States
(British farm prices as per cent. of American)

	Pre-war	1948	1950
Wheat . . .	148	129	100
Barley . . .	187	208	145
Oats . . .	145	167	107
Potatoes . . .	98	70	85
Sugar beet . . .	137	151	..
Total, crops . . .	125	109	102*
Beef . . .	158	80	57
Mutton . . .	131	89	59
Pigmeat . . .	138	104	112
Milk . . .	136	101	99
Eggs . . .	175	171	166
Total, livestock products . . .	163	97	92
Total, all products	137	105	94*

* Excluding sugar beet.

way to shield their consumers from the full effects of rising food prices, Governments in some exporting countries, for instance Australia and Argentina, have, probably in part from similar motives, adopted policies which appear to have prevented the rise in agricultural prices from being passed fully on to their own agricultural producers. At the same time, the policy of industrial development which many primary producing countries have actively pursued must have raised the internal prices of some manufactured products above the level at which such products might have been imported.

These are merely some instances of differences in the economic situation and policies of different countries. They are perhaps enough to make it clear that no uniformity can be expected in the manner in which their fortunes have been affected by the post-war economic changes we have been discussing. The statistical evidence as to their effects on different countries is much too incomplete to permit

generalizations. I have however attempted, in my last table, to collect some of the available data relating to the relative price levels of food

TABLE X
Data Relating to Relative Price Changes of Food
(1938 = 100)

	(1) Ratio of agricultural to general wholesale prices 1951	(2) Ratio of retail food prices to cost of living 1951*	(3) Food purchasing power of income spent 1950	(4) Food purchasing power of earnings 1951	(5) Food consumption per head	
					Quantum 1950†	Calories 1950†
Australia . . .	190	135	150	115(H)	..	..
Austria . . .	82	100	..	84(H)	83	93
Belgium . . .	98	94	..	121(H)	107	101
Burma . . .	..	120	..	..	..	..
Canada . . .	110	126	106	..	..	..
Chile . . .	110	94	..	..	..	..
Columbia . . .	..	107	..	..	..	..
Costa Rica . . .	89	..	..	..	..	..
Denmark . . .	..	110	..	112(H)	97	95
Finland . . .	88	101	107	160(H)	..	..
France . . .	72	..	98	..	101	98
Germany (West) . . .	..	..	104	..	84	92
Greece . . .	..	125	..	..	101	100
India . . .	..	113	..	..	..	..
Iran . . .	..	95	..	..	..	..
Ireland . . .	103‡	99	126	111(W)	107	102
Italy . . .	112	94	..	91(H)	99	100
Japan . . .	81	..	..	..	..	..
Mexico . . .	106‡	98	..	..	..	..
Netherlands . . .	68	116	94	..	91	98
Norway . . .	88	101	149	145(H)	100	102
Peru . . .	..	118	..	..	..	..
Philippines . . .	..	99	..	..	..	..
Portugal . . .	84	..	..	..	..	..
South Africa . . .	..	106	..	..	..	..
Sweden . . .	83	101	122	..	111	104
Switzerland . . .	..	119	..	102(H)	98	98
United Kingdom . . .	..	..	97§	122(W)	94	99
United States . . .	131	120	125	136(W)	112	101
Uruguay . . .	..	99	..	..	..	..
Venezuela . . .	139	..	..	..	..	..

* 1937 = 100.

† 1934-8 = 100.

‡ 1939 = 100.

§ Unofficial estimate.

(H) Hourly earnings. (W) Weekly earnings.

and other products and the relative purchasing power of consumers' incomes in terms of food.

The first set of figures (column 1 of Table X) relates to the ratio of agricultural price index numbers to those of wholesale prices in general. This ratio is given for 1951 (in terms of 1938 as 100) for 18 countries, and ranges from a lower limit of 68 in the case of the Netherlands to an upper limit of 190 in that of Australia. The ratios are about equally divided between those showing a rise and those showing a fall in the purchasing power of agricultural products. Similar figures for 1948, however (not given in the table), show a slight preponderance of ratios over 100, indicating an increased purchasing power of agricultural products.

