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SPECIAL MEMORANDUM No. 45

STOCKS OF STAPLE COMMODITIES

BY

H. CAMPION, A. G. CHARLES,
J. KAHANE and J. W. F. ROWE

NOVEMBER 1937

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INTRODUCTION

The question of future movements in prices of basic commodities is at present both of great obscurity and of great importance. At the end of 1936 and early in 1937 expectations of trade expansion were reinforced by the spread of rearmament, and, especially in view of the great excess holdings of gold in this country and America, expectations of a marked rise in prices, and of a possible inflationary boom, were widespread. The result of these expectations was seen in heavy purchases of raw materials, both spot and forward, by consumers and speculators. Prices of basic commodities rose rapidly, and by March 1937 averaged some 30 per cent. higher than twelve months earlier. Subsequent experience did not fulfil the earlier expectations. Prices of commodities and securities, far from rising further, have incurred a series of heavy falls, and are now below the level of two years ago. The fall in prices has in turn given rise to fears regarding the continuance of the present high level of general business activity in this country, partly for psychological reasons, and partly because a fall in raw material prices tends to reduce the buying power of our overseas customers.

When our previous Special Memorandum on Stocks of Raw Materials was published in 1930, the position gave cause for the gravest fears. Stocks had piled up to enormous proportions such as could not have been absorbed even if consumption had not been

rapidly decreasing. Restriction schemes had collapsed. New schemes were on foot but there was no reason to expect conspicuous success, as later events showed. The prospect of bad times, if not disaster, in the raw material markets was clear and unmistakable.

To-day the position is very different. As the following studies of the positions of eight of the principal basic commodities show, stocks have generally fallen low, though it is true that with the important exception of wheat, they have either begun or are beginning to rise again. The problem is now mainly one of the relation of current output to current consumption. The main cause of the fall in prices which has occurred this year is that output of most raw materials is expanding and is expected to expand further in the near future, while consumption shows signs of slower expansion and in some cases of a certain diminution. Nevertheless the gap between existing output and consumption is still relatively small, and no doubt endeavours will be made to use the various restriction schemes, most of which were set up in the period of low prices, and still remain in existence even where they are no longer effectively restricting output, to prevent the reaccumulation of stocks on anything like the earlier scale. In the absence of any heavy decline in consumption there seems some reason to believe that their attempts will meet with a measure of success.

RAW COTTON

By H. CAMPION

The average gross weight of bales of American cotton is approximately 500 lbs., equivalent to 478 lbs. net weight. The weight of bales of other growths of cotton is different, but to avoid confusion the figures throughout this Section are given in equivalent 500 lbs. bales (gross weight).

The cotton season is usually taken as beginning at August 1st and ending on July 31st of the following year. The figures given in this Section are of stocks on hand at July 31st of each year. Linters are excluded from all figures.

The figures used are taken from the reports of the New York Cotton Exchange Service, the United States Department of Agriculture and the International Cotton Federation.

Stocks of raw cotton have been reduced considerably during the last five years and the present position is very different from what it was in 1932. At the end of July 1932, stocks of raw cotton in the world had reached the record total of 17½ million bales. In July 1934 they were still 17 million bales but they had fallen to less than 13 million bales in July 1937. At the beginning of the present season commencing August 1937, stocks on hand were equal to about five months' consumption at the prevailing rate; stocks on hand at the beginning of the 1932-33 season amounted to more than eight months' consumption.

In actual quantity stocks are still larger than in any of the years up to 1930. Consumption has risen, however, but even in relation to consumption, stocks are still larger than in 1928 and in 1929, although lower than in 1927. Both production and consumption have risen sharply and for the first time have each exceeded 30 million bales for the season. The expansion of consumption has been especially noticeable. In 1936-37, world

SUPPLIES AND CONSUMPTION OF RAW COTTON.

TABLE 1. Thousand Bales.

Season	Stocks Aug. 1	Pro-duction	Total Supply	Con-summation	Stocks July 31
1926-27	9,705	27,970	37,675	25,749	11,926
1927-28	11,926	23,353	35,279	25,462	9,817
1928-29	9,817	25,611	35,428	25,796	9,632
1929-30	9,632	26,592	36,224	24,900	11,324
1930-31	11,324	25,259	36,583	22,455	14,128
1931-32	14,128	24,464	40,592	22,943	17,649
1932-33	17,649	23,613	41,262	24,680	16,582
1933-34	16,582	26,111	42,693	25,736	17,057
1934-35	17,057	22,873	39,930	25,355	14,575
1935-36	14,575	26,262	40,837	27,764	13,073
1936-37	13,073	30,793	43,866	30,900*	12,966*
1937-38	12,966*	37,350*	50,316*	—	—

* Preliminary estimates.

consumption was 36½ per cent. more than in 1931-33 and 20 per cent. more than in 1929. During the last three seasons consumption has been greater than production and as Table I shows, the increase in consumption has resulted in a decrease in stocks of cotton in hand.

The United States has for long been the chief source of supply of raw cotton in the world but during the last five years production and consumption of American cotton have fallen relatively to other growths. The whole of the increase in world production and consumption between 1932-33 and 1936-37 was in growths of cotton other than American. In 1936-37, consumption of American cotton was still 1¼ million bales less than in 1932-33 and 2 million bales less than in the years 1927-29; consumption of other growths was 7½ million bales more than in 1932-33 and 8 million bales more than in 1927-29. Consumption of American cotton has, however, been greater than production in each of the last five seasons, while production has exceeded consumption of other growths except in the 1934-35 season. Thus the decrease in stocks

SUPPLIES AND CONSUMPTION OF RAW COTTON.

TABLE 2. Thousand Bales.

Season	Stocks Aug. 1	Pro-duction	Total Supply	Con-summation	Stocks July 31
AMERICAN					
1926-27	5,501	18,162	23,663	15,818	7,845
1927-28	7,845	12,957	20,802	15,596	5,206
1928-29	5,206	14,555	19,761	15,244	4,517
1929-30	4,517	14,716	19,233	13,046	6,187
1930-31	6,187	13,873	20,260	11,084	8,976
1931-32	8,976	16,877	25,853	12,590	13,263
1932-33	13,263	12,961	26,224	14,415	11,809
1933-34	11,809	12,712	24,521	13,820	10,701
1934-35	10,701	9,576	20,277	11,236	9,041
1935-36	9,041	10,495	19,536	12,574	6,962
1936-37	6,962	12,383	19,345	13,100*	6,245*
1937-38	6,245*	17,350*	23,595	—	—
OTHER GROWTHS					
1926-27	4,204	9,808	14,102	9,931	4,081
1927-28	4,081	10,396	14,477	9,866	4,611
1928-29	4,611	11,056	15,667	10,552	5,115
1929-30	5,115	11,876	16,991	11,854	5,137
1930-31	5,137	11,386	16,523	11,371	5,152
1931-32	5,152	9,587	14,739	10,353	4,386
1932-33	4,386	10,652	15,038	10,265	4,773
1933-34	4,773	13,399	18,172	11,816	6,356
1934-35	6,356	13,297	19,653	14,119	5,534
1935-36	5,534	15,767	21,301	15,190	6,111
1936-37	6,111	18,410	24,521	17,800*	6,245*
1937-38	6,721*	20,000	26,721	—	—

* Preliminary estimates.

RAW COTTON (*continued*)

on hand from $17\frac{1}{2}$ million bales in July 1932 to less than 13 million bales in July 1937 was due to a reduction of stocks of American cotton from $13\frac{1}{4}$ million to about $6\frac{1}{4}$ million bales; stocks of other growths increased from less than $4\frac{1}{2}$ million to $6\frac{3}{4}$ million bales.

AMERICAN COTTON.

The excess of world stocks at the end of July 1932 consisted almost wholly of American cotton. During 1930 and 1931 production had been greater than consumption and stocks had increased to $13\frac{1}{4}$ million bales—equal to more than the annual consumption of American cotton in the two previous seasons. The experience of the Federal Farm Board which had been set up in 1929 had been most unfortunate. The supplies of cotton it had taken off the market had only delayed but not prevented the fall in cotton prices. It could not sell these stocks in face of a political outcry as to the effect such sales would have on prices and its attempts to secure reduction of cotton acreage by voluntary means had failed. The outlook for the American farmers was indeed black in the spring of 1933. There was the prospect of a carry-over of about 12 million bales at the end of the season and the new crop was likely to be large. This was the situation which confronted the Agricultural Adjustment Administration when it was started in May 1933.

The first task of the Agricultural Adjustment Administration was to secure an immediate reduction in the size of the American crop for the 1933–34 season. One million farmers were persuaded to plough up $10\frac{1}{2}$ million acres of growing cotton in the summer of 1933. These $10\frac{1}{2}$ million acres were expected to yield more than 4 million bales of cotton. Farmers received cash payments or were also given the option to buy at very favourable prices a quantity of cotton equal to the amount they ploughed up, out of the holdings of $2\frac{1}{2}$ million bales the Administration had acquired from the defunct Federal Farm Board. It was hoped by these means to reduce stocks of American cotton and at the same time to make a first step towards releasing Government holdings of cotton. The high yields on the acreage retained in cultivation, however, upset all calculations. If the average yield per acre in 1933 had been the same for the average of the previous six seasons, stocks

on hand in July 1934 would have been only $8\frac{1}{2}$ million bales. Instead the carry-over at the end of July 1934 exceeded $10\frac{1}{2}$ million bales.

Since the programme of the Agricultural Adjustment Administration was adopted after the crop had been planted, farmers in 1933 were required to plough up part of their crop. In the next two years, however, the acreage of cotton which farmers were allowed to plant was limited. Farmers had to agree to reduce their planting of cotton in 1934 to 35–45 per cent. and in 1935 to 25–35 per cent. less than in 1928–32 in order to receive compensatory payments from the Administration. Further, from April 1934 a heavy tax was placed on the ginning of cotton produced in excess of the allotments made to individual farmers. Output was thus reduced to $9\frac{1}{2}$ million bales in 1934 and $10\frac{1}{2}$ million bales in 1936 and stocks on hand at the end of the season fell to 9 million bales in July 1935 and 7 million bales in July 1936.

The Agricultural Adjustment Act was declared unconstitutional by the United States Supreme Court in January 1936, but it had been intended to offer payments to farmers to reduce their planting of cotton in 1936 to 30–45 per cent. less than in 1928–32. In the place of the Agricultural Adjustment Act, a programme of soil conservation was adopted by the Government, by which it was hoped to continue to restrict cotton production by inducing farmers to devote a portion of their land to soil-conserving or soil-building crops. Cotton acreage, however, increased by $8\frac{1}{2}$ per cent. between 1935 and 1936 and production rose from $10\frac{1}{2}$ to $12\frac{1}{4}$ million bales. Stocks in hand at the end of July 1937 had fallen to $6\frac{1}{4}$ million bales.

The restriction of production was, however, only one side of the work of the Agricultural Adjustment Administration. The other side was the system of granting loans to farmers at guaranteed prices. Undaunted by the previous experience of the Federal Farm Board, the Administration under pressure offered to lend more than the market value of cotton in the autumn of 1933 in anticipation of the rise in cotton prices which was expected to result from the restriction of production. Loans were made in the 1933–34 season at the rate of 10 cents a lb. on cotton of $\frac{7}{8}$ inch staple or longer. In the following season

RAW COTTON *(continued)*

loans were made at 12 cents a lb. and continued to be granted even when cotton prices sank below this level. Farmers who borrowed at these rates found that they could not sell their cotton later at prices sufficient to repay those loans in full and stocks of cotton therefore accumulated which could not be sold and on which the Administration had a lien. At the end of July 1934, stocks of cotton in the United States under the control of the Government amounted to 3 million bales. They rose in July 1935 to 5 million bales—more than half of the total stocks of American cotton in the world. The amount of cotton in the United States in private hands, excluding mill stocks, at that time was only 1½ million bales.

At the beginning of the 1935–36 season, the United States Government discontinued its previous policy of endeavouring to support cotton prices by loans to farmers at or above market prices and instead for 1935–36 it fixed a loan value for the current crop below market prices. The effect of this change of policy was that loans were made on only 100,000 bales of the 1935 crop. Subsequently, the Government announced its willingness to permit farmers to sell cotton on which loans were made in 1934 at a price less than its loan value plus accumulated carrying charges and it also called upon farmers who had borrowed on the 1935 crop to repay their loans. Government stocks were thus reduced to 3¼ million bales in July 1936 and still lower to just over 1½ million bales in July 1937. The amount of “free” cotton in private hands at the beginning of the present 1937–38 season was thus larger than in any year since 1934.

Government holdings are included with other stocks of American cotton in public storage in the United States in Table 3 which shows the distribution of stocks of American cotton in the world during recent years. It will be seen that there has been a marked reduction in stocks held both outside and inside the United States since 1932. Stocks outside the United States were particularly large in 1932 and 1933 due to the purchases first by Japan prior to her departure from the gold standard in December 1931 and later by Italy, France and European countries, but these stocks have since fallen sharply and are now less than before 1929. This decline is due in part to the substitution of other growths for American in the consumption of the spinning industries outside the United States. Owing to the high tariff duties on raw cotton from other countries imported into the United States, spinners in the United States have been obliged to continue to use American cotton almost entirely in spite of the relative increase in prices of American cotton, and the reduction of mill stocks in the United States reflects only the changing situation in the American cotton industry since 1932 and the uncertainty prevailing as to cotton prices due to Government intervention.

OTHER GROWTHS.

The increase in the production and consumption of growths of cotton other than American has been the most striking development of the last five years. The number of countries growing cotton on a commercial scale is about 20 but only 5 of these other than the United States produce more than a million bales a year—India, Egypt, China, Russia and Brazil. The increased production of these five countries accounts almost wholly for the changed situation in the world market for raw cotton since 1932.

Different growths are not directly competitive one with another in regard to grade, staple and quality. The best long staple cotton is grown in Egypt while India is the most important country of supply of short staple cotton. Between the two American cotton holds a middle position. The longer American cotton is competitive with Egyptian uppers and Indian cotton can be used instead of shorter American cotton. Chinese, Russian and Brazilian cottons are mainly of short

STOCKS OF AMERICAN COTTON

TABLE 3. Thousand Running Bales.

July 31	Total Stocks	At Mills		In Public Storage	
		United States	Rest of World	United States	Rest of World
1926	5,501	1,010	808	2,403	1,180
1927	7,845	1,325	1,625	2,337	2,558
1928	5,206	934	1,130	1,491	1,651
1929	4,517	932	1,147	1,199	1,239
1930	6,187	1,048	877	3,274	988
1931	8,976	922	964	5,341	1,749
1932	13,263	1,163	1,346	8,417	2,337
1933	11,809	1,298	1,266	6,783	2,462
1934	10,701	1,172	1,144	6,476	1,909
1935	9,041	748	932	6,589	772
1936	6,962	855	710	4,481	916
1937	6,245*	1,223*	809*	3,174*	1,039*

* Preliminary Estimates.

