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COMMODITY PRICES IN SOUTH INDIA

1918-1938

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1918-1938

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PREFACE

It is well known that the producers of raw materials and foodstuffs lost heavily by the great slump of 1930-34. The prices of cereals and oilseeds fell rapidly and this unbalanced the budgets of most agriculturists. This little book deals only with S. India, and only five commodities have been taken up for study. But of the five, rice is the largest single crop all over the country. Groundnut and sugarcane also play an important part in the rural economy of S. India. As for coconut and pepper, they are the leading cash crops of the West Coast, including S. Canara. The period taken is 1918-38, *i.e.*, the years after the war of 1914-18. However, for purposes of comparison, the prices ruling in 1913-14 have been given in many cases.

A good part of this study was published in the Madras University Journal for July 1939 but several mistakes crept in, for reasons beyond the control of the authors. We are thankful to the University for publishing this as a bulletin.

The material for some of the chapters was collected by the students of the University Diploma course in Economics, namely, Mr. H. Ganappa Punja, Mr. V. E. Venugopal and Mr. N. Rajabadar Pillai. Mr. N. T. Mathew and Mr. A. N. Krishnan Nair have helped us in drawing up certain tables. We are also thankful to Mr. K. C. Ramakrishnan for various suggestions.

The University of Madras,
1-1-'40.

TABLE OF CONTENTS

CHAPTER	PAGE
I CEREALS : RICE	.. 1
APPENDICES TO CHAPTER I	.. 9
II OILSEEDS : COCONUT	.. 11
APPENDICES TO CHAPTER II	.. 19
III OILSEEDS · GROUNDNUT	.. 21
APPENDICES TO CHAPTER III	.. 27
IV SUGARCANE	.. 29
APPENDICES TO CHAPTER IV	.. 37
V PEPPER	.. 41
APPENDIX TO CHAPTER V	.. 53
ADDENDUM :	
A TARIFF ON RICE IMPORTS	.. 55

CHAPTER I.

CEREALS : RICE

Among the provinces of India, Madras comes next only to Bengal in the matter of rice production. Bengal with 22 million acres produces annually about 9 million tons of rice. Madras with about 10 million acres produces 5 million tons. Next to rice in Madras come cholam, cumbu and ragi, with a total of 9·5 million acres. All the cereals together occupy two-thirds of the cultivated area of Madras and form the chief source of its national income. The prices of all the grains are inter-related, and it may be useful to study them together.

Table I gives the annual average prices of rice, cholam, cumbu and ragi for each year (fashi) from 1918 to 1938. For convenience of study they are reduced to index relatives with the post-war triennium 1918 to 1920 as base, and the following table gives the respective indices for each crop as also the 3-year moving averages. The graphs of all these series are given on p. 2.

TABLE I.*

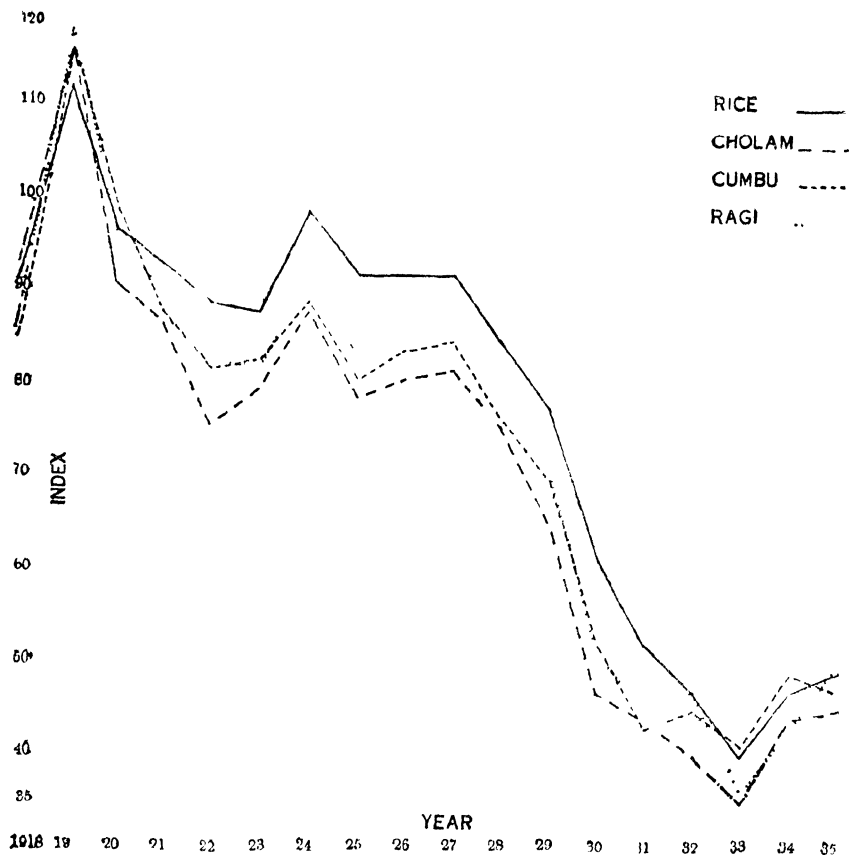
INDEX NUMBERS OF PRICES OF RICE, CHOLAM, CUMBU AND RAGI
WITH THE 3 YEAR MOVING AVERAGES

Year. (Fashi)	Rice.		Cholam		Cumbu		Ragi.	
	Index number	Moving average	Index number.	Moving average	Index number.	Moving average	Index number.	Moving average
1913-4	73		60		60		62	
1918-9	91		93		85		86	
1919-20	112	100	116	100	116	100	118	100
1920-1	97	101	91	98	99	101	96	101
1921-2	93	93	87	85	88	90	90	90
1922-3	89	90	76	81	82	84	83	85
1923-4	88	92	80	81	83	85	82	86
1924-5	99	93	88	82	89	84	92	86
1925-6	92	94	79	83	81	85	83	87
1926-7	92	92	81	81	84	83	85	85
1927-8	92	90	82	80	85	82	86	84
1928-9	85	85	76	74	77	77	82	80
1929-30	78	75	65	63	70	66	71	68
1930-1	61	64	47	52	52	55	51	56

* Converted from the Index Numbers given by Mr. N. K. Adyanthayya (*Journal of the Madras University*, Vol. VI. No. 1, p. 94) for the period 1918-29; for subsequent years, they have been compiled on the same basis.

Year. (Fasli.)	Rice.		Cholam.		Cumbu.		Ragi.	
	Index number	Moving average	Index number	Moving average	Index number	Moving average	Index number	Moving average.
1931-2	52	53	44	44	43	47	45	48
1932-3	47	46	40	40	45	43	47	43
1933-4	40	45	35	40	41	45	36	42
1934-5	47	45	44	41	49	46	43	43
1935-6	49	48	45	44	47	47	50	47
1936-7	48	49	43	44	46	47	47	49
1937-8	50	49	45	43	47	45	49	46
1938-9	50	—	41	—	41	—	43	—

Index Numbers of Prices of Cereals (graph.)



From a glance at the table and the graph we find the following features common to all the series :

1. The highest price for all the grains during the period under consideration was reached in 1919.

2. The lowest price was reached in 1933.

3. There was a sudden spurt in the prices of all commodities in 1919 followed by a recession in the subsequent year.

4. Between 1920 and 1927, the prices of all commodities fluctuated within narrow limits, with a slight tendency for decline in prices.

5. A slump in prices commenced for all commodities in 1927; this was slow in the first 3 years but became rapid after 1930.

6. The trough of the depression was reached in 1933; afterwards there was a revival although prices remained very much below the pre-depression level.

All these points are clearly brought out by the graph, which indicates a very high degree of correlation between the prices of these different commodities. The following table gives the coefficients of correlation between the different series as well as the first and second differences.

Commodity	Series	1st dif- ferences	2nd dif- ferences
Rice and cholam	..	0·97	0·95
Rice and cumbu	..	0·95	0·93
Rice and ragi	..	0·98	0·95

These results are to be expected, because when there is a fall in the price of rice, more people from the poorer classes take to it, and thus reduce the demand for millets, bringing down their prices also. On the other hand, when the price of rice goes up, millets will be substituted at the margin, the demand for them increases, and consequently their prices also go up.

The following table gives the arithmetic mean, standard deviation and coefficient of variation of each of these commodities during the period 1918-38

Commodity.	Arithmetic mean.	Standard deviation.	Coefficient of variation.
Rice	72·7	19·0	26·1
Cholam	64·5	19·6	30·4
Cumbu	66·0	18·5	27·9
Ragi	67·1	20·0	29·8

Thus the average price of rice during the period was less than three-fourths of that of the base period and that of the millets

about two-thirds. Rice occupies the first and cholam the last place in the series. From the column of standard deviations we find that the variations in prices are almost the same; but these variations are highest in ragi and lowest in cumbu. But as the mean values differ the coefficient of variation is a better measure of the dispersion. By this measure we find that the variation is highest in cholam and least in rice. This clearly shows that the price of rice was more stable with less fluctuation and higher average. On the other hand, millets, especially cholam record greater fluctuations and a heavier fall compared with the post-war triennium.

Factors influencing the local price of rice

The normal price of a staple commodity like rice is settled by the cost of production at the margin, but when a country imports a necessary part of the commodity from another country, the marginal cost to be taken is that in the latter and not in the former country. The following table gives the imports of rice into and exports from the Madras Presidency (including imports to Cochin ports) during the period under consideration

TABLE II
SEA-BORNE TRADE IN RICE (AND PADDY IN TERMS OF RICE)
(in thousands of tons)

Year *	Foreign.	Imports (Coastal)		Total	Exports (Foreign).
		Burma	Other provinces.		
1918-19	—	210	52	262	99
1919-20	—	399	63	462	2
1920-21	—	265	85	350	6
1921-22	—	200	119	319	53
1922-23	—	264	153	417	53
1923-24	—	195	205	400	76
1924-25	—	263	205	468	56
1925-26	—	399	74	473	64
1926-27	—	243	65	308	110
1927-28	50	387	66	503	101
1928-29	140	372	73	585	103
1929-30	5	347	35	387	97
1930-31	5	398	35	438	104
1931-32	23	517	61	601	63
1932-33	35	418	114	567	66
1933-34	81	574	61	716	79
1934-35	336	715	61	1112	76
1935-36	145	855	96	1096	71
1936-37	51	698	94	843	84
1937-38	2	699	152	853	89

* Official year from 1st April to 31st March.

From the above table we find that the Madras Presidency was throughout a net importer of rice, and a large share of the imports came from Burma. Of course for a couple of years, 1934 and 1935, there was the influx of large imports of cheap rice from Indo-China and Siam but this was soon curtailed by the imposition of an import duty on rice. But during the last few years, especially after 1933, the volume of imports from Burma has increased tremendously. Just as cheap transport in the latter half of the nineteenth century brought down the price of wheat in Europe, the influx of cheap rice from Burma has reduced the price of rice in India. In Burma, the cost of production of rice is much lower than in India, because it is cultivated in fertile rain-fed lands paying less land revenue than similar land in India. It was estimated in 1934 that an acre under rice cost Rs 24 in Tanjore and Rs. 17 in Burma. The cost of sea-transport between Burma and India is also lower than the rail transport between different stations in Madras. Therefore Burma has been able not only to beat out Madras rice from Ceylon but to sell its rice in Madras itself.

That the Madras price of rice closely follows the price of rice in Burma may be seen from a comparison of the average annual prices in Rangoon and the harvest prices in some important centres in Madras as also the average for all districts during the last few years given in a table on p 9. In the following table, they are converted into index numbers with 1922 as base.—

TABLE III
INDEX NUMBERS OF PRICE OF RICE WITH 1922 as base *

Year.	Burma.	Godaveri.	Kistna.	Guntur.	Nellore.	Tanjore.	Chingleput.	Madras.
1922	100	100	100	100	100	100	100	100
1923	101	111	104	102	109	82	115	101
1924	106	111	123	105	120	114	128	115
1925	107	110	105	105	120	122	102	105
1926	104	121	123	111	126	90	121	108
1927	94	120	114	107	130	105	132	109
1928	90	110	101	92	130	98	98	101
1929	88	113	94	90	115	87	90	91
1930	55	67	70	60	57	75	62	69
1931	51	65	71	55	66	55	60	62
1932	41	52	61	55	72	46	55	55

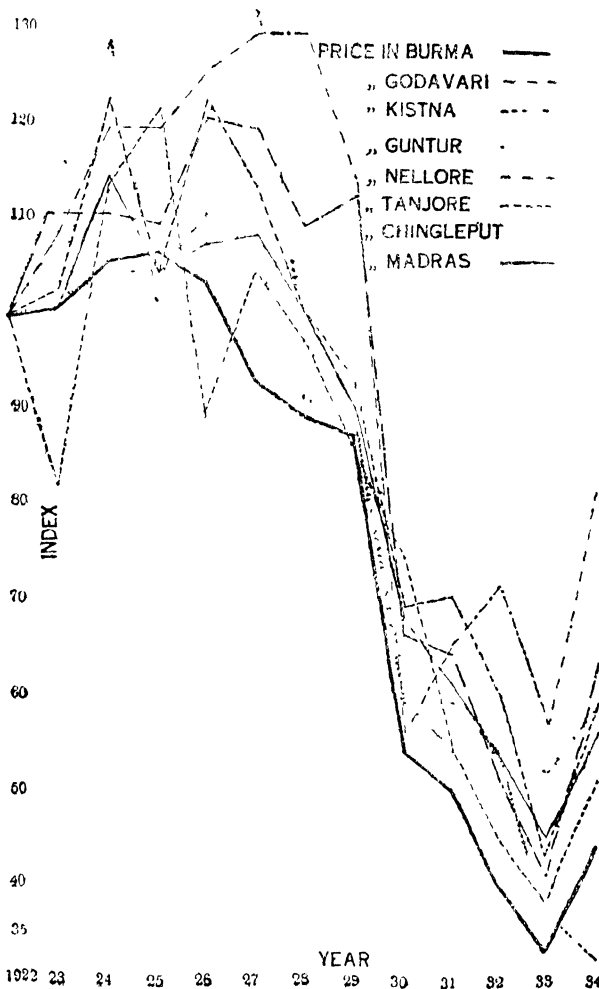
* Rangoon prices are wholesale prices, but as corresponding wholesale prices are not available for the Indian centres, wholesale prices at harvest time have been given.