The second column gives the ratio of retail food prices to the general retail price level or the cost of living. Here also there is a considerable diversity, but a rather narrower range. Data are available for 24 countries in 1951, and range from a lower limit of 94 in Belgium and Italy to an upper limit of 126 for Canada. But in this case there is a preponderance of cases—16 out of the 24—in which the ratio is above 100. It is not surprising that there should be a greater tendency towards a rise in the relative retail prices of food than in the relative wholesale prices of agricultural products. Most general wholesale price index numbers will have been influenced by the high prices of raw materials in 1951 while cost of living index numbers usually include items such as rent, public utility charges and so on which tend to change relatively slowly. On the other hand, of course, food or agricultural subsidies will tend to lower the retail prices of food by comparison with those of agricultural products.

The remaining columns of the table summarize some of the available information as to food consumption and the relation of food prices to incomes. In column 3 total personal consumption expenditure per head is taken as an index of income per head, though it is not of course an accurate index because total income per head includes what is saved as well as what is spent. In all but three of the 11 countries for which this information is available income as measured in this way appears to have increased more than enough to offset the rise in the food price level. For a second different, though overlapping, group of 11 countries comparison is made between the food price level and the level of earnings in manufacturing industries. This is of course a much less representative indication of average income and unlike personal consumption expenditure it includes direct taxation on earnings as well as the net amount available for expenditure by the wage-earners. In all but two of these 11 countries the food purchasing power of gross earnings was higher in 1951 than before the war.

Finally, in the last two columns of the table are figures relating to food consumption per head in 1950-1 (based in nearly all cases on calculations by the Office of Foreign Agricultural Relations, U.S. Department of Agriculture). The 14 countries for which these are available are almost exactly equally divided between those showing an increase and those showing a decrease, whether the measurement is based on *quantum* or on calories.

VI. Conclusion

What conclusions are we to draw from this survey? I think that perhaps the most obvious conclusion is that there is not enough evidence to warrant any conclusion at all on many of the points discussed in the last section. One commodity of which the world's production remains most noticeably behind its needs and (it seems to me) behind its pre-war standard of achievement is the output of international economic information and statistics. In saying this I do not ignore the difficulties resulting from the war and from the much greater complexity of present day government controls over trade and prices. It may be that it is governments rather than the various bodies engaged in providing information and statistics who are to blame. But I think it deserving of mention, particularly in an international conference of this kind, that not only is the task of the economist who tries to study international economic developments inherently more difficult than it used to be, but that some of the raw materials necessary for his task are in very short supply.

Today we are holding the 8th International Conference of Agricultural Economists. When this Conference holds its 58th meeting perhaps some one will find it worth his while to look back at some of the problems which closely concern us today. It may be that he will be able to pick out several respects in which the economic experience of our generation has been abnormal. I hope that the relative stagnation of the world's food output in the period following the Second World War will be one of them. But whatever conclusion he is able to record on this point, he will be bound to notice the strain imposed on the world's food supplies by the accelerated growth of its population. He will probably have to point out that the solution of this problem necessitated an acceleration in the rate of growth of food supplies above the average of the inter-war years, in spite of the fact that the latter was the period in which the increase in world food supplies appeared to be creating such intractable problems of surpluses and overproduction.

I am rather more confident that the relative stagnation of the world's industrial output during the inter-war years, and the accompanying phenomena of depression and unemployment, will turn out to be another of the abnormal experiences of our period. In any normal period of the world's foreseeable future its power to produce manufactured goods must increase faster than its power to produce food. Only if its actual output of industrial products is kept much below its production capacity by a repetition of such economic disasters as those of the 1930's will the amount of industrial output produced for each unit of its food output fail to increase. It follows almost necessarily from this that the relative prices of or purchasing power of industrial products in terms of food must, over the long period, decline. It is the periods of economic history when the opposite appeared to be happening, the last quarter of the nineteenth century and the years between the wars, which are likely to seem exceptional to the economic historian of the future. He will readily explain these two exceptions by reference to the exceptional circumstances which accompanied them—the opening up of the New World in the first period and the world industrial slump in the second. Or he may put the matter in slightly different terms and say that the mass unemployment of the inter-war years was part of the price we paid for our cheap food.