RAW COTTON (continued)

or medium staple and compete with Indian or the lower grades of American.

Russian and Chinese cottons are not sold however to a large extent outside their own countries, except for Chinese cotton shipped to Japan. The increase in Russian production from $1\frac{3}{4}$ to 3 million bales and of Chinese production from 2 to $3\frac{1}{2}$ million bales during the last five years has been mainly reflected in larger consumption of home-grown cotton and smaller consumption of American and Indian cotton in Russia and China. In its effect on world trade, the expansion of Brazilian output from less than half a million bales to $1\frac{3}{4}$ million bales has been more striking and perhaps potentially more important. World stocks of cotton at July 1932 excluding American, Indian and Egyptian growths amounted to one million bales; at July 1936 they were $2\frac{1}{2}$ million bales. To some extent this rise in stocks is due to the fact that the harvesting period of Brazilian and some other growths of which production has increased is different from that of the principal cotton-growing countries but this rise accounts mainly for the increase in stocks of cotton other than American during the last five years.

STOCKS OF EGYPTIAN COTTON.

TABLE 4. Thousand Bales of 500 lbs.

July 31	Total Stocks	At Mills	In Public Storage	
			Egypt	Rest of World
1926	907	297	442	168
1927	1053	325	488	240
1928	835	252	340	243
1929	975	336	340	299
1930	1267	356	751	160
1931	1647	327	1031	189
1932	1426	343	788	195
1933	1074	349	490	135
1934	1065	408	332	325
1935	805	418	168	219
1936	729	370	191	168

Stocks of Egyptian cotton have fallen sharply. The relaxation of Government control of the production and marketing of the Egyptian crop almost coincided with the beginning of Government control of the American crop and conditions have therefore been favourable for a continuous diminution of the excessive stocks of Egyptian cotton. Stocks had piled up in the middle of 1931 to more than $1\frac{1}{2}$ million bales. They are now

less than half that amount and as Table 4 shows, they are held mainly outside Egypt.

With the increasing activity of the domestic mill industry and with both Great Britain and Japan willing to maintain and increase their purchases of Indian cotton in return for guarantees as to their shares of the Indian import trade in textile manufactures, consumption of Indian cotton has recovered to $4\frac{3}{4}$ million bales. Stocks of Indian cotton outside India were exceptionally low in July 1932, mainly in consequence of the small Indian crop in 1931 and of the heavy purchases by Japan of American in place of Indian cotton in that season. They have since increased to the level of 1927-29 although a larger proportion now than in 1927-29 is held in India.

STOCKS OF INDIAN COTTON.

TABLE 5. Thousand Bales of 500 lbs.

July 31	Total Stocks	At Mills		In Public Storage	
		India	Rest of World	India	Rest of World
1926	2,190	475	718	362	634
1927	1,976	547	520	373	536
1928	2,673	691	591	762	629
1929	2,978	693	671	809	805
1930	2,704	647	686	842	529
1931	2,428	684	571	620	553
1932	1,883	554	279	827	223
1933	2,534	713	500	754	568
1934	3,348	748	586	1,152	862
1935	2,506	686	551	778	492
1936	2,783	746	534	855	648

PRESENT PROSPECTS.

Stocks of cotton in the world have now fallen to a more reasonable level, slightly higher than in 1928 and 1929. The decreases in stocks have, however, been entirely due to a reduction of stocks of American cotton; stocks of other growths have increased. During the last five years while the United States curtailed its production in an effort to dispose of its excessive stocks of American cotton and in order to raise cotton prices, India, Egypt, China, Russia and Brazil have increased their production. In the 1936-37 season production of cotton other than American was $7\frac{3}{4}$ million bales higher and consumption was $7\frac{1}{2}$ million bales higher than in 1932-33. Production and consumption of American cotton were less than in 1932-33. In the coming 1937-38 season it is expected the American crop will be about $17\frac{1}{4}$ million bales—the largest since 1931-32 and at least

RAW COTTON (continued)

5 million bales more than in 1936-37. It is also anticipated that production of other growths will show a further increase this season and world production is likely to reach the record total of $37\frac{3}{4}$ million bales. Since world consumption in 1936-37 was less than 31 million bales and was already 6 million bales more than in 1932-33, a considerable rise in consumption will be needed to absorb the production of 1937-38 unless stocks are to increase again. Much depends on the policy of the American Government, which apparently still favours some form of control over the production and marketing of American cotton. Little further can be done to limit production for this season but the American Government has already been forced under pressure into a scheme of granting loans at

guaranteed prices to cotton farmers conditional in part on stricter control over production in 1938. The American Government has offered to make loans on the present crop at the rate of 9 cents per lb. of middling cotton. Further, when the price realised by the grower on the sale of his cotton is less than 12 cents per lb. of middling cotton, the Government will repay to him an amount equal to the difference between 12 cents and the realised price but this amount shall not exceed 3 cents per lb. This subsidy is, however, not payable unless the cotton is sold before July, 1938, and then only to those who have by that time complied with the Government restriction plan for 1938, which is to be submitted to the next session of Congress.

COPPER, TIN, LEAD, SPELTER

By A. G. CHARLES.

COPPER.

The structure of the world copper-producing industry has altered greatly since 1929. Output of Northern Rhodesia, Canada and Russia has substantially increased and

the slump in world demand, American producers were faced with the prospect of growing competition of "foreign" copper, particularly from Northern Rhodesia, in their own domestic market. A tariff of 4 cents per lb. (equivalent

WORLD'S PRODUCTION OF COPPER: FIGURES OF AMERICAN BUREAU OF METAL STATISTICS.
(000's of tons of 2,240 lbs.)

Country	1929	1930	1931	1932	1933	1934	1935	1936	1937 (6 months)*
U.S.A.	916	635	468	228	208	214	339	549	370
Mexico	78	67	52	33	39	47	41	32	25
Canada	108	136	130	112	132	164	186	183	109
Chile	312	219	221	101	161	253	263	252	220
Peru	54	47	45	21	25	27	29	32	17
Russia	25	34	31	30	32	43	62	82	45
Yugoslavia	20	25	24	30	39	44	38	39	20
Spain and Portugal	48	41	36	29	36	34	31	27	12
Japan	74	78	75	71	68	66	68	77	40
Belgian Congo		137	118	53	66	108	106	94	84
Rhodesia	154	6	17	72	105	143	146	138	105
Other Africa		19	16	14	8	8	12	11	6
Australasia	14	15	13	15	16	12	17	17	9
Elsewhere	88	90	82	82	88	83	98	108	58
TOTALS <i>ex</i> U.S.A.	975	914	860	663	815	1,032	1,097	1,092	750
WORLD'S TOTALS	1,891	1,549	1,328	891	1,023	1,246	1,436	1,641	1,120

* Partly estimated by author.

the relative importance of the output of the U.S.A. has declined.

The U.S.A. exported large tonnages of copper up to 1929. But by 1932, owing to

to approximately £18 per long ton) was imposed in June 1932, and it has recently been renewed until the end of June 1939. It is now important, therefore, to have separate

COPPER (continued)

figures of stocks which are duty free to the U.S.A. and of those ("foreign" stocks) which are not. The monthly statistics of the Copper Institute show this from June 1933 onwards. They also give the tonnage of stocks of refined copper in refineries or on consignment outside the U.S.A.—information which is not given elsewhere. The statistics do not show the actual tonnage of stocks of blister (unrefined) copper, but they show the increase or decrease each month in this tonnage.

increasing and the additional American selling helped to depress the free foreign price.

The American Code price collapsed at the end of June 1935 (following the Schechter Decision at the end of May) and broke to 8 cents per lb. in July 1935. At the same time the London market had been rising since the signing of a restriction scheme by non-American producers in March 1935. The disparity between the American domestic and export prices was thus considerably reduced, and it has remained small since the beginning of 1936.

STOCKS OF COPPER: FIGURES OF THE COPPER INSTITUTE.
(Tons of 2,000 lbs.)

End of Month	U.S.A. Duty Free Copper				" Foreign " Copper					Total World's Copper	
	Refined Stocks	Increase or Decrease in Refined	Increase or Decrease in Blister	Total Increase or Decrease	Refined Stocks in U.K.*	Refined Stocks Elsewhere	Increase or Decrease in Total Refined	Increase or Decrease in Blister	Total Increase or Decrease	Refined Stocks	Increase or Decrease in Total Refined and Blister
June 1933	600,340				37,837	128,540				766,717	
September 1933	524,965	- 75,375	+22,614	- 52,761	37,354	139,733	+10,710	+12,864	+23,574	702,052	- 29,187
December 1933	523,435	- 1,530	- 6,609	- 8,139	36,138	139,466	- 1,483	+ 5,664	+ 4,181	699,039	- 3,958
March 1934	485,302	- 38,133	- 8,618	- 46,751	35,030	125,435	- 15,139	+ 5,857	- 9,282	645,767	- 50,633
June 1934	407,515	- 77,787	+11,204	- 66,583	36,860	116,352	- 7,253	+23,106	+15,853	560,727	- 50,730
September 1934	373,975	- 33,540	+12,313	- 21,227	44,285	155,150	+46,223	+14,366	+60,589	573,410	+39,362
December 1934	354,436	- 19,539	+ 8,925	- 10,614	62,773	169,922	+33,260	+13,764	+47,024	587,131	+36,410
March 1935	298,799	- 55,637	+10,320	- 45,317	80,073	203,805	+51,183	+10,349	+61,532	582,677	+16,215
June 1935	273,323	- 25,476	- 13,738	- 39,214	88,208	218,154	+22,484	+14,646	+37,130	579,685	- 2,084
September 1935	241,340	- 31,983	- 2,421	- 34,404	101,416	188,866	- 16,080	- 670	- 16,750	531,622	- 51,154
December 1935	231,415	- 9,925	+15,266	+ 5,341	97,778	156,135	- 36,369	- 5,317	- 41,686	485,328	- 36,345
March 1936	238,704	+ 7,289	- 10,365	- 3,076	82,327	162,368	- 9,218	+ 8,593	- 625	483,399	- 3,701
June 1936	228,817	- 9,887	+ 883	- 9,004	69,067	161,030	- 14,598	+12,082	- 2,516	458,914	- 11,520
September 1936	188,719	- 40,098	- 2,827	- 42,925	56,349	134,918	- 38,830	+ 9,747	- 29,083	379,986	- 72,008
December 1936	161,068	- 27,651	- 4,722	- 32,373	51,829	140,426	+ 988	+26,250	+27,238	353,323	- 5,135
March 1937	121,448	- 39,620	+15,346	- 24,274	27,865	159,118	- 5,272	+28,715	+23,443	308,431	- 831
June 1937	111,020	- 10,428	+ 7,508	- 2,920	18,787	170,638	+ 2,442	+27,761	+30,203	300,445	+27,283
September 1937	144,321	+33,301	+ 9,469	+42,770	27,643	172,774	+10,992	- 383	+10,609	344,738	+53,379

*Including some rough copper.

Up to the beginning of 1934 there was little divergence between the American domestic and export prices: the large accumulation of stocks inside the U.S.A. made the situation there no better than in the rest of the world. In the last part of 1934 and the first part of 1935 the domestic price ruled between 2 and 2½ cents per lb. (i.e., around £10 per long ton) higher than the export price. But the U.S.A. market in this period was highly artificial. The Copper Code in the U.S.A. had been signed in April 1934, and the "blue-eagle" price of 9 cents per lb. was fixed in June 1934. At this fixed price domestic sales fell off severely, and American producers were led not only to cut down their production, but also to sell larger tonnages abroad. Stocks outside the U.S.A. at this time were rapidly

About three months ago it seemed probable that the two prices might begin to diverge appreciably again. Refined stocks duty free to the U.S.A. had fallen from 600,000 short tons at the end of June 1933 to 111,000 tons at the end of June 1937, whilst blister stocks had risen by 55,000 tons, making a total decrease in stocks of 434,000 tons. In the same period foreign refined stocks had risen from 166,000 tons to 190,000 tons and blister stocks had risen by 208,000 tons, making a total increase in stocks of 232,000 tons. The weak statistical position in the U.S.A. had thus been eliminated and there seemed little likelihood of any serious deterioration in coming months, whereas, outside the U.S.A., stocks seemed likely to grow each month. The recent set-back in trade in the

COPPER (*continued*)

U.S.A., however, has changed the outlook: American consumers have been buying copper at a very low rate since the beginning of September. At the same time restriction of production outside the U.S.A. has been reimposed, and in time this should check the growth of non-American stocks. It now seems unlikely that the American domestic and export prices will diverge considerably in the near future.

The restriction scheme between the producers in Chile, Rhodesia and the Belgian Congo was signed, after a number of rumours and denials, in March 1935 and took effect in May 1935. The lowest price of copper recorded during the slump was £24 11s. 3d. per ton (standard three months) in July 1932, but despite considerable recovery in consumption in 1933 and 1934 the price was still under £28 (after having been up to £39 in July 1933) in February 1935. Output was rising even faster than consumption and stocks were

the importunity of buyers: it was interpreted as producers' admission of the strength, and even danger, of the copper position. Finally, in January 1937, restriction was dropped altogether. There was a brief setback in price but the rise was then resumed, and it gathered speed when the huge programme of rearmament in this country was announced in the middle of February.

On March 11th the London electrolytic quotation reached £80 5s. 0d. per ton and standard copper reached £78 2s. 6d. for cash and £74 17s. 6d. for three months; the American domestic quotation was 17.00 cents and the export quotation 17.50 cents per lb. Then the bubble burst. By the end of April the three months' price was down to under £55. The collapse was hastened both by President Roosevelt's specific reference to copper as being too high in price and by the "gold scare", but fundamentally it was an inevitable reaction from the tremendous overbuying which took place between September 1936 and early March 1937.

	Average Price of Electrolytic Copper	Average Price of Standard Cash Copper	Average Price of Standard 3 Months' Copper	Cash Copper above (+) or below (-) 3 Months' Copper
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1929	85 8 2	75 9 7	75 3 9	+ 5 10
1930	62 2 8	54 13 7	54 0 1	+ 13 6
1931	42 13 3	38 7 9	38 19 2	- 11 5
1932	36 7 10	31 14 8	31 15 2	- 0 6
1933	36 14 2	32 11 4	32 15 4	- 4 0
1934	33 11 6	30 6 5	30 12 0	- 5 7
1935	35 14 1	31 18 1	32 5 7	- 7 6
1936	42 17 8	38 9 7	38 15 7	- 6 0
1937 (9 Months)	64 8 11	58 16 10	53 3 0	+5 13 10

rapidly increasing. The producers decided to cut output to 70 per cent. of agreed tonnages, which meant a cut of about 20,000 tons per month from the level of output of March-April 1935.