COMMODITY PRICES IN SOUTH INDIA

Year.	Burma.	Godaveri.	Kistna	Guntur	Nellore.	Tanjore	Chingleput.	Madras.
1933	34	42	44	38	58	39	53	46
1934	45	64	60	33	82	52	60	57
1935	49	60	58	60	78	51	59	58
1936	50	58	60	51	75	47	61	55
1937	50	64	66	60	90	50	54	59

The accompanying graph indicates a high positive correlation between prices in Rangoon and in the markets in the Presidency, and thus indicates the influence of Rangoon prices on prices in India.

Index numbers of the prices of rice in different markets from 1922 to 1934



Indo-China Rice and Indian Prices

In 1933-34 and 1934-35, there was a sudden increase in the rice imports from Indo-China and Siam and it was thought that this was the cause of the low price of rice in India at that time. With a view to counteracting this, a duty of 12 annas per maund was placed in April 1935 on imports of rice (not in husk) from foreign countries, but not on imports of paddy. As for the effect on prices, it was very limited. It is true that price rose from an average of Rs. 3·6 per maund in 1934-35 to Rs. 4 in 1935-36, but it may not be correct to assume that the rise was entirely due to keeping out foreign imports; for we know that in that year rice production was at a rather low ebb in India (including Burma). According to the *Review of the Trade of India* for 1935-36, "The Rangoon market price of rice was generally on a higher level than in the preceding years" and "the quantity available for export between April 1935 and the end of the season was estimated to be smaller than in previous years" (p. 95). This led to some firmness in the Rangoon market and must have been the cause of the upward trend of prices in India. In spite of the continuation of the duty on broken rice in 1936-37, the prices continued to fall in that year, due to a congestion in the Rangoon market on account of surplus production. Thus we see that the Rangoon market price of rice determined the price in Madras. In other words, the Burma prices determined the world price of rice.

Raising Prices.

It has already been pointed out that rice and other cereals occupy a very important place in the agricultural economy of the province. Therefore the continued depression in the prices of these commodities has caused great hardship to a very large section of the people, both landholders and cultivators. The question of raising the price of rice has therefore been engaging the attention of the country for some time.

The one conclusion that emerges from a study of the price trends is that in the present circumstances a rise of prices in India cannot take place so long as the Burma prices remain low. Prices have been low in Burma because of a steady increase in production and a shrinkage in markets. In 1913-14, Burma exported 1·83 million tons of cleaned rice to foreign countries and even in 1931-32 the exports came to 2 million tons. But markets have contracted since and in 1935-36 exports came to only 1·22 million tons. Exports to Europe have greatly declined and

even greater has been the fall in Chinese demand. It may be said that low prices may lead to substitution resulting in reduced production. But this may not always happen in countries where peasant economy prevails.

Economic recovery in Europe and the Far East is bound to raise the price of rice, but if Burma and India are to benefit by it, it is necessary to improve the quality and grading of rice and to carry on an active propaganda in Europe and America. Unless such action is taken, it will not be possible to recapture lost markets.

Another alternative is to restrict rice production. Restriction may be anti-social in the case of cereals in India, seeing that the existing production is hardly adequate for the proper feeding of our teeming millions. But it may be more justifiable in the case of Burma; for while Indian rice is produced mostly by peasants chiefly for their own consumption, the bulk of Burma rice is produced for the export market.

It is not possible, nor is it desirable, to raise the price of rice to the high levels prevailing during and after the Great War (1914-18). With an increase in demand, prices are bound to look up. The outbreak of war in Europe has already raised the price of rice, and if the war continues long, demand may increase and prices may continue to rise. There are some people who recommend import tariffs for raising prices, but such a policy must be adopted after careful consideration. Although Burma has been separated from India, it is to the interest of both India and Burma to maintain friendly trade relations. It may be necessary, however, to regulate the imports of rice from Burma with a view to preventing a glut in the Indian market. Having regard to the conditions of the crops and the stocks available from time to time, licenses must be granted to importers. The object of any regulation, however, must be to prevent not only glut but also scarcity; for, we have to remember that rice is the staple food of the majority of India's population and that more people are interested in it as consumers than as producers. For any such regulation, more accurate forecasts of rice crop are essential, and hence the importance of improving our crop statistics. (See also the addendum on "A Tariff on Rice Imports", p. 55).

APPENDICES

A. COMPARATIVE PRICES OF RICE IN RANGOON AND IMPORTANT DISTRICTS IN THE MADRAS PRESIDENCY

Year	Rangoon.	Madras.	Tanjore.	Nellore.	Kistna	Godavari.	Guntur	Chingleput.
	Rs As.	Annas.	Annas.	Annas.	Annas.	Annas.	Annas	Annas.
1922-23	448—7	109	125	89	96	92	102	97
-24	453—11	111	103	97	100	102	105	112
-25	472—8	125	142	107	118	102	107	125
1925-26	480—4	114	123	107	101	101	107	99
-27	464—4	118	112	112	118	111	114	117
-28	421—8	119	131	116	109	110	109	128
-29	403—10	110	123	115	97	101	94	95
-30	392—11	99	109	103	90	95	92	87
1930-31	246—8	75	94	51	67	62	61	60
-32	227—10	67	69	59	68	60	56	57
-33	182—13	60	58	64	59	48	56	53
-34	150—15	50	49	52	42	39	39	51
-35	203—4	62	58	73	58	59	54	58
1935-36	218—10	63	64	69	56	55	61	57
-37	222—3	60	59	67	58	53	52	59
-38	224—5	64	62	80	62	59	61	52

Note.—For Rangoon prices are per 100 baskets of 75 lbs. each.
For all other centres prices are per Imperial Maund.

B. RICE ACREAGE AND PRODUCTION IN VARIOUS COUNTRIES.

(Area in 1,000 acres ; yield, 1,000 tons.)

Countries.	1930-34 (average)		1935.		1936		1937.	
	Area.	Yield.	Area	Yield	Area.	Yield	Area.	Yield.
Bulgaria.	18	15	20	17	22	20	15	12
Egypt.	370	417	489	694	489	680	274	364
Formosa	1,608	1,490	1,677	1,663	1,685	1,742	1,625	1,683
Indo-China.	13,489	5,780	13,321	6,579	13,938	6,203
Italy.	343	655	341	722	358	721	358	727
Japan.	7,883	11,125	7,850	10,473	7,855	12,275	7,879	12,089
Java.	9,136	5,412	9,566	5,882	9,544	5,669
Korea.	4,110	3,146	4,152	3,260	3,922	3,531	4,014	4,801
Siam.	7,138	4,639	7,338	4,623	5,498	3,320	7,193	4,612
Spain.	117	292	116	287
U S A.	882	833	815	778	968	982	1,092	1,063
India.	70,288	26,699	70,998	23,213	72,295	27,828	72,277	26,737
Burma	12,770	4,793	12,503	4,998	12,634	4,721	12,945	4,587

C EXPORT TRADE IN RICE (IN 1,000 TONS).

Countries	1927-31 average	1932	1933	1934.	1935.	1936	1937.
Bulgaria	0 02	0 00	1 00	0 00	0 49	0·00	0·01
Italy	(a) 61·47	85 77	125 01	124 77	99 70	107 42	108·23
	(b) 133·69	70 70	67·32	35·84	25·95	33 17	50·44
Spain.	(a) 0 16	0 14	0·00	0·00	2 53	.	.
	(b) 48 43	38 74	8·42	45 11	24·85	.	..
Egypt.	42 84	1 58	8 70	0·07	0 03	0 22	2·25
Java and	(a) 0·03	0 00	0 00	0 00	0·34	0 12	0·00
Madura.	(b) 10 30	6 50	7 45	5·93	6 92	11·73	18·68
Indo-China	(a) 39·64	78 79	85·94	139·26	312 74	220·76	139·18
	(b) 1,224 10	1,022 76	1,104 83	1,262·59	1,302 71	1,394 89	1,253·51
Japan.	51·63	46·13	16 16	65·03	31·50	10·23	..
Siam.	1,181·95	1,494·46	1,505·74	1,833 69	1,371 81	1,394 20	..
U.S.A.	(a) 112 99	87 83	5 88	4·26	2 19	1·95	5·52
	(b) 30 56	26 99	52 94	34·41	72·23	8·52	84·80
India	{ 2,168 }	259	207	211	208	197	251
Burma		{ 1,884 }	1,636	1,184	1,448	1,135	

(a) Unhusked. (b) Husked.

CHAPTER II.

OIL-SEEDS : COCONUT

Next to food grains, oil-seeds occupy the largest area under crops, with about 6 million acres out of a total cultivated area of 34 million acres. Among the different kinds of oil-seeds groundnut occupies the first place with an area of about 3·8 million acres, followed by sesamum with ·8 million and coconut with about ·6 million acres. The other oil-seeds account for about ·5 million acres. Of the above three, sesamum is used mainly for domestic consumption and figures very little in either export trade or industrial production. Coconut oil occupied a very important place in pre-war exports but is now chiefly used in the production of soaps and margarine in the country. As regards groundnut, it formed only a small part of the export trade in pre-war years, but in the post-war period it proved the most important article of export among oil-seeds and was to a very large extent responsible for the prosperity of certain areas in the Presidency. It is proposed to deal with coconut in this chapter and with groundnut in the next.

The coconut palm supplies the means of subsistence to a large number of people in South India, especially on the West Coast. Of the total coconut area of 1,388,000 acres in India, Madras has 557,000 acres, Travancore 523,000 acres, Mysore 163,000 acres and Cochin State 67,000 acres. Among the districts of the Presidency, Malabar occupies the first place with an area of 312,000 acres. Next in order come E. Godavari with 52,000 acres, S. Kanara with 48,000 acres and Tanjore with 34,000 acres.* Malabar Coast has always been the chief coconut area of India and enjoys special natural facilities.

The chief markets for coconut products in South India are Alleppey (Travancore) and Cochin. In the following table the annual average prices of coconut oil per candy of 654 lbs. in Cochin are given. The data are obtained from the *Indian Trade Journal*. Oil is selected because it is the chief product for which accurate figures are readily available. There

*The figures of area given are from Patel's "Report on Coconut Enquiry in India" and are for the year 1931-32.

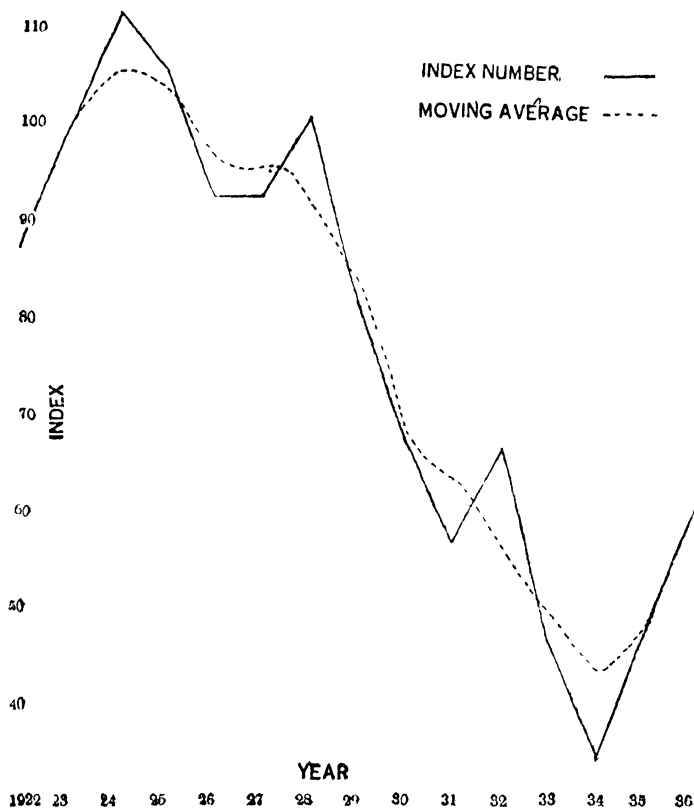
is a high correlation between the prices of oil in different markets of the States and neighbouring British provinces and as we are interested only in the trend of prices the Cochin figures are taken for want of accurate data in the Madras centres. The table in the Appendix gives the monthly average prices for the different years.

The following table gives the annual average price for different years; for convenience they are converted to index numbers with the average of the first 3 years as base. The final column gives the 3-year moving average. The accompanying graph shows the fluctuations of price and the trend of the moving average.

TABLE I.
PRICE OF COCONUT OIL

Year.	Average Price in Rs. per candy. (163·1)	Index no. of price.	Three Year Moving Average.
1922	143·6	88	
1923	163·5	100	100
1924	182·1	112	106
1925	173·3	106	104
1926	151·3	93	97
1927	100·9	93	96
1928	164·4	101	92
1929	133·1	82	84
1930	110·8	68	69
1931	93·0	57	64
1932	109·7	67	57
1933	77·3	47	50
1934	57·0	35	44
1935	80·0	49	49
1936	100·7	62	58
1937	103·0	63	55
1938	64·8	40	

Note.—The base period for the index numbers is the triennium 1922, 1923 and 1924.

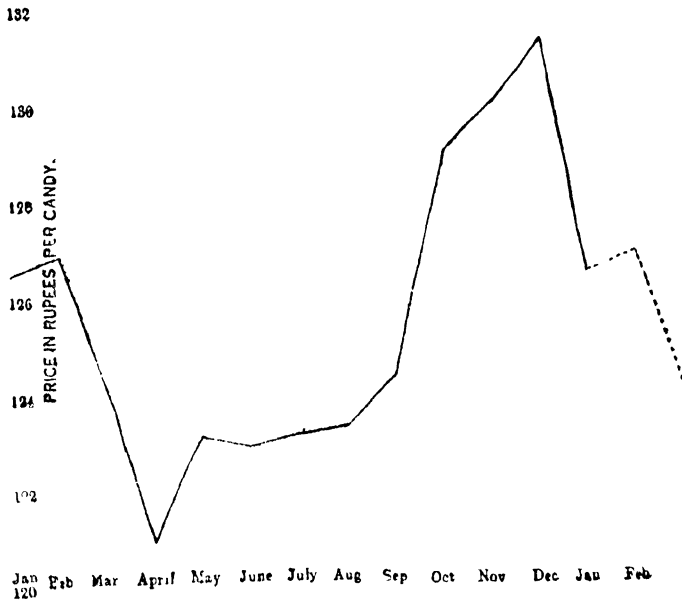
Prices of Coconut Oil (1922-36).