One thing which the future historian is likely to observe is that the rapidity and difficulty of the economic transitions and adjustments to which the world has had to accommodate itself during our present period has been greatly accentuated by circumstances less directly associated with these transitions themselves than with the two world wars of the present generation. The economic changes themselves are not in the main due to the wars; but two wars, the economic dislocation they produced, and the associated economic problems which followed them (such as that of the British balance of payments) have greatly impaired the economic adaptability which the world seemed to possess before 1914, and lessened its power to accommodate itself to major economic changes gradually and without loss of stability. Today it seems an astonishing fact that throughout the whole half-century preceding 1914 the British wholesale price level, as measured by the well-known Sauerbeck index, never underwent a change between one year and the next of as much as 10 per cent. There are some things which appear to perplex some of us today which the future historian will find it easy to explain as a result of a search by Governments for the means of maintaining internal stability of trade and prices in face of world-wide inflation. He will

not find it surprising that Britain, buying imported food and raw materials with a devalued currency, should use all the means in her power to resist the rising prices of the foods on which the masses of her population depend, or even that some of the agricultural exporting countries should seek stability of prices at the expense of some temporary loss to their own producers. It may be that he will have to write down these efforts as failures and draw the moral that the ultimate power to influence world price and conjuncture movements does not rest with debtor countries. Whatever his findings on this point may be, I think he will be obliged to record the struggle to maintain economic stability and to reconcile full employment with the avoidance of inflation as one of the key problems of the 1950's, and that his story will be much the happier if he can chronicle its early solution.

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Professor Nash's concluding remarks after his survey on 'World Purchasing Power in Relation to Food Production' leave very little for the commentator to say. What can the commentator say when the author himself concludes 'that perhaps the most obvious conclusion is that there is not enough evidence to warrant any conclusion at all on many of the points discussed in the last section' (on purchasing power and consumption)?

However, it may be helpful to make a few comments on three parts of this paper, on the course of food production, the relation of trends in industrial and food production, and on the relation of purchasing power to food consumption.

We now have a substantial body of data on food production, by crops, and by countries and regions, but they still leave much to be desired. The best evidence is still in terms of crop production alone, but what we need even more are measures of agricultural production of crops and livestock products actually used in the farm home and sold to or consumed by the non-farm populations.

As far as one can tell from the material now available, Professor Nash's conclusions are essentially correct. In the world as a whole, crop production has barely kept pace with population. World recovery since World War II has not been as rapid as after World War I and were it not for the expansion of agricultural production in the Americas the world total would show up even more unfavourably in relation to population. Regionally, the greatest shortage is in south-east Asia where of course there is located the greatest proportion of the world's population on a low diet level.

Professor Nash recognizes that in long-run comparisons industrial production expands much more than food production, but stresses the fact that since 1932, the depressed point in world industrial output, the ratio of industrial supplies to crop output has risen about 150 per cent. Aside from questions as to the adequacy of the measures of both industrial and crop production, another needs to be raised. Since it is true that industrial production universally expands more than agricultural (the latter being geared more to the relative number of stomachs to be fed), it follows that the ratio of industrial to crop production would show a normal long-time rising trend. Therefore, to judge whether the 1951 ratio is relatively high or not, it needs also to be related to its long-time trend value for 1951. I suspect that in relation to this norm 1951 industrial production may not be out of line. It may in fact be somewhat low since industrial production too suffered a set-back during the war and has not yet attained the trend level based on pre-war experience.

What I would consider the main part of this paper, the relation of purchasing power to agricultural production and consumption, is unfortunately hampered by the meagre data. Even if the data in Table X were entirely adequate for the purpose, there are too many blank spaces. Professor Nash might have done better had he taken the more abundant data now available on *per capita* income by countries and compared them with *per capita* consumption. And even if more adequate income data were used, there are some tricky problems in getting at actual consumption. Note that just the mere differences between consumption measured in quantities and in calories are great, in some cases probably greater than the year-to-year changes in either measure. For 1950, Austria shows a difference of 10 points; Belgium, 6 points; West Germany, 8 points; Ireland, 5 points; Sweden, 7 points; the United Kingdom, 5 points; and the United States, 11 points. These make for substantial margins of doubt. Together with the similar doubts about the adequacy of the estimates of 'food purchasing power of income spent' and 'food purchasing power of earnings' for the relatively few countries, they warrant Professor Nash's decision not to draw any firm conclusions from them.