This proved sufficient: stocks began to fall and the London price rose fairly steadily to over £39 per ton in September 1936. Then, following the depreciation of the franc, came the world-wide rush to buy commodities, particularly copper and other non-ferrous metals. Consumer and speculator bid against each other, the one in the fear, the other the hope, that prices would rise further in the short run—which, of course, they did. The restricting producers were forced to raise the quota: to 75 per cent. in August, to 80 per cent. and then 85 per cent. in October, and to 95 per cent. and then 105 per cent. in November. But this seemed only to inflame

Between the end of April and the middle of September the market remained surprisingly steady between £55 and £60 per ton, except for one bad patch in the last half of June. Having regard to the large increase in output and to the growth of stocks which had taken place since restriction was dropped a further fall in price had seemed probable. However, the price held up largely owing to anticipations that demand for copper in the U.S.A. would revive in the autumn. Instead of revival there has been further setback. Sales of copper in the U.S.A. during September amounted to only 29,000 short tons, against an output of 84,000 tons, and there has been no improvement so far during October. The domestic American quotation, which had held at 14.00 cents per lb. since April 29th, was cut to 13.00 cents on September 27th and more recently to 12.00

COPPER (*continued*)

cents, whilst the copper smelters are at present quoting 11.75 cents.

When the deterioration in the American outlook became clear the London market fell quickly from £55 in the middle of September to £47 5s. 0d. at the end. Then, on October 1st, came the re-imposition of restriction: it was announced that the leading producers outside the U.S.A. "have agreed upon a programme of production which will result in the output being reduced to a rate of 105 per cent. of the basic quotas by the end of November." There was a sharp recovery in price to £50 on this announcement, but the market has since fallen further to under £44 per ton.

It is difficult to gauge the outlook over the next few months. In the first place the exact tonnage by which the producers will curtail is not known. Their "basic quotas" were never published. However, the figure is probably close to 200,000 tons in a full year, or approximately 17,000 tons per month. But a still more uncertain factor is the rate of deliveries over the next few months. From March to July this year deliveries to consumers, according to the Copper Institute, were 27,000 long tons per month higher than the monthly average for 1936—and consumption in the world (excluding the U.S.A.) in 1936 was larger than in any previous year. Undoubtedly consumption is running at a higher rate than last year, increased demand from the armament industries being an important factor. But it is nevertheless doubtful whether the growth of actual consumption has equalled the growth of deliveries. The August figure of deliveries showed a fairly big drop on the average rate of deliveries from March to July and strengthened expectations of a further drop, but the September figure, which has just been published, is slightly higher than the high March-July average. This figure has probably been swollen by larger tonnages going to Japan since the outbreak of the Sino-Japanese war, and this special Japanese demand should continue so long as the war lasts.

What the rate of deliveries will be over the next few months is most uncertain. Much depends on the attitude of consumers. Until recently they have seemed determined to keep well stocked: there were widespread, though quite unfounded, fears of a shortage of copper early in the year. But now consumers

must feel much safer, especially since American trade prospects have deteriorated. Stocks have been increasing since last November, and since May the increase has been chiefly in the form of refined metal, i.e., in the form needed by consumers. The re-imposition of restriction will cause the rate of increase of stocks to slow down in coming months, but consumers nevertheless seem likely to be less concerned to keep stocked up to the hilt than they were six months ago.

The trend in the U.S.A. will, of course, strongly influence the course of the London market. At the moment it is disconcerting (to producers) that consumers are still buying at around 30,000 tons per month only: the gap between this and the September rate of output of 84,000 tons is large. Production from October onwards should be lower, however: the Phelps Dodge Corporation announced on September 29th that it is restricting output immediately by 20 per cent., and it is thought that other producers may follow suit. It should be pointed out that offerings are probably restricted at the current price of 11.75 cents per lb. quoted by the customs smelters, so long as the producers are still quoting 12.00 cents. But even if they were to come into line at 11.75 cents it is doubtful whether buying would quickly increase. Consumers' stocks are probably fairly low now, but the fact that they have been buying so sparingly suggests that their new orders have been small in the last two months.

Looking a year or two ahead new low cost mines (outside the U.S.A.)—notably the Nchanga Consolidated Copper Mines—will start production. Moreover, neither the armament nor the ordinary industrial demand for copper can be expected to continue indefinitely at present high rates. The long term prospect is that restriction will have to be progressively tightened to prevent prices falling lower than the producers wish.

TIN.

Figures of stocks of tin metal are published promptly at the end of each month, giving the "visible supply" and the smelter carry-over in the Straits and at Arnhem (Holland). The following supplies of tin may be included in the stock figures: smelter output in the Straits, shipments of Banka tin, receipts of ore at Arnhem (since the Arnhem carry-over includes tin ore as well as tin), shipments of

TIN (continued)

Australian tin, shipments of Chinese tin (included only on arrival in consuming countries) and that part of the smelter output of the United Kingdom which is put into official Metal Exchange warehouses in this country or is shipped to the U.S.A. The last two items together are termed "standard arrivals." The total of these supplies has generally amounted to around 70 per cent. of the total world output.

stocks of ore in the Straits, however, is given monthly in *Tin*, which is published by the Tin Producers' Association. The quantity of tin ore entering the Straits Settlements each month from Malaya, Siam, Burma and other countries is known, and the presumed change in stocks of concentrates is calculated by deducting the smelter output. It was assumed that these stocks reached a minimum of 250 tons at the end of 1926. Since the middle of 1936 the stock of tin in ore on the mines in the Federated Malay States has been published

STOCKS OF TIN : FIGURES OF W. H. GARTSEN, LONDON.

End of Month	U.K.	Con- tinent	U.S.A.	Afloat	Total " Visible Supply "	Straits Carry Over	Arnhem Carry Over	Total Visible Supply and Carry Over	Straits Stocks of Concen- trates*	Grand Total
December 1929 ..	13,019	52	2,820	11,833	27,724	4,725	—	32,449	5,849	38,298
March 1930 ..	16,326	39	3,566	12,239	32,170	3,085	—	35,255	8,648	43,903
June 1930 ..	22,419	18	7,728	11,991	42,156	4,229	—	46,385	6,700	53,085
September 1930 ..	25,178	14	6,323	8,622	40,137	4,006	—	44,143	8,420	52,563
December 1930 ..	22,423	61	4,693	14,963	42,140	4,483	—	46,623	9,829	56,452
March 1931 ..	27,396	3,044	7,917	9,407	47,764	3,830	—	51,594	12,516	64,110
June 1931 ..	32,307	3,064	5,633	10,562	51,566	7,202	—	58,768	8,762	67,530
September 1931 ..	30,352	3,015	5,868	11,030	50,265	6,527	—	56,792	10,872	67,664
December 1931 ..	31,578	4,647	6,254	8,475	50,954	8,293	—	59,247	8,852	68,099
March 1932 ..	33,605	5,447	3,841	7,522	50,415	9,740	—	60,155	8,552	68,707
June 1932 ..	33,465	5,975	3,759	5,781	48,980	9,253	—	58,233	10,250	68,483
September 1932 ..	31,576	6,039	4,191	5,144	46,950	9,399	—	56,349	10,160	66,509
December 1932 ..	29,605	5,884	4,496	5,588	45,573	10,330	—	55,903	8,977	64,880
March 1933 ..	27,795	5,867	2,281	7,252	43,195	8,510	—	51,705	8,712	60,417
June 1933 ..	21,469	5,184	3,474	9,533	39,660	6,972	—	46,632	4,575	51,207
September 1933 ..	13,947	2,639	6,003	7,303	29,892	4,712	1,255	35,859	4,592	40,451
December 1933 ..	9,544	1,205	7,504	5,230	23,483	3,341	2,311	29,135	3,667	32,802
March 1934 ..	5,851	463	6,459	7,054	19,827	2,126	2,461	24,414	4,713	29,127
June 1934 ..	3,641	268	5,094	7,727	16,730	1,643	1,693	20,066	4,155	24,221
September 1934 ..	4,029	134	4,243	6,841	15,247	1,742	1,705	18,694	7,054	25,748
December 1934 ..	3,735	192	2,638	6,068	12,633	2,792	1,682	17,107	7,709	24,816
March 1935 ..	5,596	547	4,531	7,390	18,064	918	1,831	20,813	4,203	25,016
June 1935 ..	2,917	477	5,467	4,494	13,355	842	1,104	15,301	3,446	18,747
September 1935 ..	997	—	2,849	6,952	10,798	658	1,967	13,423	4,701	18,124
December 1935 ..	1,230	35	2,312	8,728	12,305	1,023	513	13,841	5,490	19,331
March 1936 ..	1,034	7	3,968	9,738	14,747	1,509	1,080	17,336	6,678	24,014
June 1936 ..	820	—	3,054	9,474	13,348	1,673	515	15,536	5,518	21,054
September 1936 ..	1,027	—	2,860	8,776	12,663	2,476	833	15,972	6,442	22,414
December 1936 ..	1,283	42	5,095	13,302	19,722	2,122	851	22,695	7,226	29,921
March 1937 ..	2,148	—	5,731	11,717	19,596	2,608	1,272	23,476	6,529	30,005
June 1937 ..	3,123	—	4,810	9,371	17,304	3,761	1,374	22,439	8,251	30,690
September 1937 ..	2,744	5	3,538	12,123	18,410	2,395	1,227	22,032	10,185	32,217

* In terms of metal : estimated in " Tin " (published by the Tin Producers' Association.)

The chief omission from the published figures of stocks of tin is the stock at United Kingdom smelters. Smelter output of the United Kingdom can be estimated from the imports of tin ore plus the Cornish production, but figures of deliveries of tin from English smelters direct to consumers at home or on the Continent are not published and consequently stocks at English smelters cannot be closely deduced. Stocks of tin at Banka and at Continental smelters (other than Arnhem) are also not given.

Stocks of tin ore (concentrates) are generally not recorded. An estimate of the

each month : this stock has been between 3,000 and 4,000 tons in most months.

The change in known stocks from one month to the next will often, of course, be a false guide to the trend of the industry, but over longer periods the trend is brought out clearly in the published figures. At the end of April 1927 known stocks of tin (visible supply plus Straits carry-over) were down to 13,859 tons ; five years later, at the end of April 1932, they reached their highest level of 60,547 tons ; and at the end of September 1935 they were down to 13,423 tons (including the carry-over at Arnhem). This figure is

TIN (continued)

certainly close to the minimum to which stocks are likely to fall unless production breaks down, since it includes stock afloat and at smelters as well as in warehouses in consuming countries. There must, for example, be a "working stock" of about 10,000 tons even if supplies are running as low as 10,000 tons per month. Stocks in warehouses, of course, could fall to nil: United Kingdom stocks at the end of November 1935 actually fell to 271 tons and Continental warehouse stocks at this time were also negligible.

The above figures of stocks do not include any stocks in the hands of consumers. No figures of consumers' stocks are published, but the International Tin Research and Development Council publish estimates each month both of "apparent" consumption and of the actual use of tin in manufactures; the differences, presumably, are intended to suggest by how much consumers' stocks are rising or falling. These differences are shown

PRESUMED CHANGES IN CONSUMERS' STOCKS OF TIN.

	U.S.A.	Rest of World	World's Total
1929	-2,067	+5,879	+3,812
1930	+5,317	+2,722	+8,039
1931	+7,072	+1,777	+8,849
1932	-5,123	-825	-5,948
1933	-1,367	-1,947	-3,314
1934	-9,642	+1,432	-8,210
1935	+385	-2,672	-2,287
1936	+2,383	-3,645	-1,262
1937 (6 mths.)	+4,933	+530	+5,463

below. (For the U.S.A. the I.T.R.D.C. use the estimates of the American Bureau of Metal Statistics.)

Thus the piling up of stocks in the slump was even greater than is shown by the published figures since consumers' stocks increased during 1930 and 1931 by nearly 17,000 tons. On the other hand, from 1932 onwards stocks were reduced faster than the published figures show. By the end of 1934 consumers' stocks had been reduced to low levels, particularly in the U.S.A. Stocks of American consumers were negligible during 1935, and there was only a moderate increase during 1936. A substantial backwardation, widening to a maximum of £20 per ton in November 1935, ruled during most of 1935 and 1936, and it was unprofitable to hold stocks. Moreover, despite the excellent prospects of consumption during 1936, consumers restricted purchases to their nearby needs because of the chance, which at times appeared to them most promising, that the restriction scheme would not be renewed at the end of 1936. But when agreement to renew the restriction scheme was announced in November 1936 American consumers bought forward and replenished their stocks by about 6,000 tons in the first quarter of 1937. In the next four months, owing to the uncertainty caused by strikes in the motor and steel industries, they again bought sparingly and drew on their reserves, but more recently they have bought more heavily. American consumers are now moderately well stocked but their reserves are certainly not large.

WORLD'S TIN PRODUCTION: FIGURES OF THE INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL.

	1929	1930	1931	1932	1933	1934	1935	1936	1937 (6 months)
*Malaya	69,366	63,974	54,908	29,742	24,904	34,059	45,955	66,806	37,595
*Dutch East Indies	35,730	34,903	27,480	15,683	14,406	18,678	24,719	31,684	16,729
*Bolivia	46,338	38,146	30,742	20,583	14,725	20,634	27,168	24,074	10,852
*Nigeria	10,734	8,692	7,229	4,263	3,762	4,996	7,029	9,529	4,608
*Siam	9,939	11,060	12,447	9,261	10,324	10,587	9,779	12,678	7,575
*Belgian Congo	970	860	141	683	2,225	4,602	6,481	7,310	2,584
*French Indo-China	829	993	874	1,001	1,038	1,070	1,421	1,409	753
TOTAL	173,906	158,628	133,821	81,216	71,384	94,626	122,552	153,490	80,696
China	6,776	6,860	7,072	7,668	8,104	8,092	9,398	10,664	4,311
Burma	2,402	2,749	2,006	2,534	2,399	2,487	2,991	3,108	1,620
Australia	2,239	1,451	1,750	2,138	2,810	2,986	3,130	3,361	1,680
Cornwall	3,271	2,488	598	1,337	1,543	1,981	2,041	2,108	955
Elsewhere	3,588	3,736	3,931	4,505	4,567	4,529	6,210	5,633	3,041
WORLD'S TOTAL	192,182	175,912	149,178	99,398	90,807	114,701	146,322	178,364	92,303

* Signatory countries to the Third Restriction Agreement January 1st, 1937, to December 31st, 1941.