From the above table we find that the price touched the maximum level in 1924 and reached the minimum in 1934. From the year of maximum price there has been a tendency for fall in prices, until it reached the minimum, except for a spurt in 1928 and again in 1932. The rise in prices in 1932 is explained by the damage caused to the crop by the cyclone in May 1931 in the Malabar and Tanjore districts. The tendency of the fall in prices started much earlier for coconuts than for the food grains, and as in the case of these grains the fall was heaviest in the depression period. There was a slight revival after 1935, though it could not reach even two-thirds of the base period level. This rise continued in the succeeding years also, but with the recession in industrial activities in America and Europe in 1938, the prices again went down. It will be interesting to see whether the prices of this commodity exhibit any seasonal variation. For this purpose, the average price of each month for all the years is

calculated, and these values are given in the following table. The graph shows the monthly variation of these prices.

Month.	Average price during the period (1922-38). Rs per candy of 654 lbs.
January	123 4
February	123·1
March	120 0
April	117·1
May	118·9
June	118·1
July	118·4
August	118·6
September	119·0
October	123·2
November	123·7
December	124·4

From the above table we find that the price of coconut oil is maximum in December and minimum in April, the difference between these two being only about 6%. The prices in May, June, July and August are almost steady; and they begin to rise in September reaching the maximum in December. The last quarter of the calendar year marks the period of maximum prices. They again begin to fall from January and reach the lowest figure in April. This phenomenon may perhaps be due to the fact that conditions are favourable for the manufacture of copra and extraction of oil during summer when the supplies are plentiful bringing down the prices. The fall in supply during and after the monsoon is responsible for the rise in prices during that period. The facts are shown clearly in the following graph.

Seasonal Variation of the Price of Coconut (1922-36).*Causes of the Fall in Prices*

The fall in the price of coconut oil during the period under consideration was caused by two main factors, namely, the general fall in prices of all commodities after the post-war boom period, and secondly the achievements of science which brought in a number of effective rivals. In addition to these two factors, we must also bear in mind the remarkable progress that has been taking place in coconut plantations in different tropical islands. From a study of the relative position of the coconut producing countries of the world, it will be found that whereas our area under the crop increased by only 17% between 1921 and 1930, that of the whole world increased by so much as 30%. In 1921, India had the largest acreage, while in 1930 this position has been snatched off her hands by the Dutch East Indies and Philipines. By adopting large-scale methods both in production and sale they are able to effect economies and compete effectively with Indian produce not only in foreign but also in the Indian markets. Whereas India was having a prosperous trade in copra and oil in the pre-war years, of late India has not only ceased to export them but is being flooded with coconut products chiefly from Ceylon.

Competition in Foreign Markets

Before 1914 the international trade in copra comprised an average export of 500,000 tons, four-fifths of which were from the Asiatic zone. The Dutch East Indies came first, followed by Philipines Ceylon and S. India. Exports from Oceanea came to about 50,000 tons and from Africa about 25,000 tons. During the war of 1914-18 the export trade came down to 35,000 tons. But whereas the exports from Dutch East Indies came down to a quarter of the level and those from British India became almost extinct, exports from Philipines, Ceylon and Oceanea far exceeded those of pre-war levels. In later years when the demand for copra revived, Dutch East Indies, the Philippine Islands, the British South Sea Islands, British Malaya and Ceylon gained, and India completely went out of the picture. This loss of foreign trade was to a great extent made up by the increased demand in the home market. But in recent years the cheap imports from Ceylon are proving a menace even in the home market. The following table illustrates these changes in India's trade.

TABLE III.
EXPORTS AND IMPORTS OF COPRA AND OIL

Year.	Exports.		Imports.	
	Oil in 1000's of gallons	Copra in tons.	Oil in 1000's of gallons	Copra in tons
1918	3,885	1	22	7,807
1919	3,012	7,344	1	1,145
1920	1,794	2,582	1	1,025
1921	956	2,762	4	196
1922	806	13,856	1	6
1923	153	3,906	7	57
1924	112	292	13	63
1925	117	1	17	56
1926	186	2,034	—	7
1927	69	197	2	8
1928	78	—	24	45
1929	66	1	—	1
1930	43	—	2	14
1931	31	—	36	117
1932	20	—	364	5,853
1933	23	—	194	3,942
1934	29	—	650	5,101
1935	25	—	567	7,044
1936	9	—	695	14,855
1937	—	—	304	5,704

The above table shows how the large export trade of about four million gallons of coconut oil at the beginning of the period

has dwindled to nothing by the end. On the other hand, since 1932, very heavy imports of oil are noticed. As regards copra, the export trade came to nothing even in 1928, and continuous increase in imports is noticed from 1932. These facts clearly illustrate the great competition that India has to stand from the new plantations of other countries. This competition is accentuated by two factors, namely, the large number of acres planted in the boom years in foreign countries, which are now bearing fruit and secondly the diminution in the market for coconut oil due to the rise of a number of substitutes.

Improvement in oil technology and fall in demand for coconut oil.

Coconut oil has for a long time been used by the natives of eastern countries as an edible fat and as an unguent. But the invention, in 1880, of a process of rendering neutral the acidity and flavour of oils made the refined oil popular for edible purposes in Europe and America. Towards the close of the last century the introduction of improved methods in the making of margarine rendered it possible to use the oil in its refined state so that within a short time a great demand for it was created. But in post-war years oil technology has so much improved that many other cheaper oils also came to be used for making margarine, and coconut oil lost its monopoly. At the same time the supply of copra increased very much, resulting in a fall in the price of the product. The heavy fall in the price of copra and coconut oil has been attributed to the following factors apart from the general causes (vide *Survey of Oil-Seeds and Vegetable Oils*, Empire Marketing Board, Vol. II, pp. 168-70).

1. Heavy stocks of whale oil, which is in active competition with coconut oil in the manufacture of margarine and soap.

2. Increased production of groundnuts and oil palm nuts. These oils also compete with coconut oil in the manufacture of margarine and soap.

3. Increased production and low price of butter which limited the market for margarine and resulted in decreased demand *inter alia* for coconut oil.

4. The reduced demand in Europe for oil-cakes as cattle food owing to the abundance of pasturage and fodder crops and the very low prices ruling for cereals.

Future Prospects.

Although the overseas markets for copra and coconut oil have thus shrunk, the world demand for these commodities cannot

altogether disappear. The U.S.A. is now the principal consumer of coconut oil outside the coconut-growing areas, her consumption being more than double that of France which comes second in order of importance. United Kingdom comes next, and Germany, which occupied the first place in pre-war years, comes fourth. The U.S.A. needs a large quantity of this oil, because it uses very little of whale oil in its margarine and soap industries unlike the continental countries. But nearly 90% of the American demand is met by the Philippines and of late the demand from America is not keeping pace with the increase in the supply in the Islands. Therefore the balance is coming to the European market to compete with products from other countries. But since 1924, the demand in Europe has contracted owing to the increased use of whale oil and groundnut oil and to the decreased sales of margarine since 1930 with increased sales of butter. However, the large increase in the share of coconut oil in the margarine industry of the U.S.A. and its increased utilisation for making hard soaps suitable for toilet and laundry purposes in England are important factors, and may perhaps give some hope for the future. But price considerations also play a prominent part in the choice of substitute fats and oils, and unless the price of animal and marine fats rises by an increased demand for them and by restriction in the world's livestock population and the whaling catch, coconut oil will continue to have serious competition from these substitutes. The coconut grower must therefore look principally to the internal market, and with a rise in the standard of living of the teeming millions of India, the consuming capacity of this country can increase greatly. But this internal market has lately been invaded by copra and coconut oil from outside, especially Ceylon, whose large coconut plantations are able to place the commodity on the market at a lower price than the small-scale producer in India. Unless some means are found to regulate these imports it will not be possible to increase local prices. But this problem bristles with serious difficulties. In our trade with Ceylon and the Straits Settlements, we have got an active balance of trade, and there is a large surplus capacity in the oil-mills of Bombay and Karachi which cannot be met by production in India. Some imports of copra may therefore be desirable in certain months for manufacturing purposes, but such imports must be so regulated as not to hit the Indian coconut grower. A means for this can be found. It may also be possible to devise a joint marketing scheme in which the interests of both India and Ceylon can be furthered. All these possibilities must be explored if the coconut problem is to be solved without detriment to the other economic interests of India.

APPENDICES TO CHAPTER II.

A. MONTHLY PRICES OF COCONUT OIL (WHITE) IN RUPEES PER CANDY OF 654 LBS.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July	Aug	Sept	Oct.	Nov.	Dec	Annual Average.
1922	—	—	—	—	144 0	143 0	138 0	138 0	140 0	145 5	148 0	152 0	143 6
1923	154·0	156·0	162 5	162·5	162·5	155·0	155 0	155 0	163 0	169 0	179 5	187·5	163 5
1924	183·0	185 5	176·5	173·0	172·5	171 0	182 0	187·0	179·0	189 0	196 0	191 0	182 1
1925	175·0	169 0	163·0	162·0	176 0	170 0	169 0	178 0	173 5	187 0	180 0	183 0	173 3
1926	155 0	157·0	159·5	155·0	147 0	149 0	159·0	152 0	150·0	146 0	145·0	141 0	151 3
1927	135·0	137·5	136·0	134·0	138 5	146·0	153 0	147 0	156·0	174 0	176 0	178 0	150 9
1928	167·0	170·0	163·0	166 0	166·0	170 0	168 0	166 0	167 0	161·0	159·0	159 5	164 4
1929	149·5	141·0	135·0	137·0	130·0	130·0	129 0	129 0	129 0	133 0	127 5	127 5	133 1
1930	121·0	121·8	115·0	116·0	115·0	113·0	113 0	102 0	106 0	104 0	103·0	100 0	110 8
1931	93·0	93·0	103·0	93 0	86 0	82 0	82·0	84 0	85 0	97·0	101 5	116 0	93 0
1932	115·0	119·0	121 5	108·0	102·0	104·0	101·5	110 5	108 5	104·0	108 5	103 5	109 7
1933	96·5	90·0	79 0	75 5	79·0	84·5	78 0	74 0	72·5	67·0	68 0	63 5	77 3
1934	60·8	58·0	55 5	51·5	52 4	54·5	52 8	53 0	*61·5	63·0	61·0	60 5	57 6
1935	61·5	80·0	72·0	68·0	81 0	78 3	75·3	78 0	76·0	91·5	95 5	98 0	80 0
1936	102 5	102·0	99 0	98·5	99 3	91·0	93 8	98 8	99 8	103·0	103·8	111 5	100·7
1937	129·4	123·5	114·8	117·2	108·4	98·5	98·6	99 0	92 0	91 5	85 5	77 1	103·0
1938	71·9	66·0	64·4	61·0	63·8	62·9	64·7	64 0	63·4	64 6	65·2	66·0	64·8
Monthly Average.	123·4	123·1	120·0	117·1	118·9	118·1	118·4	118 6	119 0	123 2	123·7	124 4	

B. WORLD PRODUCTION (EXPORTS) OF COPRA* IN 1,000 TONS.

Countries.	1921-25	1930-34	1935	1936	1937.
Mozambique ..	13	26	33	34	..
Ceylon	123	171	136	106	177
Dutch East Indies ..	344	436	480	501	526
Br. Malaya .	74	123	169	150	139
Philippine Islands ..	310	452	501	534	487
Fiji Islands .	21	20	26	35	30
New Guinea .	31	61	56	67	76
Other countries ..	175	148	170	177	..
Total ..	1,091	1,437	1,571	1,604	

* To the net exports of copra have been added the net exports from copra-producing countries of coconut oil converted in terms of copra according to the average yield of oil which is about 63%.

Source.—Statistical Year-Book of the League of Nations

CHAPTER III.

OIL-SEEDS · GROUNDNUT

The Madras Presidency occupies the first place in the production of groundnut in India, having an acreage of about 60% of the total. The following table shows that the rapid increase of production and export of groundnut is a development of the post-war period. During this period it displaced coconut from the first place in the exports of oil-seeds and during the last decade it contributed the largest single share to the export of oil-seeds. A very large portion of these exports were sent to the European markets among which France and Germany were the most important.

TABLE I

AREA, PRODUCTION AND EXPORTS OF GROUNDNUTS

Year	Area in 1000's of acres	Production of Groundnuts in shell in 1000's of tons.	Exports of Groundnut kernels in 1000's of tons
1918	1000	442	8
1919	1144	569	70
1920	1600	740	86
1921	1459	678	209
1922	1754	823	225
1923	1812	746	224
1924	1904	948	330
1925	2599	1264	370
1926	2680	1207	318
1927	3337	1671	472
1928	3679	1830	584
1929	3209	1522	583
1930	3572	1765	457
1931	2635	1234	496
1932	3517	1729	350
1933	3779	1777	455
1934	2351	920	436
1935	2520	1202	332
1936	3495	1657	639
1937	4658	2059	565

From the above table we find that at the beginning of the period the area under groundnuts was about 1,000,000 acres, and the exports were about 8,000 tons. But from year to year both the exports and production increased at a very rapid rate. Thus increased production found ready markets both at home and abroad till 1930, when on account of the economic depression and other factors, foreign exports began to shrink in volume. The minimum figure for exports for the slump period was in 1935, but the subsequent year proved to be the most prosperous with a high level of exports.