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There are many things I would like to say on this paper if I had time. May I say first that it represents a very courageous exploration of a field that hardly anyone has touched before. And if the data are crude and some of the conclusions are therefore crude, at least it

brings together an amazing range of different types of comparison over a long period. I would mention one point as to the adequacy of the data, namely, my surprise that Dr. Nash prepared index numbers himself, which except for 1951, had already been prepared by F.A.O. Maybe he did not have the data or did not feel satisfied with our calculation. Second, if we are not spending quite so much time now as earlier in preparing global figures, it is partly because we are working with countries to try to make the figures mean something in the first place. A great deal of work is being done to improve the basic statistics by co-operation with under-developed countries, and at the present time a complete revision of all the basic production indexes is underway. While we cannot prepare more adequate data for the past, we hope from now on to have far more data for a lot of the things for which (for three-quarters of the world) our present data are very rough estimates.

The main point that I want to make now concerns both this paper and that of yesterday evening. The two are very closely tied together in the sense of the importance to producers and farmers of the meaning of industrial production and the importance of buying-power, industrial buying-power. What the latter part of this paper has said is, broadly, that the output of factories is the demand for what the farmer produces, and conversely the output of the farm is the demand for what the factory produces. This in part is what Louis Bean has been saying in the United States for twenty-five years or more. There is one point that I would add, though, and it relates to the question discussed yesterday of maintaining full employment and maintaining industrial production at high levels. I was a little disturbed during the discussion yesterday evening by a feeling that a good many people in North America do not realize how much that is a matter almost of life and death to the people of many countries. From the sheltered position of the agriculture of the United States, or even of the agriculture of the British Isles, we may have a tendency to feel that farmers everywhere are protected. But the countries that do not have so much industry or so much wealth cannot shelter their agriculture as these highly industrialized countries do, and rather slight changes in economic activity, which our farmers now hardly feel, have had very disastrous effects in the economies of these other countries. This goes beyond these global aggregates and these figures of international trade as a whole, and concerns their effect on different parts of the world. We have had two slight recessions since the war in the economy of the United States, and to a lesser extent in other developed countries, the first from 1948 to 1949, the second from

the end of the Korean boom in early 1951 to the present time (summer 1952). They were very slight recessions in terms of the total sag in industrial production or in prices. But both of them were accompanied by relatively large reductions in imports by the Western countries, and especially by the United States, of the raw materials produced by agriculture. These had very disastrous short-term effects, very seriously upsetting economic conditions in other countries, in terms of the total amount of imports brought in and in the value of imported raw materials. The first of those recessions was a major factor in bringing about the reduced dollar earnings by the sterling area and the great wave of devaluations of that period (1949). The second was sufficient, by cutting down the value of exports from the sterling area, to produce a new dollar shortage, and to bring about a new move toward restriction of trade, one country against another, and even one Dominion against another Dominion within the British Commonwealth, which has shaken the confidence of many people in the whole move toward greater freedom of world trade.

So I wanted to bring out the point that sagging industrial production may have a special impact on imports of raw materials which go into industry. Imports like rubber, tin, cotton, and wool (except for Australian wool) happen to be very largely the export products of relatively under-developed countries with relatively poor resources. Partly because of the linkages in the way the industrial process works—in the stock-piling and the boom in inventories on the way up, and the declines on the way down while people work off their inventories—the recessions have greatly exaggerated effects on imports. If you take the percentage changes in the value of imports of the United States over these periods month by month, compared with the percentage changes in the amount of industrial production or the change in national incomes, you will be amazed how many times the change in our economies in the advanced countries is multiplied in its impact on the economies of these less developed countries. So my final point is that the international search for some way of getting more stabilized national economies and of lessening the repercussions on international trade of the reverberations that take place in the economies of more advanced countries, is of tremendous importance—repercussions on the markets for the products of lesser developed countries. Some means must be found for assuming something approaching stable economic activity in these less developed countries, and even for solving the problem of dollar shortages in international trade which troubles our friends in western Europe so

greatly. I hope that we as agricultural economists, although it is not our special field, will do all we can to support those efforts for achieving greater stability of employment and buying-power throughout the world, and will realize that while our own farm groups are protected, there are many others in the rest of the world which are not.