TIN (continued)

Production of tin by the chief mining countries is shown in the table on the previous page. Since March 1st 1931 production of Malaya, the Dutch East Indies, Bolivia and Nigeria has been compulsorily controlled in accordance with the International Restriction Agreement. Siam joined on September 1st 1931. The Belgian Congo, Indo China, Portugal and (in part) Cornwall became adherents to the Agreement when it was renewed for another three years from January 1st 1934. In November 1936, after nearly a year of negotiations, in which the chief obstacle was Siam's claim to a much larger assessment, the third restriction agreement was reached. It was ratified in January 1937 and lasts for five years from that date. The participants are Malaya, Dutch East Indies, Bolivia, Nigeria, Siam, Belgian Congo and French Indo China. These countries accounted for all except 25,000 tons of world production in 1936.

The following are the agreed standard tonnages of the restricting countries:

Malaya	71,940	long tons
Dutch East Indies	36,330	„ „
Bolivia	46,490	„ „
Nigeria	10,890	„ „
Siam	18,000	„ „
Belgian Congo	13,200	„ „
French Indo China.. ..	3,000	„ „

Total .. 199,850 long tons

The assessments of Malaya, Dutch East Indies, Bolivia and Nigeria are close to actual output in 1929. Siam's assessment is 8,061 tons greater than her output of 9,939 tons in 1929, and 5,322 tons greater than her highest output of 12,678 tons in 1936. Belgian Congo's assessment is 12,230 tons greater

than her output of 970 tons in 1929 and 5,686 tons greater than her highest output of 7,514 tons in 1936. Indo China's assessment is 2,171 tons greater than her output of 829 tons in 1929, and 1,579 tons greater than her highest output of 1,421 tons in 1935.

The quota for the first quarter of 1937 was fixed at 100 per cent. of standard tonnages and it was raised to 110 per cent. for the second quarter. For the third and fourth quarters it has been left at 110 per cent. At the end of August all countries were under-produced, as follows:

Production to end August 1937 compared with permitted output.

Malaya	— 1,693
Dutch East Indies	— 2,423
Bolivia	— 20,521
Nigeria	— 1,501
Siam	— 2,691
Belgian Congo ..	— 5,114
French Indo-China	— 896 (end July)

Malaya's output was curtailed, during July and August because of drought, but during September her arrears were made up. It should be pointed out that the *domestic* quota in Malaya is only 80 per cent. against the international export quota of 110 per cent. Malaya's capacity to produce has risen well above the 1929 output of 69,366 tons, on which her standard tonnage was based: her present capacity is, in fact, about 100,000 tons. Certainly several of the big mining companies in Malaya could quickly produce considerably larger tonnages than at present permitted. In all the other countries (except perhaps the Dutch East Indies) the arrears will not be quickly made up: in some of the countries they will probably grow bigger. Bolivia's deficit is exceptionally big. It is primarily due to labour shortage

WORLD'S TIN CONSUMPTION* : FIGURES OF THE INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL.

	1929	1930	1931	1932	1933	1934	1935	1936	1937 (6 months)
U.S.A.	84,933	76,917	62,872	35,477	59,693	43,638	62,470	75,643	45,375
U.K.	24,220	22,598	20,939	18,509	19,964	21,073	21,427	21,860	13,148
France	11,657	11,473	10,131	8,462	9,785	9,348	8,210	9,748	4,951
Germany	15,978	13,521	10,685	9,012	10,227	10,047	10,419	8,462	6,128
U.S.S.R.	4,970	4,829	4,415	3,848	4,052	5,802	7,311	9,664	5,924
Japan	4,782	4,081	4,150	4,368	4,383	5,190	6,221	6,401	4,519
Elsewhere	37,272	34,620	28,657	25,376	24,582	27,692	32,655	30,960	14,818
WORLD'S TOTAL ..	183,812	168,039	141,849	105,052	132,686	122,790	148,713	162,738	94,863

* The figures represent "apparent consumption" and the totals are meant to be directly comparable with the figures of the world's production given above.

TIN (continued)

resulting from the long Gran-Chaco war with Paraguay, and the prospect of any substantial increase in output for the time being is remote. Bolivia's output in the first eight months of this year has amounted to only 47 per cent. of her quota. Restriction is clearly falling much more severely on Malaya than on the other participants: in fact, at the present time, Malaya appears to be the only country which is restricting at all.

The course of consumption in the chief countries is shown in the table at the foot of page 15. The U.S.A. has generally accounted for 40-50 per cent. of total world consumption, although in 1932 the proportion was as low as one-third. The tinplate industry absorbed one half of the tin used in the U.S.A. in 1936. Output of tinplates in the U.S.A. in 1936 was 16 per cent. higher than in 1929, and so far this year it is 17 per cent. higher than in 1936; but other chief uses of tin, particularly for solder and bearing metal, have not yet recovered to the 1929 level. Consumption in the rest of the world is now about as large as in 1929, and it appears to be still expanding. The chief features are the increase in Russian consumption and the drop in that of Germany, where the government has restricted the use of tin in various manufactures.

	Average Price of Cash Tin			Average Price of Three Months' Tin			Cash Tin above (+) or below (-) Three Months' Tin		
	£	s.	d.	£	s.	d.	£	s.	d.
1929 ..	203	18	10	206	8	11	-	2	10 1
1930 ..	141	19	1	143	17	8	-	1	18 7
1931 ..	118	9	1	120	9	1	-	2	0 0
1932 ..	135	18	10	137	14	10	-	1	16 0
1933 ..	194	11	1	194	15	2	-		4 1
1934 ..	230	7	5	229	8	3	+	19	2
1935 ..	225	14	5	217	17	6	+	7	16 11
1936 ..	204	12	8	200	8	4	+	4	4 4
1937 (9 Mths.)	255	16	10	254	7	10	+	1	9 0

The course of prices is shown in the table above. In 1926 and 1927, when world consumption was rising and production was lagging, tin rose to over £300 per ton. During 1929 production caught up consumption, although the latter was at a record high level, and the price fell to £180 at the end of 1929. Then came the world slump (which hit tin as severely as most other commodities) and the price fell to £100 in 1931. The tin restriction scheme prevented a further drop but did not quickly

bring a rise: this only came with the "restocking" boom which followed the depreciation of the dollar in the spring and summer of 1933. The price of tin rose rapidly to over £200 per ton, and it has since stayed above this level, except between May and October 1936 when it seemed quite possible that the restriction scheme would not be renewed. When it was learned last November that the scheme had been renewed the price shot up by £22 in one day, and it closed at the end of December at £233 per ton.

Early in March this year the price rose further to £250 per ton and on March 15th it soared to £304 per ton. Reaction then followed but, owing to the strength of the statistical position, the drop in tin was relatively less severe than in the other non-ferrous metals. The price fell to £242 in mid-June, but from July to mid-September it generally kept above £260 per ton.

Since the last part of September, however, there has been a sharp fall of about £50 to £210 per ton. The setback in trade in the U.S.A. has been partly responsible, and also there is a seasonal decline in activity at tinplate works: nevertheless American consumers have been buying fair tonnages as the price has dropped. The chief reason for the recent market weakness is that supplies now appear to have definitely overtaken consumption. World consumption is running at about 190,000 tons per annum—approximately 85,000 tons in the U.S.A. and 105,000 tons in the rest of the world. Output of the restricting countries in August amounted to 15,123 tons. Malaya's output was curtailed during July and August owing to drought but during September she has overtaken her arrears of quota. Her output from October onwards should therefore be close to 6,595 tons per month, which is her permitted quota. The other signatory countries can be expected to expand output slowly. If, however, it is assumed that their combined August output is just maintained, their total output, plus Malaya's, will be approximately 15,900 tons per month, or, say, 190,000 tons per annum. The "outside" production of 25,000 tons must be added, giving a rate of total world production of 215,000 tons per annum, against the above estimated figure of *consumption* of 190,000 tons.

Consumption, of course, may expand moderately further: it seems not unlikely that it will be higher in 1938 than this year.

(Tons of 2,000 lbs.)

But the longer the period ahead the greater the probability that mine output will be higher. The combined standard tonnage of all the restricting countries is nearly 200,000 tons, and the permitted output at the current rate of quota of 110 per cent. is 220,000 tons, which, with 25,000 tons of "outside" production, would give a total world output of 245,000 tons. Actual output should grow slowly towards this figure though it might take a long time to reach it. Visible stocks, therefore, should increase in most months, assuming that consumers do not rush to build up their "invisible" stocks, as at present seems unlikely. But the International Tin Committee has just announced that, on present indications, they will reduce the quota for the first quarter of 1938 to 85 per cent. The final decision will be taken in December. This reduction should close most of the gap between output and present consumption.

LEAD.

The following figures show that output of the world as a whole has not yet recovered to the high level of 1929.

End of Month	In Ore and Base Bullion (lead content)	Refined Lead	Total Stocks
December 1929	7,646	103,247	110,893
" 1930	7,091	151,653	158,744
" 1931	41,832	176,157	217,989
" 1932	60,235	203,061	263,296
" 1933	60,247	235,457	295,704
" 1934	91,563	222,306	313,869
" 1935	90,020	224,013	314,033
" 1936	76,535	169,776	246,311
August 1937	75,878	103,518	179,396

The position, it will be seen, has recently become much stronger: stocks have fallen by 139,000 short tons in the last thirteen months. This trend should continue if demand for lead in the U.S.A. keeps up. The New York quotation rose as high as 7.75 cents per lb. for a few days during March, but it then fell in stages to 6.00 cents per lb. and remained at this level from early April to early August. Between August 5th and September 24th it stood at 6.50 cents per lb., and since then it has been lowered to 5.50 cents.

American lead prices have ruled between £4 and £8 per ton higher than London prices

WORLD'S PRODUCTION OF LEAD: FIGURES OF AMERICAN BUREAU OF METAL STATISTICS.

(000's of Tons of 2,240 lbs.)

Country	1929	1930	1931	1932	1933	1934	1935	1936	1937* (6 mths.)
U.S.A.	614	530	367	248	261	295	331	357	210
Canada	142	148	127	116	116	143	148	165	90
Mexico	245	248	208	128	125	173	182	215	110
Australia	175	164	153	186	209	202	217	198	108
Burma	80	79	75	71	72	72	72	73	38
Germany.. .. .	96	109	100	94	115	118	120	137	76
Russia	6	8	16	18	13	27	36	50	35
Spain	131	121	108	108	91	74	70	46	18
Elsewhere	236	241	217	194	178	228	220	229	135
TOTAL ex U.S.A. ..	1,111	1,118	1,004	915	919	1,037	1,065	1,113	610
WORLD'S TOTALS ..	1,725	1,648	1,371	1,163	1,180	1,332	1,396	1,470	820

* Partly estimated by author.

The U.S.A. industry, however, should be considered separately since it is protected by a tariff of 2½ cents per lb. (equivalent to approximately £10 per long ton). It is principally in the U.S.A. that production (and consumption) still fall short of 1929 levels. Figures of stocks in the U.S.A. from 1929 onwards are set out in table at top of this page.

in recent years, and consequently both exports of American domestic lead and imports of foreign lead for consumption in the U.S.A. have been negligible. But the present differential is over £9 per ton. It seems likely that the U.S.A. may, in time, turn importer of foreign lead. This would probably be in the form of American-controlled concentrates from, for example, Mexico and Newfoundland,

LEAD (*continued*)

rather than of actual metal, since the duty on concentrates (lead content) is only 1½ cents per lb. against the duty of 2½ cents per lb. on the metal. This, however, is not likely in the next few months.

Excluding the U.S.A., world output is now running at an appreciably higher rate than in 1929. The chief countries in which production has increased are Canada, Germany, Yugoslavia, Russia and Australia. Production, unlike that of copper, tin and spelter, has been uncontrolled in recent years.

World consumption (excluding the U.S.A.) now surpasses the 1929 level: in 1936 it was 1,130,000 tons against 1,020,000 in 1929. The largest increase has been in the United Kingdom, owing to the expansion of activity in the building and electrical industries since 1934. The consumption of lead in the United Kingdom in 1936 amounted to 354,000 tons, against 270,000 tons in 1929.

Comprehensive figures of world stocks (outside the U.S.A.) are not published. Stocks of lead in official London Metal Exchange warehouses are published each month, but they represent only a small part of total stocks in the United Kingdom and, of course, a still smaller part of total non-American stocks. Consequently it does not seem worth while to tabulate them: they amounted to 7,917 tons at the end of September 1937.

Nevertheless it is generally known that the total of stocks in the world, outside the U.S.A., is now only moderate: it is probably not more than 150,000 tons, or, say, about one and a half months' consumption. Consequently there is but little surplus over minimum "working stocks", i.e., stocks which must always be in refineries and in transit on the sea and land, unless supplies break down altogether. A backwardation has ruled on the market for most of this year.

Average prices since 1929 are shown in the next table. The price of spot lead fell to a low level of £9 3s. 9d. in June 1932. During 1934, despite rising world consumption, prices continuously declined and in February 1935 were nearly as low as in 1932. This was due to a peculiar and no doubt unintended deflationary effect of the "world price" clause of the Ottawa Agreements on the working of the 10 per cent. tariff on imports into the United Kingdom

	Average Price of Spot Lead			Average Price of Forward Lead			Spot Lead above (+) or below (-) Forward Lead		
	£	s.	d.	£	s.	d.	£	s.	d.
1929 ..	23	4	11	23	4	11			
1930 ..	18	1	6	18	1	3	+0	0	3
1931 ..	12	19	2	13	2	0	-0	2	10
1932 ..	11	18	3	12	3	3	-0	5	0
1933 ..	11	13	5	11	18	9	-0	5	4
1934 ..	10	18	8	11	3	4	-0	4	8
1935 ..	14	4	9	14	6	6	-0	1	9
1936 ..	17	11	11	17	13	1	-0	1	2
1937 (9 mths)	25	9	0	25	7	7	+0	1	5

(imposed in March 1932). This was changed in 1935. As from August 27th 1935 foreign (non-Empire) lead has been subject to a duty of 7s. 6d. per ton, whilst Empire lead, when delivered on the Metal Exchange, commands a premium of 7s. 6d. per ton over the London Metal Exchange contract price. A full account of the change is given in a White Paper, Cmd. 4983, dated August 7th, 1935.

Last March, in the speculative upward surge of metal prices, the lead quotation touched £36 per ton. It then fell very steeply to £21 0s. 0d. in mid June, and it has since fallen to about £18 after fluctuating for two or three months between £21 and £25 per ton.

There is little prospect that stocks will be quickly replenished. World consumption, it is assumed, will be maintained at near its present high level. Demand for lead for house building in the United Kingdom, it is true, seems likely to decline, though not rapidly; but in most other directions demand for lead is either keeping up or is still increasing. Meanwhile, at present price levels, production should keep fairly stable for several months. Two years from now various new deposits in Australia, Yugo-slavia, Rhodesia and elsewhere will have been prepared for production, but in the next few months no substantial increases in output are expected.