Trend of Prices

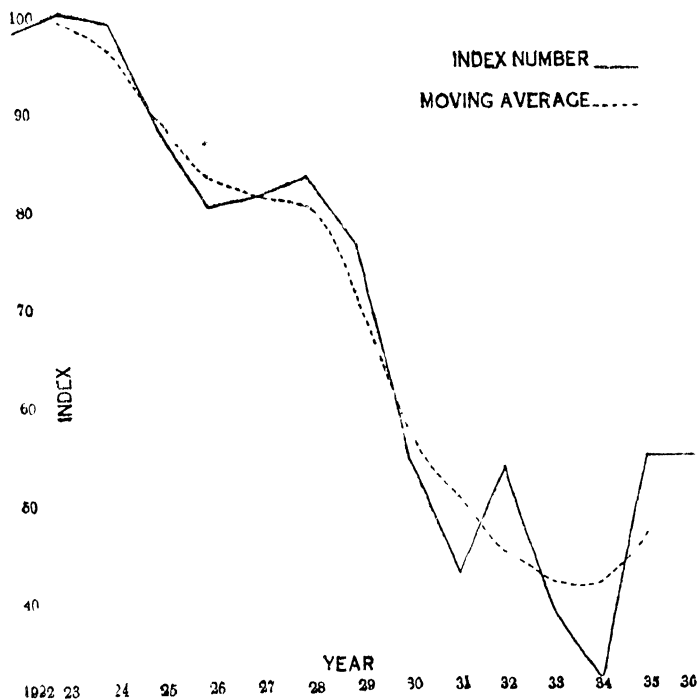
The average monthly prices in Madras of machine decorticated groundnuts per French candy of 500 lbs. are given in Table A of Appendix. The following table gives the average prices in each calendar year computed from the monthly prices. For convenience of reference, these figures are converted into index numbers with the triennium from 1922 as base and the table gives the 3 year moving average also. (See graph, p. 23).

TABLE II.
PRICE OF GROUNDNUT KERNELS

Year	Price per French candy of 500 lbs	Indices of Prices	3 yearly moving average
1922	63.8	99	
1923	64.9	101	100
1924	64.7	100	97
1925	57.3	89	90
1926	52.0	81	84
1927	52.8	82	82
1928	54.4	84	81
1929	49.5	77	72
1930	35.6	55	58
1931	27.6	43	51
1932	35.1	54	45
1933	24.9	39	42
1934	20.9	32	42
1935	35.7	55	47
1936	35.4	55	54
1937	33.2	51	48
1938	24.7	38	

From the above table and the graph shown below we find that the price was steady during the base period. There was a sudden drop in 1925 which continued in subsequent years also. But the heaviest fall in prices occurred during the depression years and the worst year of the period was 1934 when the price was even below a third of the base year price. There was recovery in 1935, and this was maintained in the following two years also. Still the price in these years was just equal to the price in 1930 when depression started and was a little more than half that of the base period. But in 1938 the prices fell down to the level prevailing in 1933. It may be surprising to note that the great increase in exports synchronised with a period of falling prices. But this itself may explain the phenomenon. It is well known to all business people that groundnut was a serious rival to coconut in Euro-

Price of Groundnut Kernels.



pean markets during the post-war period, and was to a large extent responsible for the contraction of the demand for the latter. The price of the commodity is the most important factor in influ-

encing substitution at the margin, and when the price of coconuts was falling, groundnut also had to follow suit to consolidate the ground already captured and make fresh attacks. The very fact that the area under production increased at a time of falling prices itself shows that this crop was giving better returns to the cultivator than the other substitute crops. But during the depression when the prices went down to very low levels, the area under the crop was reduced and it did not show signs of increase till the prices looked up.

That the prices of these two oil-seeds (coconut and groundnut) were moving in the same direction can be illustrated from the following graph and table

Index Numbers of Prices of Oil Seeds

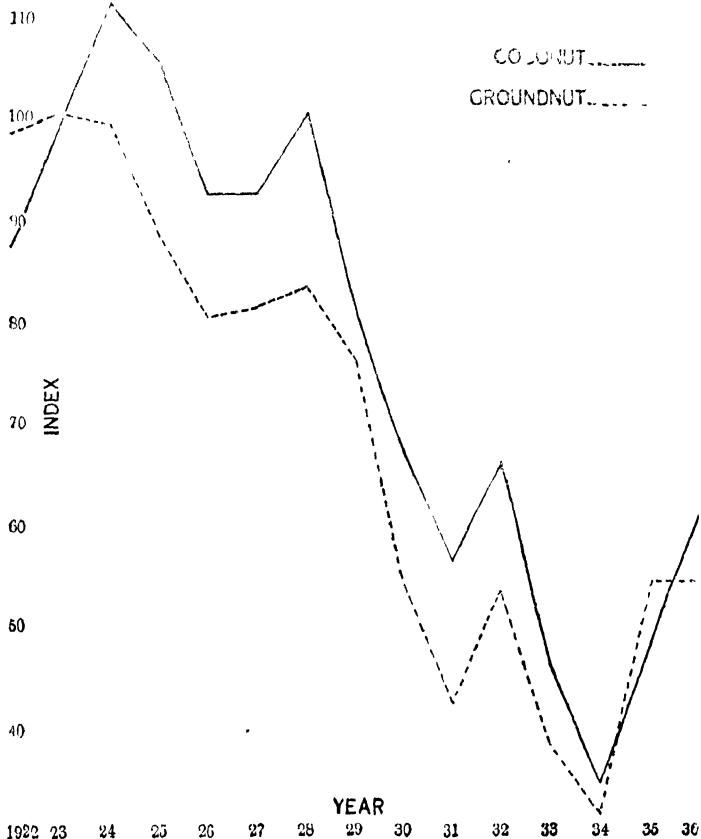


TABLE III.
INDEX NUMBERS OF PRICES OF COCONUT AND GROUNDNUT

Year.	Coconut base 1922-24.	Groundnut base 1922-24.
1922	88	99
1923	100	101
1924	112	100
1925	106	89
1926	93	81
1927	93	82
1928	101	84
1929	82	77
1930	68	55
1931	57	43
1932	67	54
1933	47	39
1934	35	32
1935	49	55
1936	62	55
1937	63	51
1938	40	38

We find from the product moment formula that the coefficient of correlation is nearly 0.9. The high correlation is partly due to the general secular trend of fall in prices of all commodities during the period under consideration. But the coefficients of correlation between the 1st and 2nd differences of the two series are so high as 0.79 and 0.77 respectively.

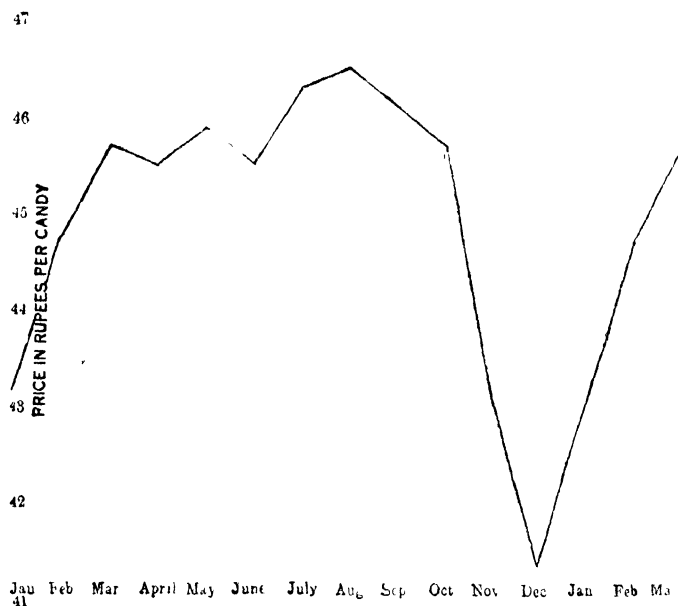
Seasonal Fluctuations

It will be interesting to see whether the price of groundnuts exhibits any seasonal variations. For this purpose, the average price for each month during the period under consideration is calculated. The figures are given in the following table and the results shown in the accompanying graph.

Month	Average price during the period (1922-38) (Rs per French candy of 500 lbs.)
January	41.9
February	43.0
March	44.0
April	43.8
May	44.1
June	43.7
July	44.6
August	44.5
September	43.9
October	43.5
November	41.0
December	39.5

The monthly values do not exhibit marked seasonal variations. From March to October they vary very slightly, being about Rs. 44 per candy. As compared with previous months, there is a fall in November which continues in December also. But from January the prices go up. The fall in prices coincides with the harvest season when there are plentiful supplies.

Seasonal Variation of the Price of Groundnut 1922-36.



Factors which influence the price of groundnuts

It has already been pointed out that the price of groundnut depends to a very large extent upon the price of other oils especially coconut oil, and the demand for these oils in the European markets. During the period under consideration, advances made in oil technology pushed up this product as a cheap substitute for coconut oil in the preparation of soaps and margarine. This was mainly responsible for the fall in the exports of copra and coconut oil, and for the very large increase in the exports of groundnut. So any rise in the price must be brought about by an increased demand for the oil-seeds from the European markets.

Apart from the competition of other oil-seeds the Indian exports are facing obstacles from other sources also. During the depression period, when the exchange position of Germany became very bad, she restricted imports of all kinds of raw materials.

Germany is a very important market for Indian groundnuts, and the closing of that market caused serious loss of trade to India. France, which has proved to be the most important single market in recent years, passed a decree in 1933 under which an import duty was levied on groundnuts other than those grown in French colonies. This restriction of the market had a disastrous effect on prices. Subsequently it passed another decree regulating imports on a quota basis under which a definite percentage is reserved for imports from French colonies. In 1935-36 the import duties on groundnuts were further raised in France. The net result of all these decrees was a contraction of that market for Indian groundnuts. In the Empire markets India is facing a serious competition from South Africa. The great trouble about our products is that they are produced on uneconomic holdings and marketed in an unorganised manner, and hence are not able to stand the competition of better organised countries. Thus the restrictions in some markets and competition in others are proving disastrous to the products of this country.

APPENDIX A

MONTHLY PRICES OF GROUNDNUT KERNELS IN MADRAS

(Rs per French Candy of 500 lbs.)

Year.	Jan.	Feb	Mar	Apr	May	June	July	Aug	Sep.	Oct.	Nov,	Dec	Annual Average.
1922	55 3	57 0	68 5	70 0	71 5	69 3	69 3	64 8	60 8	62 5	60·0	57 0	63 8
1923	59 5	63 8	67 0	66 3	63 0	63 5	64 3	61 9	65 6	68 5	68 8	67 0	64·9
1924	63 8	65 0	64 0	62 0	59 8	59 9	64 3	70 8	72 0	74 2	63 3	57·0	64 7
1925	57 3	57 0	58 6	58 8	64 0	64 6	60 1	62 5	62 4	53 0	51 8	47 3	57 3
1926	47 3	47 0	51 1	54 3	56 0	60 0	57 5	54 5	52 0	54 0	45 5	44·8	52 0
1927	46 0	52 8	55 7	54 7	55 5	55 5	54 5	53·0	53 2	54 0	51 3	48·0	52 8
1928	51·5	50 5	50 7	50 3	51 4	54 5	56 0	54 5	54 3	61 2	58 6	58·7	54·4
1929	57 8	56 9	50 4	47 6	49 5	43 8	48 0	50 0	52·0	47 7	45 0	45·0	49 5
1930	41 5	40 5	38 8	41 5	40 4	37 5	36 8	36·1	33 5	28 8	27 3	24 8	35 6
1931	22 8	23 9	28 5	28 5	26 5	24 3	29 3	29 8	27 8	31·5	29·8	28 5	27·6
1932	30 8	38 0	41 4	37 8	35 5	34 0	39 0	37 8	35 7	32 8	29 3	29 3	35 1
1933	31 8	30·0	25 8	23 8	26 1	27 1	27 1	24 3	22 5	20·8	20 6	19·4	24·9
1934	18 4	17·8	16 4	16 7	18 4	17 5	17 5	22 5	25 0	27 5	27 3	25 8	20·9
1935*	30 6	39 1	37 2	37 9	38 6	38 4	34 6	35·8	35 8	34·8	34 1	31·6	35·7
1936*	35·4	32 8	32 9	33 7	33 4	33 7	37 0	40 3	39 6	35 1	33 8	36 8	35·4
1937	38 7	34 9	36 4	36 4	34 7	34 5	35 7	32·6	29·7	29 8	27·8	26·9	33·2
1938	25·9	24 5	24 9	23 7	25·1	25 0	26 4	25 6	24 2	23 5	23·1	24·2	24·7
Monthly Average	41·9	43 0	44 0	43 8	44 1	43 7	44·6	44 5	43·9	43·5	41 0	39 5	

*The Prices are of machine decorticated kernels.

APPENDIX B.

WORLD PRODUCTION OF GROUNDNUTS
(UNSHELLED) IN 1,000 TONS

Countries.	1921-25	1930-34	1935-36	1936-37	1937-38.
Fr. West Africa .	469	637	787	876	—
Nigeria .	60	272	263	312	466
U. S. A. ..	317	432	582	597	577
China .	494	419	422	249	293
Dutch East Indies .	152	215	202	234	—
India .	1,353	2 744	2,258	2,803	3,259
Other countries	376	622	791	823	—
Total	3,221	5,341	5,305	5,804	—

Note.—The figures for Nigeria and China are those of exports.

Source :—Statistical Year-Book of the League of Nations

CHAPTER IV.

SUGARCANE.

Sugarcane is one of the chief commercial crops of South India, and it occupies an important place in the agricultural economy of the Province. It is one of the few crops on which the cultivator relies to meet his money requirements. Whereas in other parts of the world the cultivation of cane sugar is almost confined to the tropical regions, in India we find the peculiar phenomenon of it being cultivated mainly in the sub-tropical regions, i.e., the Gangetic delta, specially the United Provinces and Bihar. Of the total acreage under sugarcane 92% is grown in the sub-tropical area and only 8% in the tropical area, in spite of the fact that in the latter the yield per acre is higher and the quality superior. The rich alluvial soil of the Gangetic plain confers an initial advantage on the main sugar producing belt of U.P. and Bihar which at present outweighs the other natural advantages of the tropical region. (*Vide* Tariff Board Report on Sugar Industry, 1938, p. 20) Though parts of South India possess excellent irrigation facilities and therefore are suited for this crop, sugarcane is not popular among the ryots owing to the comparatively high costs of cultivation and the wide range of competitive crops, e.g., groundnut, cotton, plantains, chillies and tobacco, apart from the staple food crop, paddy, for which the South Indian ryot has a traditional predilection. This circumstance may partly account for the slow spread of sugarcane cultivation in the province in spite of its many natural advantages. This apathy of the ryots in South India has led to the concentration of sugarcane research, till recently, on such varieties as are only suitable to the sub-tropical regions, although such work is mainly done in the tropics, namely, Combatore district.