Since the beginning of the year higher prices have brought out greatly increased supplies of *old* lead in the United Kingdom. Sheet and pipe and other manufacturers in this country have been using considerable quantities of this "secondary" lead and their consumption of new lead has accordingly fallen. Undoubtedly this hastened the slump in prices since the middle of March. In the last few weeks, however, supplies of old lead have greatly fallen off.

SPELTER.

World output in 1936 was a little higher than in 1929, whilst the rate in the first half of 1937 was appreciably higher.

It seems probable that American consumers will be forced to import further tonnages of foreign ore or metal from time to time, and thus lessen selling pressure on the London market.

WORLD'S PRODUCTION OF SPELTER: FIGURES OF AMERICAN BUREAU OF METAL STATISTICS.
('000's of tons of 2,240 lbs.)

Country	1929	1930	1931	1932	1933	1934	1935	1936	1937* (6 mths.)
U.S.A.	564	450	268	190	290	328	385	467	258
Canada	77	109	106	77	82	120	133	135	64
Mexico	27	37	35	30	28	36	39	32	18
Australia	50	55	53	53	54	53	67	69	34
Belgium	195	173	133	95	135	172	179	195	110
Germany	101	96	45	41	50	72	122	134	78
U.K.	58	49	21	27	41	51	61	61	31
Poland	166	172	128	84	83	92	84	94	55
Russia	3	4	9	13	16	27	45	65	40
France	90	89	62	48	55	50	51	53	31
Norway	6	34	39	39	44	44	44	44	22
Elsewhere	113	122	93	80	110	120	117	124	66
TOTAL ex U.S.A. ..	886	940	724	587	698	837	942	1,006	549
WORLD'S TOTALS ..	1,450	1,390	992	777	988	1,165	1,327	1,473	807

* Partly estimated by author.

As with lead, however, the U.S.A. figures should be considered separately. There is a duty of $1\frac{3}{4}$ cents per lb. (equivalent to approximately £8 per long ton) on imports of zinc into the U.S.A., and American prices have usually moved between £5 and £8 per ton higher than London prices. Thus the U.S.A. market has been practically self-contained in most years. The present position, however, is interesting. In the last few months stocks

Outside the U.S.A., world output is now running at a substantially higher rate than in 1929, the chief increases being in Canada, Germany, Norway, Russia and Australia. Production was controlled by various Cartel agreements for several years up to the end of 1934. The most recent form of the Cartel lasted from August 1931 to December 1934: output was subject to a percentage reduction but could be exceeded on payment of fines. It proved generally profitable to pay the fines and restriction of output was never severe. Since 1934 production has been uncontrolled although there were some attempts to reconstitute the Cartel during 1935 and 1936.

STOCKS OF SLAB ZINC IN THE U.S.A.
(Tons of 2,000 lbs.)

End of Month	Slab Zinc
December 1929	75,430
" 1930	143,618
" 1931	129,842
" 1932	124,856
" 1933	105,560
" 1934	119,830
" 1935	83,758
" 1936	44,955
June 1937	14,081
September 1937	13,517

of zinc in the U.S.A., as shown in the above table, have fallen very low—in fact to under one week's supply. The differential between American and London prices, after allowing for freight, is now over £8 per ton, i.e., more than the duty, and foreign spelter has recently been bought for consumption in the U.S.A. It is doubtful whether domestic U.S.A. output will increase sufficiently in the near future to ease the present tight position, assuming that consumption in the U.S.A. is maintained.

Production has grown in response to expanding demand, world consumption (excluding the U.S.A.) in 1936 amounting to 985,000 tons, against 900,000 tons in 1929. This year it is still higher. Figures of world stocks (outside the U.S.A.) at the present time are not published. The Cartel figures showed 110,000 metric tons at the end of 1934: to these must be added part of the 10,758 tons recorded as in official Metal Exchange warehouses in the United Kingdom and also an estimate for unrecorded stocks, chiefly of foreign metal in bond in "unofficial warehouses" in the United Kingdom. Total stocks at the end of 1934 amounted to approximately 150,000 tons. To-day they probably stand at about the same figure, and are thus

SPELTER (continued)

equivalent to one and a half to two months' requirements at the current rate of consumption. A substantial part of this tonnage consists of foreign zinc in bond in United Kingdom unofficial warehouses.

	Average Price of Spot Spelter	Average Price of Forward Spelter	Spot Spelter above (+) or below (-) Forward Spelter
	£ s. d.	£ s. d.	s. d.
1929 ..	24 15 9	24 19 6	— 3 9
1930 ..	16 11 5	17 3 1	— 11 8
1931 ..	12 4 3	12 13 6	— 9 3
1932 ..	13 10 11	13 16 10	— 5 11
1933 ..	15 13 4	15 16 6	— 3 2
1934 ..	13 13 2	13 17 9	— 4 7
1935 ..	14 1 8	14 5 5	— 3 9
1936 ..	14 18 5	15 3 0	— 4 7
1937 (9 mths.)	24 5 1	24 8 6	— 3 5

The course of prices is shown in the above table. The spot quotation fell to £9 13s. 9d. per ton in June 1931. Prices, like those of lead, declined in 1934 because the combination of the 'world price' requirement of the Ottawa Agreements and the 10 per cent. import duty into the United Kingdom (imposed in March 1932) worked with deflationary effect on the London market. As from August 1935, however, the duty on foreign zinc has been altered to 12s. 6d. per ton, whilst Empire or United Kingdom producers command a premium for their metal of 12s. 6d. per ton over the London Metal Exchange contract price. (See White Paper Cmd. 4923, dated August 7th, 1935.)

In the first quarter of this year very heavy buying by consumers and outside speculators carried the price quickly from £20 per ton to over £37 per ton (March 11th). Then in the next three months, the price slumped to £19 per ton (June 15th). Between the end of June and the middle of September it fluctuated between £21 and £25 per ton but it has recently fallen to £17.

The rate of world production (excluding the U.S.A.) has changed little in the last six months and there should be no substantial increase for some time to come. Consequently it seems unlikely that stocks will increase much in the next few months, since consumption appears to be still growing. Manufacture of brass is considerably higher than in 1929 since world wide "armament" demand has been added to a high "peace" demand. The Sino-Japanese war should increase demand still further: it has already had some effect. Improving conditions in primary producing countries should mean a growing demand for galvanised products. There is also the consideration (referred to above) that the U.S.A. may need to buy further substantial tonnages of foreign zinc. Altogether, in the next few months, no pronounced change in stocks either way seems likely.

But looking two years ahead the important considerations seem to be, first, that various new lead-zinc deposits are being developed in Australia, Yugoslavia, Rhodesia and other countries; and secondly, that armament demand, or "peace" demand, or both, may slacken off.

WHEAT

By J. KAHANE.

Current statistics relating to the production, consumption and stocks of wheat are available in the Wheat Studies of the Food Research Institute of the Stanford University in California and in Broomhall's publications (*Corn Trade Year Book* and *Corn Trade News*). These have been supplemented for this study by various trade publications and private estimates. The figures are given in millions of bushels of 60 lbs. and for crop years from

August 1st to July 31st. All figures, except those for world shipments, exclude China, Russia and Turkey.

The most striking feature in wheat statistics over the past seven years is the sharp decline in the volume of the international trade in wheat. From an average of 787 million bushels in the period from 1926-7 to 1930-1, the yearly world shipments of wheat and flour fell as follows:

WHEAT (*continued*)

(1) World wheat and flour shipments :

1931-2	..	770
1932-3	..	615
1933-4	..	524
1934-5	..	533
1935-6	..	492
1936-7	..	595
1937-8	..	496 (Broomhall's estimate)

countries suffered from a series of poor yields :

(6) Crops in exporting countries :

1931-2	..	2474
1932-3	..	2362
1933-4	..	2145
1934-5	..	2002
1935-6	..	2052
1936-7	..	2175

Thus a series of crop failures, mainly in North America, prevented any further rise in world wheat stocks and finally reduced them sharply :

(7) World visible supply on August 1st (the visible supply of wheat and flour in second hands in the U.S.A., Canada, Argentine, Australia, in U.K. ports and on the ocean) :

1931	..	463
1932	..	408
1933	..	460
1934	..	477
1935	..	339
1936	..	275
1937	..	230

Even more pronounced was the fall in the surplus stocks in exporting countries :

(8) Exportable carry-over in exporting countries at end of season :

1931-2	..	234
1932-3	..	365
1933-4	..	376
1934-5	..	207
1935-6	..	120
1936-7	..	25

or, expressed as a percentage of the same year's total wheat crops in exporting countries :

(9) [(8) as percentage of (6)].

1931-2	..	9%
1932-3	..	15%
1933-4	..	18%
1934-5	..	11%
1935-6	..	6%
1936-7	..	1%

Owing, however, to the simultaneous fall in the absorption by importing countries, the visible supply still represented an adequate reserve for world trade :

(10) World visible supply [(7) as percentage of world shipments (1) of the next crop year :]

1931-2	..	60%
1932-3	..	66%
1933-4	..	88%
1934-5	..	89%
1935-6	..	69%
1936-7	..	46%
1937-8	..	46%

This drop is mainly the reflection of the growing unwillingness and/or inability of the importing countries to absorb the surplus produced by the exporting countries, for during the period under review the exportable surplus was well in excess of importers' takings :

(2) Exportable surplus. (3) [(2) as percentage of (1)]

1931-2	..	1004	..	130%
1932-3	..	980	..	159%
1933-4	..	900	..	172%
1934-5	..	740	..	139%
1935-6	..	612	..	124%
1936-7	..	620	..	104%

The decline in world wheat trade was, however, not due simply to the growth of wheat production in importing countries.

(4) Wheat crops in importing countries :

1931-2	..	1189
1932-3	..	1342
1933-4	..	1472
1934-5	..	1332
1935-6	..	1322
1936-7	..	1140

So that consumption in the importing countries, restricted (a) by the high prices intended to stimulate internal wheat production ; (b) by the enforced lowering of the quality of bread in some of the importing countries ; (c) by changes in taste, fell :

(5) Consumption in importing countries : (1) + (4).

1931-2	..	1959
1932-3	..	1957
1933-4	..	1996
1934-5	..	1865
1935-6	..	1816
1936-7	..	1735

Under these circumstances the rise in world wheat stocks, which was so marked a feature of the period from 1925 to 1931—when stocks steadily increased from 132 million bushels to 462 million bushels—would have continued, had not crops in exporting

WHEAT (continued)

Wheat supplies and their disposition in the four leading export countries are shown in the following tables, which continue the figures given in Special Memoranda Nos. 29 and 32.

(11) Wheat supplies and their disposition in four leading export countries, 1930-37 :

(A) United States.

Years ending June 30th.

Mn. Bushels

	1930/1	1931/2	1932/3	1933/4	1934/5	1935/6	1936/7
Initial stocks	289	313	375	378	274	146	137
New crop	886	937	757	552	526	626	626
Total supplies	1,175	1,250	1,132	930	800	772	763
Net exports	112	124	33	25	- 4*	- 31*	- 25*
Seed requirements	81	80	81	76	82	88	96
Consumption	481	474	481	435	443	458	460
Fed on farms	157	174	125	72	84	98	142
Residual (including waste)	+ 28	+ 20	+ 31	+ 45	+ 46	+ 19	—
Stocks at end	313	375	378	274	146	137	90

* = net imports.

(B) Canada.

Years ending July 31st.

Mn. Bushels

	1930/1	1931/2	1932/3	1933/4	1934/5	1935/6	1936/7
Initial stocks	111	134	132	212	194	203	108
New crop	421	321	443	282	276	277	229
Total supplies	532	455	575	494	470	480	338
Net exports	258	207	264	194	165	254	200
Seed requirements	39	37	36	33	32	33	35
Consumption	42	42	44	43	43	43	43
Feed and waste	53	36	31	25	26	37	25
Residual	+ 6	+ 2	- 11	+ 6	—	+ 2	- 2
Stocks at end	134	132	212	194	203	108	33

(C) Argentina.

Years ending July 31st.

Mn. Bushels

	1930/1	1931/2	1932/3	1933/4	1934/5	1935/6	1936/7
Initial stocks	65	80	65	75	118	85	65
New crop	232	220	241	286	241	141	248
Total supplies	297	300	306	361	359	226	313
Net exports	125	140	132	147	182	70	163
Seed requirements	21	24	24	23	17	21	22
Consumption	63	65	65	66	69	69	69
Residual (including feed and waste)	+ 9	+ 6	+ 11	+ 7	+ 6	+ 6	- 1
Stocks at end	80	65	75	118	85	60	60

(D) Australia.

Years ending July 31st.

Mn. Bushels

	1930/1	1931/2	1932/3	1933/4	1934/5	1935/6	1936/7
Initial stocks	49	60	50	55	85	57	47
New crop	214	191	214	177	133	142	150
Total supplies	263	251	264	232	218	199	197
Net exports	152	156	150	86	109	103	103
Seed requirements	16	16	16	13	13	13	14
Consumption	31	32	33	33	32	33	33
Residual (including feed and waste)	+ 4	- 3	+ 10	+ 14	+ 8	+ 8	+ 12
Stocks at end	60	50	55	85	57	42	35

WHEAT (continued)

The past crop year, 1936-37, has been exceptional. Not only did the succession of North American crop failures continue, but many importing countries harvested poor crops in 1936. This was especially the case in Germany and Italy, both countries which had in previous years greatly reduced their wheat imports. Furthermore, the crops of other cereals were generally poor, notably the maize crop in the U.S.A., and this led to an increase in the consumption of wheat. Consequently, for the first time in many years, the exportable surplus of wheat barely exceeded actual shipments and the carry-over declined sharply.

The outlook for the present crop year—1937-8—promises a repetition of the market conditions of 1936-7: international supply and demand fairly evenly adjusted, reserves small and prices very sensitive to any changes in supply or demand. Crops in most importing countries were distinctly better than in 1936, whilst in others, like Germany, increasing restrictions on the consumption of bread will diminish purchases from abroad. Thus imports in the coming season are expected to fall well below last year's. (See Table 1.)

As to the supply position, the crop year 1937-8 started with an extremely low carry-over in all exporting countries (See Table 8). The Canadian crop has turned out very poor, the yield being estimated at 160 million bushels against an average of 316 million in 1930-36. Australia and the Argentine have no accumulation of stocks to supply the deficiency. The harvests of these countries

will not be gathered until December, but the outlook in the Argentine is none too good at present, owing to insufficiency of rains in the Northern regions. Of the four main exporting countries only the U.S.A. had a very good crop in 1937—886 million bushels—and it may well become the largest wheat exporter for the coming season. However, after two deficiency years, the building up of internal reserves can absorb much of the surplus. In any case, importers will also have to draw more from the Danube countries and possibly from Russia, which is believed to have a good crop.