It has already been pointed out that sugarcane is treated by the ryots mainly as a cash crop. Naturally, the area under the cane should show a good response to the variations in the price of jaggery, which is the main product of the crop throughout India. In the opinion of the Sugar Tariff Board of 1931, about 72 per cent of the cane grown in India is used in the manufacture of jaggery and the rest for the manufacture of sugar, chewing and setts. In recent years though the factory production of sugar has increased tremendously behind a high tariff wall, the acreage and the yield per acre have also increased, so that the share of jaggery

has not changed materially. The Tariff Board of 1938 estimated that 69.5% of the cane produced is converted into Gur (*Report*, p. 53). It is proposed to examine whether there had been any reaction among the cultivators to the fluctuations in the price of jaggery, i.e., whether the area under the cane in the Madras Presidency has been influenced by the price of jaggery. To study these effects, three important sugarcane growing districts are chosen: (1) East Godavari, (2) Bellary and (3) Coimbatore, the first in the north of the Presidency, the second in the centre and the third in the south. It will be noticed that Vizagapatam which has the highest acreage under the crop in this Presidency is omitted. This is due to the fact that the prices of jaggery for all years of the period under consideration, are not available for that district. S. Arcot and Chittoor, which are important cane-growing districts, are also omitted for the same reason.

The tables in Appendix I give the area under cultivation and annual wholesale price of jaggery as also the price of rice, in each of the above districts.

The following table gives the mean acreage under sugarcane and the standard deviation of acreage in the three districts for the period under consideration.

District	Mean (thousands of acres)	Standard deviation	Coefficient of variation
Coimbatore	8.72	1.66	19
Bellary	8.69	1.23	14
E. Godavari	9.04	2.14	24

This shows that the average acreage in East Godavari is slightly higher than in the other two districts which have almost equal areas under cane. The fluctuations of acreage, as seen from the coefficient of variation, in East Godavari are also greater than in the other two districts. This shows that the influence of other factors is greater in that district; next comes Coimbatore.

The price of jaggery before 1930 is given per imperial maund, and later per candy. The average price and dispersion of price during the first period are as follows.

District	Mean price per imperial manud	Standard deviation	Coefficient of variation
	Rs.	Rs.	
Coimbatore	9.46	3.09	33
Bellary	9.21	3.00	33
E. Godavari	7.86	2.24	28

The average price as well as dispersion price are almost equal in Coimbatore and Bellary. But both these quantities are lower in East Godavari. The fluctuations of prices are naturally greater than those of area.

The following table gives the average price and dispersion in the period 1930 to 1936.

District	Mean price per candy	Standard deviation	Coefficient of variation
	Rs	Rs	
Coimbatore	26.43	1.42	5
Bellary	30.42	3.93	13
E. Godavari	25.92	5.12	20

We notice that during this period the average price in Bellary was highest, and the price in Coimbatore came nearer that of East Godavari. The fluctuations were least in Coimbatore and highest in East Godavari. Also the fluctuations of price in this period are less violent than in those of previous periods. This period coincides with the great depression period, and so the prices remained at a low level, with much less fluctuations.

INFLUENCE OF PRICE OF JAGGERY ON ACREAGE UNDER SUGAR CANE

We may now examine the influence of the price of jaggery, on the extent of area under sugar cane. For this purpose, the period under study extends from 1913 to 1930. The subsequent years are not taken into consideration because the method of collection of statistics of price of jaggery was altered in the subsequent years, and the new figures are not strictly comparable with the old ones.

The following table gives the coefficients of correlation between (1) the area and price in the same year (2) the lag correla-

tions between the price in any year and the area in the subsequent year, for the above three districts.

District	Correlation.	Lag correlation
East Godavari	0·362	0·387
Bellary	0·087	0·373
Coimbatore	0·079	0·613

We find from the above table that except in the East Godavari district, the correlation between the area and price in each year is not significant. But the lag correlations with a lag of one year are all significant. This time-lag is explained by the Tariff Board on Sugar Industry (1931) in the following words: "Cane is an expensive crop to grow, demanding considerable cash outlay especially in some provinces. There is, consequently, a noticeable lag between years of high prices and years of big acreage which is all the more pronounced by reason of the fact that cane is an 18 months' crop"¹ We find from the above results that the price of jaggery in any year influences the acreage of the crop during the subsequent years, and that even the so-called conservative Indian ryots are responding to these variations of prices in their selection of crops. It will be useful at this juncture to quote the opinion of the Tariff Board in regard to the influence of the price of jaggery on the acreage under cane. "That the price of gur has a very direct effect upon the acreage under cane, we do not for a moment doubt, though other factors such as failure of water supply, high price for competing crops, the prices obtained for other crops in our purchasing areas and difficulty in obtaining advances of money for planting purposes must not be ignored"²

OTHER FACTORS INFLUENCING THE ACREAGE UNDER SUGAR CANE

The differences in the coefficients of correlation for the various districts under consideration require explanation. It is a well-known fact that cane growing is more remunerative than growing rice or any other crop. But it must be remembered that the cultivators' desire to extend the area under cane is governed to a great extent by their ability to meet the initial expenses of cultivation, which are too high to encourage our poor cultivators to grow more of sugarcane. Secondly, sugarcane takes a long time—a year or even more—to mature and a regular

1. Report of the Indian Tariff Board on Sugar Industry, 1931 p. 24
2. *Ibid.*, p. 24.

supply of water for such a long period is a point to be considered before a farmer takes to cane-growing. Want of irrigation facilities in many of the districts may be a real deterrent to the extension of the area under cane. Of course, in recent years, this difficulty has been minimised by breeding a special variety of cane which requires less irrigation and which matures early. But in the absence of irrigation resources, the vagaries of climate and rainfall which play an important part in the agriculture of the country may be cited as another of the causes that prevent the direct response of the acreage to the variations of prices. For instance, the fall in the acreage under cane in most of the districts in 1928-29 is attributed to the failure of the North-East monsoon in the previous year. This feature is more pronounced in this crop, because the cost of cultivation is high and failure of water supply is bound to cause immense loss and hardship to the cultivators.

An extension of irrigation facilities, at least in some areas, would greatly improve the position of the agriculturists and enable them to bring more and more land under cane cultivation. But that it would not always increase very much the area under cane, can be inferred from the following opinion of the Indian Sugar Committee about the possibilities in Madras. "The area under cane does not expand to any appreciable extent even when prices are high, because, where water is available, the cultivator (in Madras) prefers to use it for other crops, especially rice."³ The natural predilection of the Madras ryot for growing rice where most of the important sources of irrigation are available, can be judged from the following figures. In the year 1929-30 out of a total of 11 million acres of irrigated crops, 8 million acres, i.e., 73% was under rice while 0.1 million acres i.e., 1% was under sugarcane. Hence it cannot be said that the existing facilities for irrigation are so inadequate as to preclude all possibility of the extension of the area under sugarcane. The problem is one of competing crops like paddy which are easy and cheap to grow. Another important factor which has a direct bearing on the acreage under cane is the prevalence of pests and diseases to which cane is subject. The existence of these factors in any year is sure to have a deterrent effect upon the acreage in the subsequent year. If the disease is widespread, the selection of the setts would only help its transmission, thus causing immense loss to the cultivators.

Mr. C. A. Barber writing in 1912 quotes an instance of a fall in the acreage of cane from 4,000 to 1,700 acres in the course of a year in Godavari District due to the attack of red rot. Any remedy, to effectively combat diseases is sure to have its effects upon the acreage. The increase in the acreage under cane in East Godavari District from 4,975 in 1902-03 to 12,825 in 1921-22 is stated to be mainly due to the introduction of Red Mauritius and other exotic varieties which are resistant to the 'red rot' fungus which caused immense loss to the local cane growers.

The following are therefore the major causes that damp the effect of price of gur on acreage. (1) High cost of cultivation; (2) difficulties in the disposal of produce, the factories being few and far between, (3) uncertainty of rains and consequently water supply in some parts, (4) the natural predilection of ryots in the irrigated areas to crops that can be grown with less labour and money, e.g. rice and other competitive crops and (5) the prevalence of pests and diseases.

Of these factors the effect of the price of rice only can be quantitatively seen by finding the partial coefficients of correlation between acreage under sugarcane and price of jaggery in the universe of the price of rice. The last 2 columns in the tables in Appendix I give the prices of jaggery and rice in the different districts in the years 1913 to 1936. From these tables the coefficients of correlation between (1) the price of jaggery and the price of rice in any year; and (2) the price of rice in any year and the acreage under sugar-cane in the subsequent year can be calculated. From these coefficients, the partial coefficients of correlation between price of jaggery in any year and area under cane in the subsequent year in the universe of the price of rice can be calculated with the help of the following formula.

$$r_{xy.z} = \frac{r_{xy} - r_{yz} \times r_{xz}}{\text{Coefficient of } \sqrt{(1-r_{xz}^2)(1-r_{yz}^2)}}$$

Where r_{xy} = correlation between price of jaggery and acreage

r_{yz} = correlation between price of jaggery and price of rice

r_{xz} = correlation between price of rice and acreage

The following coefficients of correlation were obtained :—

District	rx_y	rx_z	ry_z	rx_yz
East Godavari	0.387	0.280	0.478	0.301
Bellary	0.373	-0.510	0.257	0.606
Coimbatore	0.613	0.116	0.240	0.665

From the above table, we find that in Bellary there is a high negative correlation between the price of rice in any year and the acreage under sugarcane in the subsequent year. In the other two districts this correlation is positive but not significant. If we refer to the coefficients of partial correlation, we find that in the case of both Bellary and Coimbatore they are positive and very high, but in the case of East Godavari, it is positive but not so high as in the case of the other two districts. This special feature about East Godavari can be explained by the fact that in that District the cultivators have an ingrained preference for rice. So the percentage of the irrigated acreage under rice to the total irrigated area is very high. Hence the price of rice is not an important factor in determining the area under sugarcane in East Godavari.

The variations in the coefficients of correlation in respect of the different districts can be explained in the light of the above facts. If all the factors mentioned above are favourable to the crop, there will be very high positive correlation approaching 1, but if the cumulative effect of the factors is unfavourable the coefficient may be low approaching zero. The coefficient of correlation in any district lies between these two extreme values and may be interpreted as the resultant effect of all factors (favourable and unfavourable).

The coefficient of correlation in respect of the Godavari District is 0.387 which is significant though not very high. The question of irrigation may not be a great hindrance to the extension of the area in response to price. But the relatively high cost of cultivation and the natural preference shown to the cultivation of paddy are responsible for checking this direct response. The low value of partial correlation has already been explained as due to the same factors.

Now coming to the next district, namely Bellary, we find that the coefficient of correlation is 0.373. This low value is partly due to the want of irrigation facilities. The price of rice in any

year is negatively correlated with the acreage in the subsequent year. It clearly shows that where there are irrigation facilities, when the price of rice is high they prefer to cultivate paddy to taking risks with a more costly crop. On the other hand, when the price of rice is low, they prefer the more remunerative cane crop.

Of these three districts, Coimbatore has the highest coefficient of correlation, and it is not affected by the price of rice. The climatic conditions of the district are very favourable to the growth of this crop. There are no periods of abnormal rainfall adversely affecting the planting or harvesting of the crop. Besides, it is said that it is possible to plant cane in all seasons. In addition, the presence of the research and cane breeding station of this place should have exerted a salutary influence on the growth of the crop in the district. All these causes have contributed to the fairly high correlation between the two factors.

We have tried to show in the above paragraphs how far the cultivators respond to the variations in the price of jaggery. Though we have a favourable climate to grow this crop, there are certain factors which act as a break on the cultivators' option. Namely high cost of cultivation, and so forth (see p 34). Therefore in interpreting the coefficient of correlation in any district the cumulative effect of these factors should be taken into consideration.

APPENDIX A

AREA UNDER SUGARCANE ON THE PRICE OF JAGGERY.

Godavari District.

Year	Area under cultivation in acres	Price of jaggery per imperial maund Rs	Price of Rice per maund Rs
1913-14	7,079	4 94	4 65
1914-15	5 849	4 85	4 17
1915-16	9,074	6 58	4 44
1916-17	11,385	5 34	4 40
1917-18	11,658	4 93	4 55
1918-19	10,670	4 90	5 80
1919-20	3,963	8 91	7 69
1920-21	11,516	11 62	7 55
1921-22	12,285	11 25	6 67
1922-23	12,172	9 94	5 71
1923-24	11,153	8 70	6 37
1924-25	8,881	10·23	6·66
1925-26	9,445	9 92	6 49
1926-27	9,799	8 48	6·78
1927-28	7,577	7·00	6·45
1928-29	6,005	8 20	5·88
1929-30	7,719	7·81	5·63
		(per candy)	
1930-31	8,669	22 5	4 13
1931-32	7,295	33·5	3·69
1932-33	7,514	22·5	2·88
1933-34	9,221	20 5	2·38
1934-35	9,003	32 5	3·56
1935-36	9,869	24·0	3·50

Bellary District.

Year.	Area under cultivation in acres.	Price of jaggery per imperial maund Rs.	Price of Rice per maund. Rs.
1913-14	10,646	4·84	5·71
1914-15	7,504	6·39	5·33
1915-16	8,857	9·38	5·06
1916-17	10,743	7·90	5·26
1917-18	11,423	7·11	5·88
1918-19	8,314	7·14	8·70
1919-20	6,276	7·50	10·26
1920-21	7,430	17·37	8·89
1921-22	9,144	12·97	8·16
1922-23	9,952	13·02	7·55
1923-24	9,391	10·06	7·91
1924-25	8,207	9·53	8·53
1925-26	8,721	9·53	7·77
1926-27	7,829	9·52	8·06
1927-28	8,691	8·62	8·06
1928-29	6,825	5·40	7·27
1929-30	7,862	10·35	7·02
		(per candy)	
1930-31	9,434	30·0	5·31
1931-32	9,279	32·5	5·06
1932-33	7,834	27·5	4·38
1933-34	8,540	30·0	3·94
1934-35	7,690	37·5	4·75
1935-36	9,207	25·0	4·75

SUGARCANE

39

Coimbatore District

Year.	Area in acres.	Price of jaggery per imperial maund. Rs.	Price of Rice per maund. Rs.
1913-14	7,398	5.32	5.88
1914-15	6,148	6.20	5.63
1915-16	7,313	8.54	5.26
1916-17	10,720	7.25	5.63
1917-18	11,035	6.80	5.88
1918-19	7,482	5.58	8.06
1919-20	5,740	10.72	10.00
1920-21	7,754	17.53	7.84
1921-22	9,663	12.93	7.84
1922-23	11,841	11.08	7.69
1923-24	11,131	8.60	7.53
1924-25	8,956	10.49	8.75
1925-26	9,623	12.99	8.11
1926-27	10,322	10.98	8.16
1927-28	9,030	6.70	8.00
1928-29	6,559	7.65	7.69
1929-30	6,831	11.45	7.02
		(per candy)	
1930-31	8,418	26.1	5.38
1931-32	8,619	27.5	4.31
1932-33	8,778	26.5	4.13
1933-34	8,675	27.5	3.88
1934-35	9,352	27.5	4.13
1935-36	8,547	23.5	4.75

APPENDIX B.