Broomhall estimates that importers' requirements in 1937-8 will be met as follows:

Canada	64
U.S.A.	136
Danube countries ..	72
Russia	32
Argentine	112
Australia	64
Others (including India)	16
	—
Total	496
	—

Should a crop failure occur in either the Argentine or Australia, the wheat position would become very tight indeed, though a high price level would probably draw further supplies from the U.S.A., India and perhaps Russia. In any case prospects are that the present crop year will leave its successor—1938-9—little more than bare boards outside the U.S.A.

SUGAR

By J. W. F. ROWE.

For the reasons given in Special Memorandum 32 (pp. 20-21) the total of recorded stocks of sugar in Europe, U.S.A. and Cuba are normally at a minimum on October 1st, and the figures for that date come nearest to representing the carry-over from one year to another. The sugar world's season, however, begins on September 1st, and if for reasons of space figures of stocks can only be given for one date each year a dilemma presents itself. Since the carry-over is the really

important matter, especially during the last six years, it seems better to choose October 1st, the more so as the differences in using the October figures instead of the September figures in connection with the much larger figures of world production and consumption are negligible. The choice of October 1st also provides continuity with the quarterly figures published in the previous memoranda on Stocks of Staple Commodities.

Table I therefore shows the recorded

SUGAR (continued)

stocks on October 1st. The figures are taken from the monthly circulars issued by Messrs. C. Czarnikow Ltd. The figures of stocks in Europe cover the following countries:—Germany, Czecho-Slovakia, France, Holland, Belgium, Poland, United Kingdom and Hungary, the last named country being an addition to those given in Table I of Special Memorandum No. 32. The figures for Europe, and the totals of Europe, U.S.A. and Cuba given in column 5 are not, therefore, strictly speaking, comparable with the totals in Table I of Special Memorandum No. 32, but actually the stocks in Hungary have never exceeded 30,000 tons. Column 6 shows the stocks in Java at the same date, but this does not, of course, indicate the carry-over in Java, for the season there begins on May 1st. Prior to 1929 there was no need to pay much attention to stocks in Java, for the crop was always sold forward in its entirety before the grinding season began. But since then the stock question in Java has assumed only too great importance. The actual carry-over in Java on May 1st is given in the last column of the table. The

column headed "Segregated Stocks" shows the amounts of the Grand Totals which were segregated under the Chadbourne scheme and which were not therefore available to the market in that year.

Table II shows in line 2 Messrs. Willett and Gray's estimates of world production, and by using the statistics of recorded stocks a series for world consumption is obtained. Messrs. Willett and Gray do not themselves publish estimates of world consumption, but the other acknowledged statistical authority, Dr. G. Mikusch of Vienna, does. His figures of world production differ from Willett and Gray, partly owing to different methods of calculating and aggregating the component figures, and are given in italics in line 3, while his estimates of consumption are shown in the same way in line 7. The example of the United Kingdom Sugar Industry Inquiry Committee confirms the use of Willett and Gray's figures for production which was made in previous memoranda on Stocks of Commodities, but the Committee also used Dr. Mikusch's figures, and this seems desirable in order to obtain some idea of the degree

TABLE I.
STOCKS OF SUGAR.

Oct. 1st	Europe	U.S. Ports	Cuba Ports	Cuba Interior	Total	Java	Grd. Total	Segregated	Java carry-over May 1st
1928	418	343	630	459	1850	—	—	—	—
1929	671	933	466	480	2,550	1,497	4,047	—	—
1930	798	393	1,139	1,310	3,640	1,882	5,522	896	148
1931	1,700	459	1,092	1,460	4,711	2,311	7,022	2,204	613
1932	1,401	440	806	1,310	3,957	3,133	7,090	3,247	1,527
1933	1,021	348	619	1,220	3,208	3,056	6,264	2,204	2,414
1934	871	628	569	1,000	3,068	2,328	5,396	738	2,352
1935	1,167	545	360	560	2,632	1,496	4,128	—	1,511
1936	878	334	237	640	2,089	894	2,983	—	871
1937	1,097*	168	315	797	2,377	725	3,102	—	144

* On September 1st. The October figure will presumably be substantially lower and so the Total and Grand Totals for October 1st will be lower than shown above.

TABLE II.
SUPPLY, CONSUMPTION AND PRICE OF SUGAR.
000's of tons. Mikusch figures converted to avoirdupois.

	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
Stock on Oct. 1st	1,850	4,047	5,522	7,022	7,090	6,264	5,396	4,128	2,983
Production	27,512	27,334	28,411	26,247	24,130	25,602	25,944	28,697	30,655
<i>Mikusch Production</i>	28,300	28,200	28,900	26,600	24,100	24,300	24,600	26,800	—
Total Supplies	29,362	31,381	33,933	33,269	31,220	31,866	31,340	32,825	33,638
Deduct stock at end of year (Oct. 1st) ..	2,530	5,522	7,022	7,090	6,264	5,396	4,128	2,983	(guess) 2,400
Consumption	26,832	25,859	26,911	26,179	24,956	26,470	27,212	29,842	31,238
<i>Mikusch Consumption</i>	27,100	26,500	26,500	25,700	25,500	24,600	25,800	27,600	—
Annual Average Price b. 96 c.i.f. U.K./Continent	9/0½	6/7	6/3¼	5/9½	5/3	4/8¼	4/8	4/8¼	(est.) 6/6

SUGAR (continued)

of error to which our calculated figure of consumption is subject. As will be seen, the two series do not differ in any year by more than about one and a half million tons, and part of this can be accounted for by the difference in the methods of estimating the world production figures. This error is, of course, considerable, but it might well be greater and both series do indicate much the same changes year by year.

Dr. Mikusch's figures may also be used as a test of the correspondence between changes in recorded stocks and the changes in total stocks as shown by his estimates of production and consumption, though it must not be supposed that these are accurate; all that can be looked for is the general degree of correspondence. This comparison is shown in Table III, and the general result is to confirm that the degree of error as regards stocks is probably much the same as the error in respect of production and consumption: any one of these figures may be up to a million tons in error, but it is most unlikely that the combined result of any two of them appreciably exceeds that margin.

TABLE III.

	Recorded Change (see Table 1).	Mikusch (i.e., Production less consumption)
1929/30	+1,475	+1,684
1930/31	+1,500	+2,433
1931/32	+ 68	+ 811
1932/33	- 826	-1,390
1933/34	- 868	- 312
1934/35	-1,268	-1,177
1935/36	-1,145	- 843

In view of the very large proportion of the world's sugar supplies which is consumed in the U.S.A. and the United Kingdom, a record of the changes in their consumption is given in Table IV, which also shows the amounts of Imperial and Foreign imports into the United Kingdom, and of Cuban sugar entering the U.S.A.

Special Memorandum No. 32 was written towards the close of the disastrous season 1929-30. In that season stocks had increased by 1½ million tons, not because of any increase in production—potential capacity was greater but certain producers had bad harvests—but because consumption, which had been lower than production in 1928-29, declined substantially with the onset of the world

TABLE IV.

U.K. AND U.S.A. IMPORTS AND CONSUMPTION.

	U.K. Gross Imports		U.K. Consumption	U.S.A. Consumption	U.S.A. Imports from Cuba
	Imperial	Foreign			
1928	559	1,371	2,010	5,960	2,608
1929	703	1,399	2,026	6,248	3,015
1930	543	1,373	2,111	6,020	2,457
1931	600	1,232	2,217	5,887	1,998
1932	700	1,650	2,097	5,606	1,677
1933	779	1,229	2,096	5,667	1,396
1934	943	969	2,200	5,521	1,558
1935	809	1,111	2,216	5,742	1,557
1936	1,060	1,167	2,323	5,937	1,575

trade depression. The price had consequently fallen, and the average was only two-thirds of that for 1928-29, while at the end of the season it was little more than half what it had been a year previously. Moreover, as each month of 1930 passed it became more and more certain that production in 1930-31 would be much higher and that consumption would not. In Table II our calculated consumption is shown as 25.8 million tons in 1929-30 and 26.9 million tons in 1930-31, but it is extremely doubtful whether any such increase took place. On general grounds it seems that Dr. Mikusch's estimates, showing a smaller fall in 1929-30 as compared with 1928-29 and then no change in 1930-31, are nearer the truth. What is certain, however, is that in 1930-31 there was a further very large addition to stocks; the recorded stocks alone show 1½ million tons increase, and if Dr. Mikusch is correct, the actual increase must have been over 2 million. The recorded carry-over of 7 million tons on October 1st 1931 was more than double the amount which was required for convenience of trading.

Ever since Cuba began the policy of restriction in 1926, she had from time to time made repeated efforts to persuade the other exporting countries to join with her in an international scheme. The European exporters were on the whole sympathetic to the idea, but Java had always refused to consider participation, and if Java stood out the European countries were frightened lest Java should send sugar to Europe and capture even such markets as remained. Up to 1930 Java had managed to dispose of even her much increased crops, and though the price obtained had, of course, fallen very considerably, and especially in 1929, yet so had Java's costs of production owing to the much greater yield per acre secured from new

varieties of cane. But in 1930 Java found that it was impossible to sell at prices anywhere near the 1929 level, and it seemed doubtful whether a large part of the crop could be sold at any price. The demand from British India seemed to have fallen almost to nothing, while the production of Formosa was now so large as to supply almost all Japan's needs. Opinion in Holland—for the Java industry is really controlled from the Mother Country—rapidly swung round in favour of restriction, and when in the autumn of 1930 Mr. Chadbourne came to Europe with proposals for an international restriction scheme, he found that the Dutch were no longer the insuperable stumbling-block which they had hitherto been. Eventually in May 1931 the so-called Chadbourne scheme was adopted by all the large exporting countries, namely Cuba, Java, Germany, Czecho-Slovakia, Poland, Hungary and Belgium, and a little later also by Peru and Yugo-Slavia. For the benefit of any reader who is not familiar with the scheme, an outline is given in the following paragraph.

The International Sugar Agreement of May 9th 1931 was an agreement between the producers' associations in each country and not between their Governments, but the latter were in full sympathy and undertook to pass any necessary legislation requisite for the carrying out of the agreement. The main objective of the scheme was to liquidate the enormous surplus stocks which if normal stocks are held to be about 3 million tons were estimated at over 4 million tons as on September 1st 1931. These surplus stocks were to be segregated and to be released by not less than 25 per cent. each year, so that by the end of the four years for which the scheme was to operate, all surplus stocks should have disappeared. In order that this steady liquidation might be achieved and the piling up of any new stocks avoided, the exports of each country were to be limited to a given quota each year, and each country undertook so to adjust and limit its total production that, plus the portion of its surplus stocks to be disposed of during the year, it would equal home consumption plus its export quota. There was to be no segregation of markets or other interference with the export trade, and no direct control of price. But the quotas laid down in the agreement were to be subject to increase according to a sliding scale varying with the price—the first of such increases was

to be 5 per cent. if the price of sugar f.o.b. Cuba had averaged over 2 cents gold for 30 days. In order to administer the scheme, an International Sugar Council was created with a permanent secretariat and statistical office at the Hague.

The Chadbourne scheme was in operation until September 1st 1935, and the history of the four years 1931–35 is of course the history of the Chadbourne Scheme. It is perhaps convenient to direct attention first of all to the course of prices as shown in the last line of Table II. In previous memoranda on Stocks of Commodities the New York price has usually been quoted as the most representative, but after the United States abandoned the old gold parity early in 1933 quotations in dollars of course cease to be properly comparable—thus for 1933 the dollar price rose whereas in terms of gold the price was lower than in 1932. The same sort of objection may be made to the use of sterling quotations, but for well-known reasons which need not be detailed here there is less objection to using London prices as the most generally representative, though it is clearly very difficult to speak of a representative price of sugar at all when the costs of some producers, notably Java, were fixed in gold, others virtually or actually in sterling, and others, including of course Cuba, in dollars. For better or worse, the sterling price has been shown in Table II, and it is clear that the Chadbourne scheme dismally failed to bring about any rise in that price, let alone to restore it to the level of 2 cents per lb. gold at which the scheme aimed, or even to its 1929 equivalent of 9s. per cwt. in depreciated sterling.

In explanation of this failure to raise the price, attention may next be directed to the changes in stocks. On the whole, and with very minor exceptions, the restricting countries observed their export quotas, and the trouble was not any excess of exports, but inability to sell even what was exportable according to the agreement. The European exporters soon discovered this, and since with beet sugar and its annual sowing adjustments of production can be made fairly rapidly, they cut down their production drastically, and so the desired reduction of surplus stocks in Europe was achieved, and indeed in advance of the schedule. But Cuba experienced much greater difficulties. She found that the requirements

SUGAR (continued)

of the U.S. market had been much over-estimated, not so much because consumption in the U.S. had fallen below expectations as because of the further increase in American home-produced supplies, i.e., from within the tariff wall. Each year Cuba reduced her production, but not sufficiently, so that her surplus stocks diminished far less rapidly than they should, and in 1935 amounted to at least half a million tons instead of nil, while a year previously they had fallen to only one million tons. Java, however, fared worst of all. Owing to the decline in purchasing power in British India and later to the increased production in India as the result of the higher sugar tariff of 1932, Java found her biggest market almost disappearing, and the same was true of the Japanese market owing to the increased production in Formosa. In 1931 the carry-over had seemed large enough at 613,000 tons: 2 years later it was 2,414,000 tons. By the most drastic reductions of the crops of 1934 and 1935 Java reduced the carry-over to 1,511,000 tons in 1935, and by October 1935 her surplus stocks probably did not much exceed a million tons. With the best intentions in the world, she could hardly have prevented this accumulation of stocks or remedied the situation more speedily, for the crop which was harvested in the early summer of 1933 was of course sown in the autumn of 1931, and it was not until 1932 that the disappearance of her markets became really serious and unmistakable. The combined result for the world as a whole was that instead of falling by 25 per cent. of the surplus each year, nothing like this rate of reduction was achieved during the first two years of the scheme, and by October 1st 1935 there was still left at least half a million tons surplus in the Western Hemisphere and double that amount in the Eastern Hemisphere. Nevertheless a great deal had been accomplished, and there can be little doubt that without the Chadbourne scheme the situation in 1935 would have been very much worse.

The stock position therefore goes some way to explain why the price continued to decline, but that is only part of the story: the course of world production as a whole explains the rest. A glance at the figures of production in Table II shows that while there were significant declines in the first two years of the scheme, this trend was reversed during the last two years despite the drastic restriction

which was maintained by the Chadbourne countries. Table V explains matters. The figures for 1929-30 represent the relatively unrestricted production of that year, and the course of events may be summarised by saying that while the Chadbourne countries reduced their production by half, this was very largely neutralised by increased production elsewhere, the British Empire contributing the largest addition and the U.S.A. the next largest. The expansion of the production of the British Empire was mainly in India where production increased from 2.7 million tons in 1929-30 to 5.2 million tons in 1933-34 and in 1934-35. The U.S. beet crop increased by more than half a million tons, and the production of the Phillipines by nearly the same amount, up to 1933-34, but in the next year President Roosevelt introduced his control scheme. Amongst the "Other Countries" the production of Formosa increased appreciably, but the biggest increase was in Russia, especially in the last year. Thus the efforts of the Chadbourne countries in restricting production were totally inadequate in face of the great shrinkage of sales in the free market from about 6 million tons to half that amount as the result of the increase in protected or subsidised domestic production.

TABLE V.
PRODUCTION IN THE "CHADBOURNE COUNTRIES"
AND ELSEWHERE.

	World	Chad- bourne Group	U.S.A. and Depend- encies	British Empire	Other Countries
1929-30	27.3	12.5	3.5	4.6	6.7
1930-31	28.4	11.4	3.6	5.2	8.2
1931-32	26.2	8.8	4.0	5.8	7.6
1932-33	24.1	6.4	4.3	6.7	6.7
1933-34	25.6	6.1	5.0	7.4	7.1
1934-35	25.9	6.4	3.5	7.4	8.6

It is the course of world production which explains why during the last two years of the Chadbourne scheme the price failed to rise despite the very considerable reduction of stocks and despite the increase in world consumption. On this last point attention may be drawn to Dr. Mikusch's estimates which show a continued fall in 1933-34, whereas our calculated figures show a decided rise. It is impossible to determine which is correct, but on general grounds it seems much more likely that consumption of sugar would increase with the recovery of world

trade which was taking noticeable effect in that year. Of a substantial increase of consumption in 1934-35 there can be no doubt, and that the prospect for 1935-36 was favourable. But the Chadbourne scheme had involved such sacrifices and achieved so little that no serious effort was made to renew the agreement. The members doubtless felt that no scheme seemed capable of raising the price and that with the reduction of surplus stocks the price was unlikely to fall: it seemed that they might do as well, and at least would do no worse, by abandoning the scheme.

The Chadbourne Scheme ended therefore on September 30th 1935. Almost at the same time the price began to rise but, after climbing to over 5s., a decline began with February 1936 and continued until October: a low point of 4s. 2½d. was reached in September which was within 4 pence of the lowest ever recorded (in November 1934). The cause of this decline was simply the growing assurance of the market that supplies were ample despite the obvious growth of consumption, an assurance which was not altogether well-founded even in the early part of the year when surplus stocks were still considerable. In the autumn the market itself realised its mistake, and the price rapidly rose to a peak of 6s. 9d. in the middle of March 1937. As we now know more definitely, surplus stocks had virtually disappeared by October 1936, and consumption in the season 1935-36 cannot have been much less than a million tons greater than production and had increased by about 2 million tons as compared with the previous season. Admittedly a large increase in production was in prospect for 1937, but so was a large further increase in consumption, and the market appears to have wakened up rather tardily to the danger that the price had been kept unduly low if producers were to be stimulated to do what was necessary. Having awakened, however, the market lost little time in rectifying its mistake.

From mid-February however, the International Sugar Conference began to dominate the situation; indeed some part of the later stages of the price rise may have been influenced by anticipations of this event. But the definite announcement at the beginning of March that the conference would open on April 5th coincided with a downward turn of prices,

which continued until the new international agreement was signed on May 6th. During these two months opinion fluctuated as to whether the Conference would reach any useful conclusion, though the trade certainly never expected any great or startling results. When the Agreement was published, the general opinion seems to have been that while something had been achieved, that something was nothing very much. This view, however, requires careful examination. As regards the fundamental problems of the industry the Agreement did little more than consolidate the *status quo*. The U.S. had decided to call a halt to the further expansion of its domestic producers in 1934: Great Britain had made the same decision in 1935, and no one supposed that the preferential duty on Dominion or Colonial sugar was likely to be raised, while South Africa and Australia had already decided that their bounty fed exports were too expensive and had limited them accordingly. At the Conference the U.S.A. agreed not to reduce the existing ratio of imports to its requirements, and Great Britain promised that any increase in consumption should be shared between Imperial and foreign producers. All this, however, was little more than a registration of the existing position and prospects. That the Conference might achieve a reduction in tariffs, and so begin the return to a more economic organisation of the world's sugar requirements, had always seemed out of the range of practical politics, and as regards these larger issues virtually nothing was achieved. But in reaching agreement on a control scheme for exports and on the basic quotas for export by each country, and in preventing any large accumulation of surplus sugar by fixing maximum stocks at roughly 25 per cent. of the quotas, the Conference accomplished a solid piece of work which may well prove to be of more value than was realised when the agreement was first published, or even to-day. The size of the export quotas for the first two years may be criticised as implying an unduly optimistic view of the expansion of consumption, and doubtless these optimistic quotas made agreement all the easier, or, as some would say, measure the difficulties of obtaining any agreement at all. But this does not alter the fundamental facts that the International Agreement does provide for an orderly sharing of any increase in the

SUGAR (continued)

requirements of the free market, that it thus prevents precipitate action on the part of one producing country which might have serious repercussions on others besides itself, and that it establishes machinery which may also be extremely useful if and when consumption ceases to expand. All this should result in greater stability over the next five years from the point of view of producers; the point of view of the consumer of sugar has long ceased to count!

The International Agreement came into force on September 1st. During the intervening months since May the market has been considerably influenced by technical issues arising from the agreement. In June and July the price rose to the high point of March, but there was a considerable fall during August, which was, however, partly recovered during September to a level of about 6s. 6d.*

* During October the price gradually fell to about 6s. 3d.

No important fresh developments in the general situation have occurred, nor does anything seem to be impending. The course of prices will now really depend on two issues, first whether consumption increases sufficiently to absorb the total export quotas of the producing countries, or even to come within 5 per cent. thereof (for the Agreement provides for a 5 per cent. reduction during the next two years if the Council find this advisable), and secondly whether a number of the producing countries will in fact be able to produce sufficient sugar to fill their 1937-38 quotas in full. But whether the price rises or falls, the fundamental position of the industry will be unaltered thereby, for it is clear that for the next five years the world intends to get its sugar under essentially the present regime, and no real return to free market conditions of supply is in prospect.

RUBBER

By J. W. F. ROWE.

International control of production has brought to the rubber industry at least one benefit which should be permanent, namely a great improvement in its statistical records. The International Regulation Committee has not only filled in numerous gaps but has accomplished a general codification, and, though still incomplete, their Monthly Bulletin of Statistics may be considered as the most authoritative record which can at present be produced, and in general adequate for most purposes. This improvement has, however, been gradually achieved, and since in many cases it was impossible to obtain figures for the past, the full benefits of comparability over a number of years cannot yet be reaped. In the previous bulletins on Stocks of Staple Commodities the main table has been headed "World's Rubber Stocks (exclusive of Stocks on Estates)," but in the last one, No. 32, a further table was added to make good this omission of estate stocks so far as Malaya was concerned, the necessary information having recently become available. Still further information has become available since 1930, and to-day there seems no point in continuing the old and now obsolete main table. But, as will be seen, Table I below

is essentially constructed on the same basis as the second table in Special Memorandum No. 32, though some additional headings have been inserted in view of the suppression of the previous main table. For the precise definition of the various headings, reference should be made to the notes below the table, but the following general comments should precede its study.

First, it will be observed that the item "Afloat" is relatively important, and it is therefore most regrettable that this is not a summation of actual returns but simply a calculated figure on the arbitrary basis of 1½ months' world shipments. The degree of error is as unknowable as it is obviously variable in time. This is perhaps the most serious deficiency in the statistics of the industry and it is to be hoped that it will be remedied as speedily as possible.

Secondly, the line "Total of Above" is the best approximation to the total actual stocks in existence which can be given over the period as a whole, but it is very far from complete. It omits the three items which are printed below it: their inclusion in the last two years is a notable gain. But even then we have no information as to dealers' and

RUBBER (continued)

TABLE I.
STOCKS END OF

	1928	1929	1930	1931	1932	1933	1934	1935	1936
On Estates in Malaya*	35	28	26	20	22	21 ✓	12	23	26
With Dealers in Malaya†	13	17	19	27	24	21 ✓	17	10	9
At Singapore & Penang	37	37	41	50	31	45 ✓	62	28	27
At Para and Manaos ..	4	4	5	6	5	3 ✓	3	5	2
Dealers in Ceylon‡	5	6	5	4	4	6 ✓	7	5	5
Afloat§	118	96	87	85	81	117 ✓	126	86	103
U.K. Public Ware- houses 	23	73	119	127	93	86 ✓	135	164	78
U.S. dealers and manu- facturers	65	119	201	322	379	368 ✓	361	312	223
Amsterdam Dealers ..	1	2	2	3	2	1 ✓	1	1	0
TOTAL OF ABOVE ..	301	382	505	644	641	668	724	634	473
U.K. Manufacturers¶ ..	—	—	—	—	—	—	43	45	24
France, Dealers ..	—	—	—	—	1	2	3	2	1
Inside remaining regu- lated areas** ..	—	—	—	—	—	—	—	38	34
								719	532

- * On estates of 100 acres and larger.
- † i.e., excluding Strait Settlements.
- ‡ Up to 1933 stocks held by Members of Colombo Rubber Trade Association: thereafter dealers' stocks plus rubber in Customs' premises.
- § Calculated at 1½rd months' world shipments.
- || At London and Liverpool.
- ¶ 100 per cent. figures estimated on the basis of returns from the majority of U.K. Rubber Manufacturers.
- ** i.e., N.E.I. Estates and Dealers, Ceylon Estates, India Estates and Small Holdings and Dealers and Manufacturers, North Borneo, Sarawak and Indo-China Estates and Dealers.

manufacturers' stocks in other countries, and in view of the growing importance of consumption in these other countries, this is becoming a deficiency of some quantitative importance. But while the limitations of even the most recent statistics require pointing out, it must be remembered that with most staple commodities we have no information at all about manufacturers' stocks; there is still an invisible supply of rubber, but it is relatively small, and it now exists only at the consumers' end.

The above table is intended only to serve as a basis for a brief historical record of the period since 1930. For this purpose it must be related to similar summary records of

production, consumption and price. These are shown in Table II. The last two columns of this table also show the degree of correspondence between the change which should have taken place in stocks outside producing countries if the figures of production and consumption are correct, and the change actually recorded. The lack of correspondence is in fact due to errors and omissions on both sides, for the consumption figures are only correct for the U.S.A. (that for the United Kingdom is calculated, though for the last two years actual figures are available, and those for other countries are net imports) while the statistics of recorded stocks are subject to the limitations already noted. On the whole, however, the discrepancies are surprisingly small, and the comparison gives considerable ground for confidence, even though one must remember that errors on either side may have cancelled one another.

With these two tables before us, an attempt may be made to summarise the history of the industry from September 1930, when Special Memorandum 32 was published, to the end of last year. During these six years three periods may be distinguished. From September 1930 to the end of 1932 restriction of output was lying in its grave, apparently lifeless. In the opening months of 1932, however, the mound above the grave began

TABLE II.

	P.E.A. Annual Average	Production (world shipments)	Price London Standard R.S.S. pence	Consumption*	Apparent Change in Stocks outside regulated areas	Recorded Change in Stocks outside regulated areas
1928	—	662	10 3/4	677	- 15	- 16
1929	—	868	10 1/2	805	+ 63	+ 81
1930	—	826	5 3/4	712	+114	+125
1931	—	800	3 1/2	683	+117	+136
1932	—	709	2 3/4	690	+ 10	0
1933	—	853	3 1/2	818	+ 35	+ 30
1934	87 1/2	1,019	6 1/2	939	+ 80	+ 68
1935	67 1/2	873	6	938	- 65	- 92
1936	62 1/2	856	7 1/2	1,017	-161	-161

* i.e., Absorption of U.S. and U.K. and net imports of other importing countries.

to crack, and the rubber world began to wonder whether a resurrection might not after all take place. The process was slow: it took more than a year, during which time the upheavals from within became gradually stronger and the chances of success improved. The year 1933 and the first quarter of 1934 form, therefore, a second distinct period in which almost everything in the rubber world was dominated by speculation on the progress of the resurrection of restriction and its ultimate success or failure. In April 1934 restriction finally emerged from its grave, and since that date has continued to dominate the stage, though one might add that for nearly two years it did so alone and without too much visible success, until it was joined early in 1936 by a very useful partner, increasing consumption: their joint activities form the distinguishing feature of the last eighteen months.

Special Memorandum No. 32 was written while conversations on the possibilities of restriction were proceeding between the Governors of Malaya and Java. It was hardly published (September 1930) before both parties jointly announced that in their view restriction was impracticable and that economic forces must be allowed to run their course. The price, which had already fallen to 6d. by June and to 5d. in August, now fell below 4d. and continued to fall. During 1930 world production was only a little smaller than in 1929, while consumption was 100,000 tons less. During 1931 consumption continued to fall though not so fast, but again production was only slightly reduced, and so for the second year in succession more than 100,000 tons was added to stocks. By August 1931 the price was down to 2½d. Actually at this date discussions on restriction again took place, but between certain British and Dutch associations and not between their governments. For a few weeks this delayed the fall, but when once more the discussions ended with the conclusion that restriction of the Dutch native output, which had of course been the stumbling-block all along, was impracticable, the fall in price was resumed, and in June 1932 the extraordinarily low level of 1½d. was touched. This was the turning point, for during the autumn there was some recovery in American buying and for the year 1932 the average price was just over 2¼d. Consumption in 1932 was almost

the same as in 1931. Production, on the other hand, fell by nearly 100,000 tons, thus at last catching up with the reduced consumption: so that the change in stocks was negligible though still slightly on the plus side. As compared with 1929, world consumption was lower by 14 per cent., and world production by 18 per cent., while the average annual price had fallen from 10¼d. to 2½d. The key to the fall in the price is, of course, to be found in the increase in stocks: in volume they increased by 68 per cent., but relatively to consumption, which is the really relevant measure, they doubled from less than 6 months' supply in 1929 to nearly 12 months' supply in 1932.

The year 1932 was not only, as has been said, the real end of the period of *laissez-faire*, but it was also the worst point of the trade depression, for consumption was very substantially higher in 1933. Some further comment may therefore conveniently be made here on the above comparisons between 1929 and 1932. That consumption fell by only 14 per cent. as the result of the world trade depression is somewhat remarkable, but still more so are the facts that consumption in the United Kingdom, the second biggest consumer of rubber, never fell at all but went on very slowly but quite steadily rising each year, and that consumption in all other countries in the world except the U.S.A. hardly fell appreciably. These facts are shown in Table III below, which also shows the drop of 135,000 tons in the U.S. consumption. This table also shows that this fall in American consumption of crude rubber would have been even greater if it had not been for the still greater proportionate fall in the use of reclaimed rubber. In short, the decline in world consumption

TABLE III.