AREA AND PRODUCTION OF SUGARCANE IN DIFFERENT COUNTRIES.

(Area 1,000 acres ; yield, 1,000 tons)

Countries	1930-4. (average)		1935		1936		1937.	
	Area	Yield.	Area	Yield	Area	Yield	Area	Yield.
Argentina	376	3,988	375	3,710	375	4,312	445	5,279
Australia	230	4,196	226	4,489	240	4,491	257	5,434
Cuba	1,337	21,257	1,418	19,394	..	.		
Egypt	67	2,072	63	2,092	62	2,052	67	2,090
Fiji Islands	41	790	42	813	42	1,015	..	.
Formosa	215	5,908	257	7,180	272	6,973	259	7,532
Hawaii.	136	7,567	126	7,623	131	8,171		
Japan	47	875	33	874	37	930		.
Java & Madura	282	13,684	99	4,048	121	4,639	237	11,702
Mauritius.	136	1,918	138	1,594	138	2,457	143	2,501
Mexico	177	3,187	188	3,509			.	
Peru.	80	3,410	77	3,320	82	3,213	79	3,261
Philippines.	640		521		620			
Porto Rico Union of South	297	*6,941	299	5,797	299	6,765	(a)	7,256
Africa.	157	2,833	173	3,202	175	3,150	..	
U S A	197	2,596	237	3,032	252	4,074	245	4,828
India	3,176	4,383	4,024	5,931	4,440	6,476	3,818	5 307

* Average for 4 years from 1931-32.

CHAPTER V.

PEPPER

Introductory.—Pepper is the chief money crop of a large number of people on the West Coast, i.e., Travancore, Cochin, Malabar District and Canara (North and South). The price of pepper in Tellichery was Rs. 103 per cwt. in 1928; it fell by 1930 to Rs. 59.5 and by 1938 to Rs. 19. Thus the price to-day is about a fifth of what it was in 1928. This indicates what a tremendous fall has taken place in the purchasing power of the people in those tracts. While the slump in coconut has affected the inhabitants of the low-lying coast-strip, the heavier slump in pepper has impoverished the people of the area between the coast-strip and the hills. In this way the people of the whole West Coast have suffered heavily by the depression.

The total acreage under pepper and estimated total production are given below. As pepper is generally interplanted with other crops (e.g. coconut), acreage figures must be taken with some caution. The production figures are even less reliable. There are no crop-forecasts for pepper, and the estimate of production given below was made on the basis of the yield from an experimental farm.

TABLE 1
AREA AND PRODUCTION

Year	Acreage			Estimated Production in cwts.		
	Madras	Travan- core.	Total	Madras.	Travan- core.	Total.
1935-36	97,981	84,270	182,251	97,106	83,518	180,624
1936-37	103,924	90,911	194,835	102,907	90,099	193,006
1937-38	104,081	90,338	194,419	103,152	89,531	192,687

There was an increase in area under pepper when prices ruled high (1927-29). In the districts of Malabar and South Canara alone, the area has gone up in the last fifteen years from 62,000 acres to 70,000 acres and from 4,000 to 9,000 acres respectively. But for the Province of Madras and Travancore together, there is no appreciable variation in the acreage between 1936 and 1938.

Prices : Early days.—We have records about the prices of pepper from very ancient times, because it was the principal commodity that entered into the trade between India and the West from time immemorial upto about the year 1800. In the days of the Romans, the price of pepper was 15 dinari (10 shillings or Rs. 7, per pound or Rs 784 per cwt. of 112 lbs.) In the Middle Ages too, the price was extremely high, owing partly to the Egyptian tariff. (The commodity had to pass through Egypt and the Mediterranean on its way to Europe). In the Portuguese times it was about 3s. per lb. (Rs 336 per cwt.). The Dutch, by ‘cornering’ the whole produce in the East, raised the price to 6s. in Europe, and this provoked the London merchants to start the East India Company. While such high prices ruled in the European markets, the Indian producer got only a fraction of those prices. But the price seems to have slumped heavily during the 18th century. According to the pepper contracts between the Dutch and the Travancore Government, the average price paid was only Rs. 65 per candy, nearly As 2 per lb. The early British contracts were settled at Rs 88. Even as late as 1884 we find that the Travancore Government paid the people only Rs. 35 per candy of 600 Dutch lbs., or less than one anna per lb.

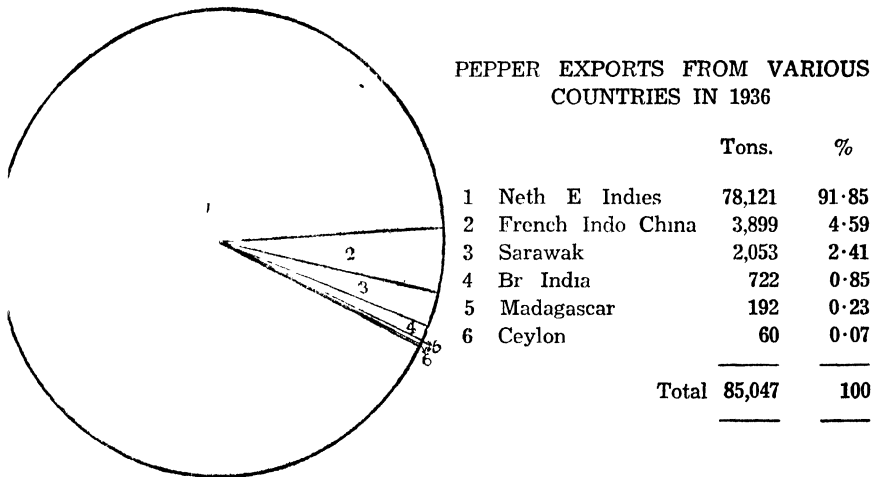
The chief factor that influenced the price of pepper from ancient times to the end of the 19th century was the monopolistic control of its supply, whether State or private. This was the system in the days of the Romans, and this continued through the Portuguese and Dutch times, but was swept away by the middle of the nineteenth century. In Travancore it was purely a Sirkar monopoly under a separate Government Department, until the system was abolished in the latter part of the century by Sir T. Madhava Row. Even in the days of high prices, the actual cultivator got very much less than the market price.

The causes for the fall of price in the nineteenth century were :

1. The fall in the demand for pepper in Europe, due principally to the increased use of fodder crops. In former times pepper was chiefly needed for preserving meat in winter, but when fodder crops like turnips and lucerne came into vogue, cattle could be kept during winter and there was no need to preserve meat as formerly was being done. The invention of cold storage subsequently made matters worse for pepper. The medicinal and culinary use of pepper still remained, but this was so small, although the demand still remains inelastic, as chillies and other spices could

not entirely replace pepper. Thus pepper which at one time was the chief object of eastern trade and which brought Britain into India has now dwindled into insignificance in the world trade.¹

2. Another cause was the break-up of the Malabar monopoly due to a large increase in pepper plantations in the Dutch East Indies. Till the Portuguese times, all the world's pepper came almost entirely from South India, but to-day the Dutch Indies (Sumatra, Java, Borneo) supply about 85% of the world's trade in pepper and of the rest French Indo-China and Sarawak have large slices India's share to-day is not even 1 per cent. (See Chart below) In fact India has in recent times become an importer of pepper, and in the years 1935-36 to 1937-38, the imports exceeded exports (see table 4) The production on the West Coast continues about the same, but it is mostly used in other parts of India.



(See Graph on p. 51).

The inevitable result of these revolutionary changes is that the Indian pepper supply has only a small place in the world's pepper markets, and the world price of pepper is decided by the production of Dutch Indies which has almost a monopoly in this line.

War Period 1914-20. During the five years preceding the Great War the price was between Rs. 150 and Rs. 155 per candy in

1. See Thomas, *The Pepper Trade of India in Early Times* (Krishna-swamy Ayyangar Commemoration Volume), pp 226-33.

Travancore. The average value for the whole of India was 5d. per lb. The following table gives the price in Travancore.

Year	Average price	Price per
	per candy	cwt.
	Rs.	Rs. As.
1910	137	22-14
1911	145	24- 3
1912	184	30-11
1913	167	27-13
1914	145	24- 3

The shipments to Germany in 1913-14 were unusually heavy, pepper being then used in the manufacture of tear shells. In 1918-19 there was a sudden spurt in price, the average Indian price being 9 As per lb as against 5 As. in 1913-14 ; it fell in 1919-20 to 7½ As. and in 1920-21 to 6 As. In Travancore the lowest price secured in 1918-19 was Rs 202 per candy, the peak price being Rs. 300 and the average for that year may be put down at Rs. 240 to Rs. 250. In 1920 it came down to Rs. 220 and remained steady at about Rs. 150 (the level of the pre-war period) for four years.

From the above figures, we find that there was a fall in the first year of the war owing to the loss of the German market as well as to the difficulties of obtaining freight. From 1916 prices revived, the causes being : (1) partial failure of crops and (2) the inflation of currency throughout the world and the sudden rise of Indian exchange especially after 1918.

Period 1920-39.

In the following table, the prices of pepper in the Malabar District, Travancore, Cochin, and Batavia are given. The annual prices are made up of monthly prices, and the index numbers have been constructed with the year 1921 as base. In the adjoining graph, the record of prices in Malabar District and Allepey (Travancore) can be studied.

PRICE OF PEPPER IN S. INDIA (1919-38).

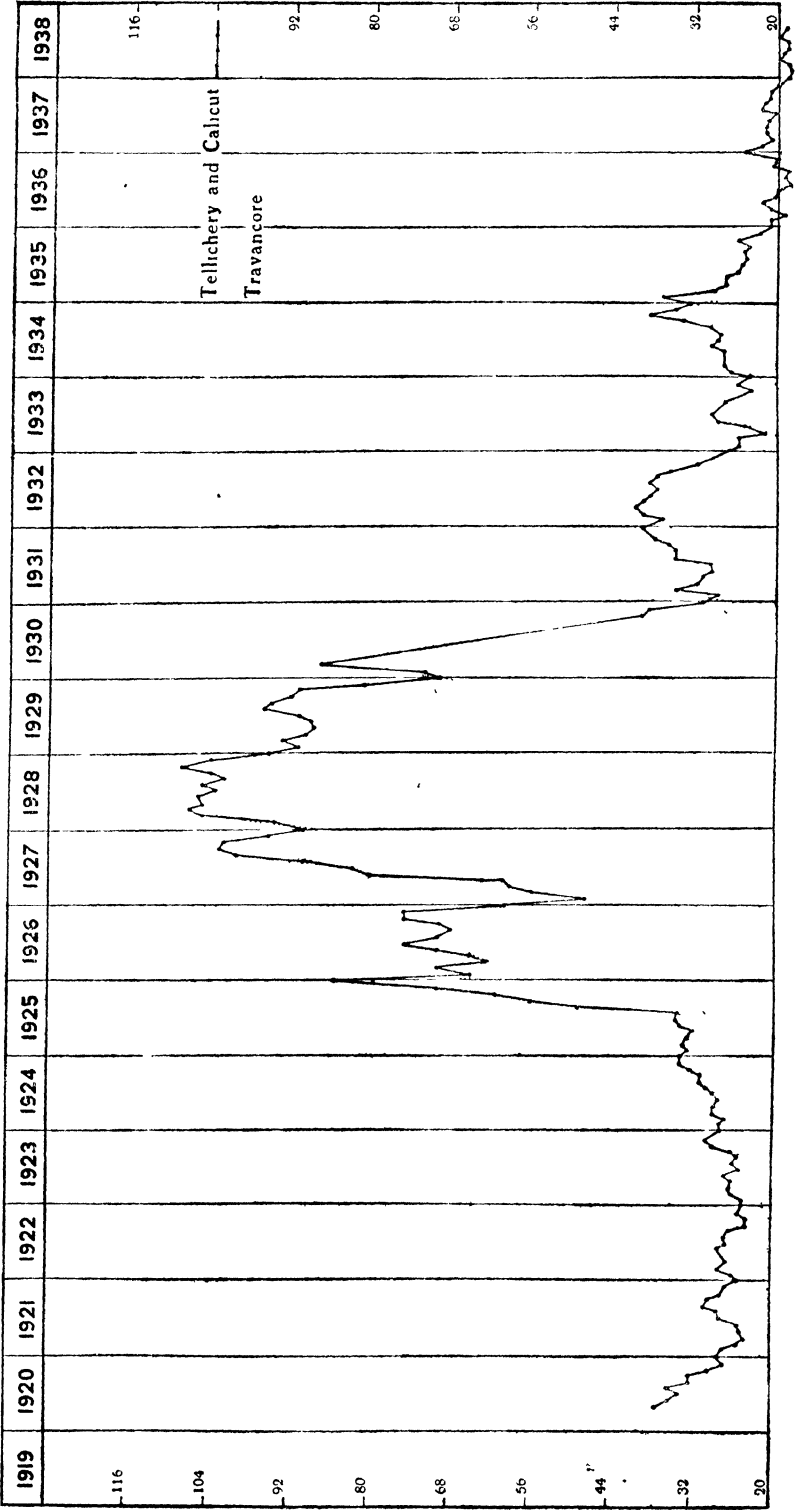


TABLE 2.