	U.S. Absorption of Crude Rubber	U.K. Calculated Absorption of crude rubber	Net Imports of other countries	U.S. Absorption of Reclaimed Rubber	% Reclaimed to Crude Absorption
1928	437	48	192	223	51
1929	467	72	266	217	46
1930	376	75	262	153	41
1931	350	77	251	123	35
1932	332	78	275	77	23
1933	401	80	330	85	21
1934	453	110 (Actual)	367	101	22
1935	491	99 (95)	349	117	24
1936	575	79 (99)	363	141	25

RUBBER (continued)

was due wholly to the collapse in the U.S.A., and was even so not very considerable. The real trouble was not the extent of the fall but its rapidity in comparison with the curtailment of production.

The effect of the fall in price on the output of the main classes of producers seems sufficiently important to warrant the inclusion of Table IV in which the classes of producers are arranged roughly according to the degree by which their output declined, and for each year index numbers of production are shown taking the 1929 production as equal to 100.

TABLE IV.

Index Numbers of Production (1929 = 100. Average Price 1929 10½d.)

	1930	1931	1932
Average Price—pence	5 ³ / ₄	3 ¹ / ₄	2 ³ / ₄
Estates Malaya ..	97	98	98
" N.E.I. ..	100	108	100
Natives Malaya ..	101	97	89
Ceylon	97	79	63
TOTAL OF ABOVE	99	98	92
Natives N.E.I. ..	83	83	57
Other Countries* ..	83	70	44
GRAND TOTAL ..	96	94	84

* Except Indo-China where production rose owing to bounty.

There is clearly not much difference between the first three classes of producers. Estates in Malaya and in the N.E.I. were maintaining their output at the 1929 level, though this was the result of increased production on some estates and diminished production on others who preferred to conserve their bark, and were financially able to indulge in this policy. The native producers in Malaya were also not far behind, though showing some signs of stress in 1932. Estates in Ceylon were faring much less well and in other countries less well still. But the biggest and most important feature was the fall in the Dutch native output by nearly one-half: at a London price around 2d. the natives who were any considerable distance from the ports of Sumatra and Borneo were in fact unable to find buyers at any price at all, for the mere costs of transport and handling exceeded that price. Nearer the ports there might be buyers, but their price was too low to induce the natives to tap: it was in fact only those close round the ports, or in places with very easy and cheap transport, who continued to produce. On the other hand, the experience of 1930-31 suggested that at a price of 3d. or a little more the Dutch native

output would rise again considerably, and also the output of Ceylon and several other countries. Though a majority of Malayan and Dutch companies had got their costs down to about 3d. at the end of 1932, such costs rarely included a sufficient allowance for the maintenance of the estate or for depreciation of buildings and machinery, while the supervising force had in many cases been reduced below the requirements of efficiency, and their salaries and the wages of the coolies were at less than half the 1929 level. Certainly very few companies could make ends meet at a price level of 2d., and yet if world production was to be held down to the 1932 level until consumption had increased sufficiently to absorb the 200,000 tons of surplus stocks, it seemed clear that the price must remain at that level, and for some time, since the prospects of any rapid increase in consumption did not seem very bright at the end of 1932.

It was under such circumstances that restriction began its struggles for resurrection. Leaders of the British and Dutch industries resumed negotiations early in 1933, but it was not until the summer that the new Dutch Government, which then took office, began also to take a hand. The increase in the American demand, coupled with this revival of restriction talks, caused a fairly rapid rise in the price during April and May, and for the month of June the price averaged above 3d.; for November over 4d.; and when restriction was finally agreed upon in April 1934, it shot up to 6½d. Although during this period consumption was rapidly rising—in 1933 it was well over 100,000 tons greater than in 1932—yet, in view of the 200,000 tons of surplus stocks, by far the major part of the rise in price must be attributed solely to the prospects of restriction. For on the production side the expectations of what would happen if the price rose substantially were fulfilled. The Dutch native output doubled, and the output of Ceylon and the "other countries" increased by 25-30 per cent.: the output of Malaya and the Dutch estates increased by 10-15 per cent. In short the production of 1929 was restored, and while the price doubled itself, stocks actually increased further though it must be admitted that their ratio to current consumption declined.

The resurrection struggle thus created an extremely difficult situation for the new

RUBBER (continued)

International Restriction Scheme, and the slow and gradual application of the restriction screw during the second half of 1934, though doubtless wise if not indeed inevitable, allowed the situation to deteriorate still further. Production in 1934, despite restriction from August onwards, exceeded a million tons: consumption increased by over 100,000 tons as compared with 1933, but even this meant yet another addition (56,000 tons) to stocks. The price however remained at about a 6½d. level, though not without various minor fluctuations, until March 1935, when the pepper crisis was the signal for a definite fall below 6d. The pepper crisis affected the rubber market directly because various Mincing Lane firms were at least temporarily concerned with both commodities, but the effect would not have been so great or so lasting if the rubber market had not previously been gradually developing an underlying weakness of its own, due to growing fears that the restriction scheme was not working too well and might prove inadequate for its purpose, and to the fact that the increase in consumption had come to a halt. Though the restriction screw was given a special additional turn to counteract this price fall, it was not until the end of the year that the price regained its former level. Altogether the first eighteen months of restriction were a difficult time for the International Committee, and it was

not until the last quarter of 1935 that the relatively rapid reduction of stocks revealed plainly the effect of their work. Though consumption had been stationary, production had been so reduced that stocks at the end of the year showed a fall of 90,000 tons—incidentally the first fall for more than ten years.

At the same time as this long hoped for event was materialising, the Committee was taking steps to improve the efficiency of the mechanism of restriction. This had worked smoothly enough in Malaya, Ceylon and as regards the estates in the N.E.I.: their exports were reasonably close to the permissible amount. But the regulation of Dutch native exports by means of the variable export tax had been working far from smoothly—in one quarter there had been a deficiency, but over the eighteen months to December 1935 there was a surplus of over 40,000 tons. At that date the Dutch request for an increased quota was granted to the tune of 57,000 tons, the whole of which was to be added to the native quota. The registration of Dutch native holdings was then speeded up so that the method of individual assessment might replace that of the variable export tax at the earliest possible date. This change was in fact made as from January 1st 1937.

The course of events during 1936 and up to the present time demands something more than annual figures. Table V shows

TABLE V.

Quarters ending	1935				1936				1937		
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
World Shipments—'000 tons	220	228	221	203	196	195	227	237	244	273	321
Permissible export—% of quota	75	70	65	60	60	60	65	65	75	80	90
World Consumption—'000 tons	243	230	217	253	239	266	257	275	288	300	264
Average Price—pence ..	6 ³ / ₁₆	5 ²⁷ / ₃₂	5 ¹¹ / ₁₆	6 ³ / ₃₂	7 ⁵ / ₁₆	7	7 ¹¹ / ₁₆	8 ²³ / ₃₂	11	10 ¹³ / ₃₂	9
Total Stocks (end of quarter)	773	772	763	719	667	609	564	532	513	499	Aug. 30 516*
LOCATION OF STOCKS											Aug. 30
On Estates in Malaya ..	18	22	21	23	22	21	22	26	25	25	25
Other Stocks inside remain- ing regulated areas ..	33	34	35	38	32	39	32	34	33	43	42
With Dealers in Malaya ..	17	16	12	10	9	12	11	9	16	23	19
At Singapore and Penang ..	55	52	34	28	29	28	27	27	42	45	48
At Para and Manaos ..	5	4	5	5	5	5	2	2	4	1	1
With Dealers in Ceylon ..	5	4	4	5	4	3	4	5	3	4	4
Afloat	92	101	101	86	90	90	96	103	125	125	144†
U.K. Public Warehouses ..	162	171	175	164	148	122	104	78	52	43	50†
U.K. Manufacturers ..	41	43	46	45	39	40	31	24	21	18	24†
With Amsterdam & French Dealers	5	5	4	3	2	2	2	1	1	1	1†
U.S. Manufacturers and Dealers	339	320	326	312	284	245	233	223	192	170	183†

* Partly estimated.

† On Sept. 30th.

Stocks on Sept. 30th will probably be about 20-25,000 tons greater than on Aug. 30th.

RUBBER *(continued)*

the relevant data quarter by quarter. The dominating factor in 1935 was the steady and substantial increase in consumption. With production restricted to 60 per cent. during the first half of the year, and 65 per cent. in the second half, stocks continued to fall rapidly, and the price rose to over 7d. in the first quarter, and then continued to rise, though more slowly, in the second and third quarters. In October the Committee decided to increase the export quota for the first half of 1937 from 65 per cent., at which it had previously been announced, to 70 per cent. This appears to have been interpreted by the market as a sign that everything in the garden looked rosy to those in charge, and the price was promptly raised to over 8 pence, and then in rapid stages to well over 9d. by early December. The International Committee at its December meeting decided to increase the percentage for the first quarter of 1937 by another 5 per cent., and for the second quarter by yet another 5 per cent., making the figure 80 per cent. It is said in some quarters that by these revised decisions the International Committee hoped to put an effective damper on the price rise and that they were genuinely dismayed when the result was only to stimulate a further advance and still more speculative activity. By the end of the month the price was 11d. But whatever the Committee's intentions, the fact remains that nearby stocks had been reduced to a level which would at the most only permit of hand-to-mouth buying if the spot price was not to be unduly raised, and that, as often happens in such critical conditions, speculative buying increased and resulted in something approaching a mild scramble for the available supplies. A glance at the stocks in United Kingdom Public Warehouses and the dwindling stocks of United Kingdom manufacturers will show the position, and though the U.S. stocks did not decrease to the same extent, it must be remembered that U.S. current consumption was greatly increasing while in this country it was stationary. In many quarters the view was expressed that the Committee should have announced a much greater increase in the quotas for 1937, say 80 or 85 per cent. for the first quarter and 100 per cent. for the second quarter. Admittedly this would have disposed of all

fears that the Committee were bent on forcing up the price, but it would probably have been interpreted, so far as the short period was concerned, in the same but a more acute way as the smaller increase which was given: and the immediate future was what mattered. Moreover, such a sudden and large increase would not have resulted in a corresponding increase in production: as it was the regulation areas could not export the 75 per cent. which they were told to export during the first quarter: and to ask for more than could possibly be forthcoming would have been to play straight into the speculator's hand. The Committee doubtless see the speculator as the villain of the piece, but the fact remains that their inability to see sufficiently far ahead gave the speculator his chance. The defence that the sudden rise in consumption was foreseen by no one,* and was humanly speaking impossible to foresee, merely draws attention to the point that the technique of artificial control is apt to require super-human foresight. This has been frequently illustrated in the history of other artificial control schemes, though it must not be forgotten that essentially similar situations arise under *laissez-faire*, as indeed is shown by contemporary events in other industries during this very same period. While at the turn of the year the motives of the Committee seemed questionable, subsequent events have largely vindicated their remedial policy even though they must bear the blame for the cause of the trouble.

The year 1937 therefore opened under rather critical conditions. After a slight relapse in January the price began slowly moving up again in February, and then rapidly during March to an average for the month of very nearly 1s. This level was roughly maintained until the end of April, when there was a definite break to 10½d. This was due partly to the Budget and its N.D.C., partly to international disturbances and gold scares, but also to the very large shipments of rubber during March. For the course of prices during the first quarter had undoubtedly been greatly influenced by the apparent inability of producers to increase their shipments up to the permissible amount: actually the January and February shipments were at the rate of only 71,000 tons a month. But in March the figure jumped to 102,000, thus

*-It seems a fair deduction that manufacturers also were caught by surprise since they took no steps to increase their stocks until the last quarter of 1936.

wiping out almost the whole of the previous deficiency. In part this sudden increase was due to the energetic labour recruitment which had been begun when the quotas were raised in December, and which after the inevitable time lag was now bearing fruit, but to a large extent it was also due to numerous measures incited by the International Committee to ship out quickly every possible ton of rubber.

In the June quarter the 80 per cent. quota was forthcoming, though mainly due to excess shipments of Dutch native rubber which balanced a deficit from Malaya. But though owing to the steady increase of consumption stocks still continued to fall, albeit at nothing like the rate of 1936, the price continued to sag during May, and broke again in early June to a level of 9½d. That level was roughly maintained until mid-July when the publication of the heavy June shipments caused a drop to 9d., and during August and September there was a slight further decline. The course of events since March has in fact been dominated by uncertainty as to the ability of producers to furnish the higher quotas changing gradually to certainty, and the accompanying disappearance of fears of an actual shortage of supplies. There is little ground for expecting any sharp increase in the growth of consumption during the next six months, and unless this should happen it seems fairly clear that sufficient supplies will be forthcoming even though the International Committee show no signs of raising the quota beyond 90 per cent. Whether the addition to stocks will be insignificant or of the more substantial order of, say, 50-80,000 tons depends upon the exact course of consumption, which cannot be forecast with any certainty. Unless consumption ceases to increase, it will be some time before stocks rise to a comfortable level, and if it continues to increase, and with it therefore the stocks required for convenience, the Committee will have to be careful if they are not to revive the activities of the speculator.

Such are the prospects for the immediate

future. Little can really be usefully said of the more distant future, but attention may be directed to certain features of the industry as it exists at present, which the regime of control has lately forced very much into the background. Behind this year's struggle to produce what is permissible lies the gap between what the industry is supposed to be able to produce at capacity and what it actually could produce. Though the Dutch natives are now assessed on some sort of individual basis, no one knows their real capacity unless it be the Dutch Government, and that seems doubtful in view of the apparently rough and ready methods by which the quotas are said to be administered. Even if their capacity were known, it would have to be related to a price, and on this opinions differ widely. All that can be said on this subject is that there undoubtedly is still a large reserve of physical capacity sufficient to meet the additional requirements of consumption for some years, even at the present rate of expansion, but it may require at least the present price and possibly even a higher price before it is all forthcoming. On the other hand it seems clear that sooner or later a large area of existing estate rubber must be replanted owing to its declining yields, and this would involve a reduction in capacity while the new trees were growing. If one could be certain that consumption was going to increase for some years, it would appear to be high time for the leaders of the industry to address themselves to the business of replanting and extension, more especially since the planting material available to-day is so vastly improved. At a price of 9d. such a policy should be feasible on a large scale, though the investor may require a good deal of education before he approves. But it is pure supposition that the upward movement of the trade cycle, and therefore the increase in rubber consumption, will continue indefinitely, and until one knows, it is impossible to forecast anything except that rubber will always be oscillating between boom and slump.

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