THE ANNUAL AVERAGE PRICE OF PEPPER IN DIFFERENT PRODUCING CENTRES

Year.	Tellicherry and Calicut.		Travancore.		Cochin (Br.)		Batavia. (Dutch Indies).	
	Average Price per cwt. Rs.	Index No	Average Price per cwt. Rs.	Index No	Average Price per cwt. Rs.	Index No.	Average Price per 100 kgs. Guilders.	Index No
1920	31.9	120	22.4	104	35	125	110	147
1921	26.5	100	21.6	100	27.9	100	75	100
1922	25.8	97	21.9	101	26	93	61	81
1923	30.9	117	24.3	112	26.9	96	60	80
1924	30.3	114	29.0	134	29.7	106	65	87
1925	46.1	174	59.5	275	43	154	78	104
1926	68.5	240	62.0	286	69.6	249	120	160
1927	80.3	303	85.2	394	75.2	270	206	275
1928	103.2	390	83.8	387	97.3	349	225	300
1929	88.9	335	—	—	86.8	311	230	307
1930	59.5	225	33.2	153	57.8	207	110	147
1931	34.2	129	33.0	153	31.8	114	40	53
1932	36.5	138	22.3	103	35	125	35	47
1933	26.2	99	25.2	116	—	—	35	47
1934	31.6	119	23.7	109	—	—	95	127
1935	26.5	100	20.0	92	—	—	25	30
1936	20.5	77	—	—	—	—	30	40
1937	21.1	80	—	—	—	—	25	30
1938	19	72	—	—	—	—	—	—

From the above table we find that except in the years 1921-22, the price did not vary much as between Tellicherry, Calicut and Batavia from 1921 to 1924, while it was more or less steady in Travancore. But there was a sudden rise in 1925 in all these

places, and this rise continued in the subsequent years also. In Tellicherry and Calicut, the average price rose from Rs. 46·1 per cwt. in 1925 to Rs. 103·2 in 1928 which was the maximum for the boom period. From the year of maximum price, there has been a tendency for fall in prices until they reached the minimum of Rs. 20 per cwt. in 1937-38 except for a slight spurt in 1934-35. The same tendency is noticed in Travancore where the average prices rose from Rs. 59·5 in 1925 to Rs. 85·2 in 1927, followed by a fall up to Rs 22·3 in 1932, and then a rise to Rs 25·2 in 1933, again followed by a fall. The price in Batavia gives an index of the trend of world prices. It rose from 78 guilders per 100 kilograms in 1925, to 230 guilders in 1929 which was the maximum; it then fell to 35 guilders in 1932, suddenly rose to 95 guilders in 1934 and again fell to 25 guilders in 1937.

The Factors Influencing Prices.—The causes were both general and particular. We have already seen that there was a temporary rise in price in 1918-19 consequent on a partial shortage of the commodity and a rise in the Indian exchange. There was naturally a tendency for the prices to fall after the armistice and remain more or less steady when conditions were normal, except for the interaction of existing supply and demand which explain the slight variations in 1922-24. Subsequently, there was a fall in the production of pepper in the Dutch Indies, and this accounts for the peak prices obtained in 1927-28. In that year the world supply was shorter by 15,000 tons and the demand from America and Europe combined with that from Bombay and Calcutta pushed up the prices in India (e.g., Rs. 627 per candy in Travancore). Now, in order to account for the fall of prices from 1930, we have only to study the effect of the rise in price on pepper production in India and the other countries. Even in 1926 there was a great incentive to cultivation and large increases in pepper plantations took place, especially in the Netherlands Indies. As the pepper crop takes not less than five years to bear fruit there was no immediate supply in the market to off-set the rising prices. But when the boom period had ended and the depression set in with a general fall in the price of all commodities, the increased pepper plantations began to yield full crops, i.e. by about 1933. This further accentuated the already falling prices of a commodity whose demand is necessarily inelastic. It will also be noted that the fall in price was not as great in the two years immediately following the depression, as it was in 1933. Noticing the prospect of the price of pepper going down still further for reasons mentioned above, a group of speculators in London made an attempt to

'corner' the white pepper at the end of 1934. (See Appendix). This accounts for the temporary rise in price noticed in 1934-35. As the attempts failed completely at the beginning of 1935, it led to the famous pepper crash in London and caused wide disaster. Hence the downward tendency of the prices is accounted for by the present production and supply of pepper which is likely to be more than what the market can normally take, combined with the visible stocks of the commodity in London and New York.

We may also note certain changes that have occurred on the demand side influencing in a slight degree the fall of price and the export position of pepper in India. In the West and the U.S.A. far less pepper is now being used, because the refrigerator has further obviated the need for a preservative of meat and fish. For flavouring the demand has gone down, owing to the increase in the variety of dishes. In the drugs trade, pepper is used very much less than either ginger or cardamom. The domestic demand in India has not increased but is being slowly displaced by chillies and its medicinal use is not as great as it was previously.

In considering the trend of prices as affecting India, we have to note the important fact that she had long ceased to be the major exporting country, and that therefore rather than influencing price, the Indian producer has become a victim to the vagaries of price fluctuations resulting from conditions in the Dutch Indies. For centuries, pepper was regarded as the cash crop of a large number of people; but it has brought little cash lately and the pepper growers are in doldrums. Though pepper cultivation requires very little annual recurring expenditure, the present price is too low, and the cultivators, most of whom own only small strips of land, cannot be expected to keep their pepper vines for long, unless prices begin to look up. In some parts of the West Coast, pepper land is assessed at garden rates which are higher than rates on dry land and the Government is finding it difficult to realise its revenues. Hence the importance of this problem to-day.

Trade Position.

Of the two tables given below, one gives the shipments of pepper for the West Coast Ports and the other total exports of pepper from and imports to India. Of the shipments from West Coast ports, only a small portion is exported, the rest being absorbed in other parts of India. Therefore the bulk of India's pepper crop is consumed at home, and only a small part is export-

ed. Out of 107,000 cwts. of pepper shipped from Alleppey, only 44,000 cwts. was exported abroad According to the Annual Report of the Cochin Chamber of Commerce (1927-28) : "Indian demand is capable of consuming about 60 per cent of the crop, and in a year of easier prices probably not less than 75 per cent."

TABLE 3
SHIPMENTS OF PEPPER FROM WEST COAST PORTS

Year	Tellicherry		Calcut		Travancore.		All West Coast Ports.	
	Quantity (Cwts. in 000's)	Value (Rs. in lakhs)	Quantity (Cwts. in 000's)	Value (Rs. in lakhs)	Quantity (Candies in 000's)	Value (Rs. in lakhs)	Quantity. (Cwts. in 000's)	Value. (Rs. in lakhs.)
1920-21	31	8.8	21	6.3	39	39.4	218	67.9
1921-22	48	12.7	17	4.5	38	38.3	238	64.7
1922-23	68	18.3	41	11.4	47	46.6	351	90.4
1923-24	29	8.5	35	10.2	33	32.6	205	54.5
1924-25	38	12.6	18	5.6	35	41.4	218	64.9
1925-26	48	34.6	26	19.1	37	74.5	271	195.4
1926-27	67	38.4	18	10.7	35	115.0	298	174.7
1927-28	55	52.2	24	22.1	26	130.4	246	220.5
1928-29	42	38.5	22	20	33	161.5	272	240.3
1929-30	11	8.6	20	15.3	—	—	229	165.5
1930-31	29	11.2	41	15.4	37	75.6	298	106.3
1931-32	—	—	—	—	26	51.0	—	—
1932-33	—	—	—	—	34	55.0	—	—
1933-34	—	—	—	—	36	50.7	—	—
1934-35	29	8.9	25	—	21	30.5	103	—
1935-36	5	1.2	35	—	38	36.5	224	—
1936-37	15	3.4	32	—	—	—	189	—
1937-38	17	3.3	29	—	—	—	270	—

TABLE 4.
EXPORTS AND IMPORTS OF PEPPER

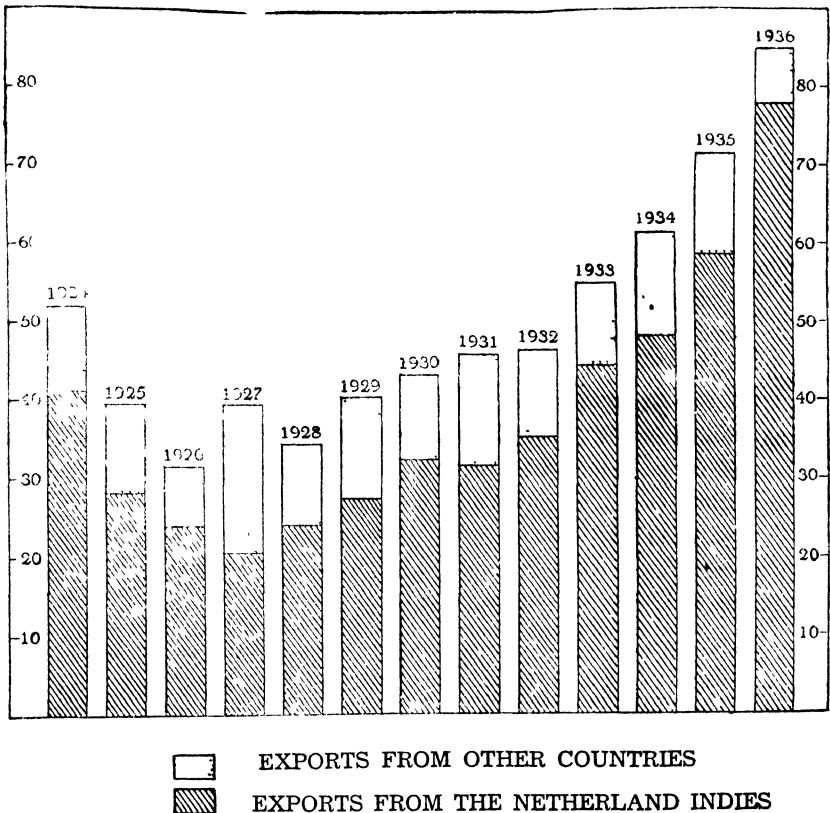
Year.	Exports		Imports.	
	Quantity (in 000's cwts.)	Value. (in lakhs of Rs.)	Quantity. (in 000's cwts.)	Value. (in lakhs of Rs.)
1913-14	124	43 5	19	5·9
1914-15	143	46 4	11	3·6
1915-16	136	46·4	39	13·0
1916-17	126	62 1	41	16·4
1917-18	101	52·6	33	14·4
1918-19	116	62·0	9	5·0
1919-20	123	66 3	12	6·7
1920-21	48	20 5	10	4·7
1921-22	106	31 0	11	4·6
1922-23	114	34 9	9	4·0
1923-24	90	27·7	10	4·1
1924-25	88	30 0	7	3·1
1925-26	129	93 3	5	2·4
1926-27	104	64 2	40	15·7
1927-28	196	153 5	6	5·1
1928-29	92	84·6	14	11·6
1929-30	121	105·6	7	6 3
1930-31	101	52 2	15	10·3
1931-32	94	37 4	10	6·0
1932-33	60	22 7	13	5·8
1933-34	59	18·2	12	3·5
1934-35	74	24 5	6	1·5
1935-36	26	7·6	130	24·2
1936-37	25	6·1	39	6·8
1937-38	17	3 9	20	3·8

The following conclusions may be drawn from tables 3 and 4:—

- (1) Exports have been steadily declining. Till 1919-20, exports were above 100,000 cwts but they have fallen to 17,000 cwts. by 1937-38
- (2) Shipments within India are subject to violent fluctuations from year to year, due perhaps to the changes in the crop conditions
- (3) Imports have been steadily maintained since 1914, and in recent years (1935-37) India figured as a net importer

The importation of pepper into India began early. In the year 1883-84, imports came to 20,533 tons valued at Rs 6.5 lakhs.

WORLD EXPORTS OF PEPPER 1924-36



During the nineties of the last century, imports were heaviest, being as high as 100,000 cwt. in 1893-94, valued at Rs. 20 lakhs. The imports have slightly fallen after 1900, but the figures are

being maintained. The imports came chiefly from Straits Settlements till 1927-28; since then, Java has sent large quantities and in the years 1934-35 to 1936-37, Java sent in more than the Straits.

Exports went till 1920 chiefly to France, Germany, Italy, the United States and Egypt. From 1911, the United States came in for a large share of Indian exports and it remained our largest customer till 1931.

There were also similar changes in the distribution of the Netherlands Indian pepper. Between 1929 and 1936 the exports of white and black pepper to England decreased from 31·9% to 8·1% and from 24·7% to 3·4% respectively, whereas the export to the U.S.A. increased from 6·7% to 15·3% and from 31·0% to 57·9% respectively. The U.S.A. has therefore become the largest consumer during the period. The export has also greatly increased, especially during the last few years, to British India, China and Canada.

Future Prospects.—Thus the prospects of pepper as a crop seem rather doubtful. It has always been a risky crop, with considerable ups and downs. Pepper prices have reached their nadir. Pepper has fallen from the high place it formerly occupied. This will have various results. Several pepper plantations will be neglected and new planting will not be resorted to. Therefore, pepper stocks are bound to fall, and with that fall prices will look up again, although it cannot be expected that the high prices of 1928-29 will return.

In the past, spurts in prices in India have occurred owing to external causes. In 1928-29, prices went up owing to failure of crops in the Dutch Indies. Similar events may raise pepper prices again and those who have lately been losing heavily will make good part of their losses. Those who cultivate a risky crop like pepper must make their penny in such boom periods and lie low in periods of low prices.

One notable point about pepper is its remarkable durability. Pepper will keep for a long time without losing its special qualities. It is believed that there are, in London, stocks of pepper produced over a hundred years ago. In Travancore, the leading pepper growers have large stocks, because they have learned by experience that such stocks will appreciate some day. It may be possible to raise pepper prices in India by excluding the exports of pepper from foreign countries. Such a policy may be injurious when applied to a staple food-stuff like rice, but an import duty on pepper will hit nobody in particular and may help the Indian producer

considerably. Much can be done also by improving the marketing conditions. A better system of processing and grading may bring in more money into the producers' pockets and co-operative societies for the processing and marketing of pepper may help the producer greatly.

APPENDIX

A Brief Account of the Attempt at 'Cornering White Pepper in London, in 1934 (See *Economist*, March 2 and April 13 and 27, 1935, January 18, February 15, 22, and 29, 1936)

The 'bull ring' in pepper of 1934 was organised by Mr. John Howeson and Mr. Louis Hardy. The former controlled William Henry and Co., Ltd, a private limited company engaged previously in the purchase and sale of tin for the private pool, at the time of the original tin restriction scheme. He was also the controller of the metal and produce departments of G. Bishirgian and Co. With the approval of Messrs. Hardy and Bishirgian, Howeson began to buy up pepper, the contracts being rendered to Williams Henry & Co. The operations for "cornering" were conducted by this company upto August 1934. The original idea was to achieve a successful operation by the purchase of 3,000 tons, but as time passed, the scale of operations had to be increased.

Consequently, on September 6, 1934, at the suggestion of Mr. Howeson, the James and Shakespeare Company was floated, which was to acquire a controlling interest in Williams Henry and Co., and also to buy over the produce business of G. Bishirgian & Co. It is important to note here that already on 30th June Williams Henry & Co. had brought forward £208,000 worth of pepper and at the date of the issue of the James and Shakespeare prospectus, it had forward commitments of £1,055,000 for pepper. No commensurable offsetting sales of shellac to clients had been made. The prospectus of the newly floated company omitted any reference to these commitments.

Mr. Hardy had negotiated a loan of £209,000 from the Midland Bank, to James and Shakespeare Co., against the deposit with the Bank of the underwriting agreement of James and Shakespeare Co. The Bank was also informed that the loan was required for metal purchases. But actually, James and Shakespeare Co., used this loan to finance the shellac commitments of William Henry & Co. Mr. Marks, who had a minor interest in the shellac pool protested, when he came to know of this. Hence Mr. Howeson undertook that James and Shakespeare Co. should be repaid and to effect this it was arranged that Williams and Henry should take

over a large block of the former's pepper commitments. Unnaturally, Williams Henry and Co., went on ordering shellac through James and Shakespeare Co., and Mr Hardy had to negotiate the finance necessary to enable James and Shakespeare Co. to meet their coming commitments in December and January on behalf of Williams Henry & Co. The Dean Finance Co., next stepped in to finance part of the shellac commitments of Williams Henry Co., but when it became aware of the pepper commitment of Williams Henry & Co., which had been taken over as part of the James and Shakespeare loan, insisted that if it were to finance the January shellac commitments, James and Shakespeare must relieve Williams Henry & Co., of the latter's pepper commitments. Therefore, James & Shakespeare had to transfer to the Dean Finance Co. all control of Williams Henry and Co. and £10,000 to take back the pepper commitments. Thus the shellac position was saved for the time, but the pepper position and with it the public company of James and Shakespeare collapsed. As the position became critical, Mr Howeson initiated negotiations with the Government of Netherlands Indies and the British Government, to restrict the shipments of pepper from the Netherlands. The shipments that were obviously threatening to break the 'corner' were stopped. But the effort came too late even if it was not doomed to fail from the first.

The result was the "pepper case", which came up before the Guildhall Court in January 1936. Bishirgian, Howeson and Howson were the defendants. They were ordered to take their trial at the Old Bailey. Sir Patrick Hastings, Sir William Jowitt and Sir Walter Monckton appeared for the defendants. On February 12, after a nine days trial at Old Bailey, the jury found all the defendants guilty on all the counts. Justice Atkinson's summing up took 3½ hours. Owing to various causes, the trial was a sensation. The following was the comment of the *Economist* on the case:—"All in all, the pepper story is not one of which the Government can be proud. On the question of the prospectus, the law has taken its course—indeed, it is still taking its course—as no appeal has been given. But on the wider issue public opinion has long since pronounced its verdict. Free enterprise and free financial institutions have not gained in prestige from the revelation that men of considerable wealth and great influence with Governments employ their time and their resources in "cornering" pepper, forming syndicates in shellac, and organising private pools of tin."

ADDENDUM.

A TARIFF ON RICE IMPORTS

(*Note Submitted to the Rice Committee of the Imperial Council of Agricultural Research, by Prof. P. J. Thomas, 27-11-39.*)

There has lately arisen a demand for the imposition of a tariff on the rice imports from Burma. In recent years, import tariffs have been levied in many countries, chiefly with a view to protecting important local industries against unfair competition from abroad. Some countries in Europe have also tried to protect agriculture by means of tariffs but this has been influenced largely by the military motive. Agricultural protectionism involves various complex issues, and must be tackled with care.

Unfair Competition

One of the arguments used in this connection is that the rice imports from Burma are in the nature of dumping. Dumping means the sale of goods abroad at prices lower than at home, at prices below the cost of production. The imports from Burma are not of such a character. Burma has a large exportable surplus of rice, and as the cost of production in Burma is lower owing to her superior natural facilities for rice cultivation, Burma rice sells cheaper than Indian. It may be seen from table 3 below that the price of rice in Burma is generally much lower than that in India, in some years it was only one-half of the Indian prices. Evidently, therefore, such importation is not dumping properly so called. In reality, there is a shortage of rice in India and this is made up by imports from Burma. Even a hundred years ago, whenever there was a failure of crops in the Madras Presidency, large supplies came from Arakan or Chittagong. In recent years, the shortage seems to have become a permanent feature, and we are depending chiefly on Burma for about 5 to 8 per cent of our rice supply. The following table will make this clear:—

TABLE 1.

PRODUCTION, NET IMPORTS AND AVAILABLE SUPPLY
OF RICE IN INDIA

(Excluding Burma)

	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39.
Area (,000 acres)	70,340	69,731	70,998	72,295	72,277	
	(,000 tons)	(,000 tons)	(,000 tons.)	(,000 tons)	(,000 tons)	(,000 tons)
Production according to forecast		25,729	23,271	28,253	26,763	23,577
Add for Provinces not included in the fore- cast ..		960	1,124	989	935	935
Estimated production.		26,689	24,395	29,242	27,698	24,512
Exports (by sea) ..	217	206	191	235	229	283
Imports (by sea)*						
(a) Foreign countries .	87	357	170	63	2	18
(b) Burma ..	1,474*	2,311*	1,692*	1,787*	1,220	1,320
Imports by land frontier ..	50	50	50	50	50	50
Total imports ..	1,611	2,718	1,912	1,900	1,272	1,388
Net imports ..	1,394	2,512	1,721	1,665	1,043	1,105
Net supply ..		29,201	26,116	30,907	28,741	25,617

* Calendar year.

Note.—Paddy is converted into rice at 2/3 of the weight of paddy.

Thus there has been a continuous shortage of rice in India. In other words, the production of rice has not kept pace with the demand for it. The demand for rice has been steadily growing, partly owing to the increase of population and partly due to the change-over among certain classes from millets to rice—a change signifying greater concentration in towns, or improvement in social

status among classes formerly consuming millets and not rice. The change-over from millets to rice may not be desirable from the nutrition point of view, but that is another matter.

Why has not production in India kept pace with the growing demand for rice? An examination of the trends of agricultural production in the last few years will make it clear that comparatively greater attention has been paid to commercial crops than to foodgrains.*

TABLE 2

AREA AND PRODUCTION OF CERTAIN CROPS FROM 1920 TO 1938.

(Area in million acres, yield cotton and jute 1,000 bales of 400 lbs. each; others, 1,000 tons.)

	Rice.		Cotton		Sugarcane.		Groundnut.	
	Area	Yield	Area	Yield.	Area	Yield	Area.	Yield.
Average 1920-21 to 1924-25	69 3	26,247	22 0	4,833	2 6	2,809	2 1	954
Average 1925-26 to 1929-30	68 3	25,462	25 8	5,584	2 7	2,983	4·6	2,065
1930-31.	69 7	27,055	23·4	5,192	2·8	3,228	6 0	2,592
-32.	71 7	28,799	23·5	4,003	3 0	3,975	5·1	2,151
-33.	70 0	26,201	22·1	4,618	3·3	4,676	6·9	2,846
-34.	70 3	25,733	23 7	5,057	3·3	4,896	7·9	3,186
-35.	69·7	25,706	23·5	4,797	3 5	5,140	5·1	1,740
-36.	71 0	23,213	25·4	5,867	4 0	5,931	5·2	2,114
-37.	72·3	27,828	24·8	6,180	4·4	6,476	6·7	2,714
-38.	72 3	26,737	25·7	5,660	3·8	5,307	8 7	3,436
Percentage increase from 1920-25 to 1937-38.	4 2	1·9	16·6	17·1	45·0	88·9	305·0	360·1

* For further details, see Thomas and Sastry, *Indian Agricultural Statistics* (Madras University, 1939).

It is clear from the above table that while the acreage and production have increased largely under groundnut and sugarcane and to a lesser extent under cotton, the acreage and production under rice have been rather stationary. Our export trade also confirms this conclusion. In recent years, exports of raw cotton, jute, groundnut, etc., have considerably exceeded those before 1920, in spite of the intervening depression and the wanton ravages of economic nationalism abroad. All this indicates a growing commercialization of Indian agriculture. Our agriculturists find it more profitable to use fresh land for commercial crops than for food-grains. Economically this must be considered a gain and not a loss. Land must be devoted to the most profitable use and preference for the several crops will depend upon the comparative intensity of demand. Military considerations have lately got the upper hand, and some countries in Europe are growing crops for which they are not fitted. But this is economically undesirable, and we have to resist such steps here as far as possible.

How to Increase India's Rice Supply ?

It must not be construed from the above that India should always depend on Burma for a part of her rice supply. Quite apart from the military motive, it is a legitimate objective to increase rice production in India, even to the extent of self-sufficiency. Rice is the staple food of about a hundred million persons and it is desirable to have an adequate supply of it in this country. Those who recommend tariffs against rice imports assume also that a powerful incentive to increased production of rice would thereby be provided and that the shortage in India's rice supply would thus be made up. But this assumption is not justified by past experience. The response of acreage to prices has not been carefully studied in the case of rice, but judging from the statistics available, the response to rising or falling prices is very faint. When prices were rising rapidly during and after the war of 1914-18, there was no appreciable increase in acreage. If price has any influence on acreage, it should have exhibited itself during the time of the slump 1930-33, when prices fell by more than 50 per cent. In spite of such a rapid fall in prices, the acreage did not fall; on the other hand, it increased. From 68.3 million acres (average of the years 1925-29), the rice acreage rose to 71.7 million acres in 1931-32 and was above 70 millions even in 1932-33 and 1933-34 when the depression reached its lowest point. This is due to various economic factors which cannot be detailed here. Rice is largely a subsistence crop and price considerations hardly enter

into the cultivation of it. The crops that can be substituted for rice need much more capital to raise them and therefore cultivators of rice generally stick to it, whatever may be the price realised. Further, during the slump, the money crops were also found unprofitable and many ryots naturally preferred a cereal crop and thus ensured their food supply.

We have to resort to other methods for increasing the supply. The two possible measures are (i) to bring more land under rice cultivation and (ii) to increase the yield from the existing rice acreage. The former is not recommended by agricultural experts; they regard it essential to devote such land for raising more profitable crops. We must therefore concentrate on the latter method, namely, to increase the yield from the existing acreage, wherever possible. It is well known that production per acre is extremely low in India. It is believed that by the use of improved seeds, the yield per acre can be increased by 10 to 15 per cent, and as our annual shortage is below 10 per cent, this increase of yield appears to be practicable. By better manuring also, the yield can be further increased and the "Project System", if adopted, will enable the country to spread the use of improved seeds and manures.

We have also to take into account the diet aspect. A statistical study of the food supply in India will convince anyone that the real deficiency is not in cereals but in milk, milk products, fruits and green vegetables. Diet specialists generally think that the Indian diet is overweighted on the side of cereals. Therefore if more land is available for cultivation, it must be used for fodder crops, dairying, vegetables, and fruit trees. Sir John Russell, who lately studied our agriculture, goes further and advises us (wisely I think) to liberate part of the land now under cereals for dairying, fruit-growing, etc. Therefore, it is clear that the right way to increase the rice supply is to increase the yield per acre by adopting scientific methods. This must be the prime objective of crop-planning in India to-day.

The Advantages of High Prices.

The principal object of those who advocate tariffs against rice imports is to raise prices. In other countries the tariff has been advocated and imposed in order to stimulate internal production, and this has also been the motive behind the protective tariffs so far raised in this country. The use of protective tariffs for raising the price of an article like rice will raise complex issues and great caution is necessary in launching on such a policy.

It is believed by some that the imports from Burma are the cause of the low price of rice in India. This is not exactly true. Between 1930 and 1933, the world price of rice and other food-grains slumped heavily, but there has been a recovery since, as will be clear from the table lower down. As Burma is the principal exporter of rice to the world markets, the supply in Burma constitutes an important factor in fixing the world price. Therefore the price of rice in India has been following the course of Burma prices in recent times (see graph on p. 6). Owing to various world causes, the prices of most primary products remain low. It would be a great thing if these prices are raised, but tariffs can do nothing useful in this direction.

There is already a duty of 12 annas per maund on foreign rice. If the rice imports from Burma are brought under this duty, the price of rice in India may look up, especially as there has lately been a serious shortage in the Indian rice supply. What will be the results of such a rise ?

It is beyond doubt that a rise in prices following a slump will relieve especially persons who have fixed obligations (debtors). But such a rise must be general and not sectional. If the price of rice has slumped by 42 per cent between 1929 and 1939 in Madras, the prices of cotton and groundnut have fallen by 45 and 56% respectively. A general rise in the price of all primary products will greatly benefit a country like India, but the rise of particular prices will only give sectional advantages. It is claimed that a rise in the price of rice will lead to a general rise in prices, because rice and other cereals form the major crops of the country. This claim is of doubtful validity, because although the cereals form a large percentage of our total agricultural production, only a small portion of it comes into the market. The great bulk is consumed by the producers themselves. Therefore a rise in the rice prices may not lead to a general rise in prices. And as for the claim that higher rice prices will benefit all agriculturists, even cereal-growers, it is rather an exaggeration, because the great majority of agriculturists are either day-labourers or share tenants, and what they get at harvest, or as wages, is not sufficient even for their food, and they have to purchase rice during some months of the year. Therefore if they benefit as sellers they will lose as buyers. Those who receive wages in money—and they are on the increase—will definitely lose by a rise in the price of food, because wages will generally lag behind prices. A few landlords may gain, but the greatest gainers by a rise in prices are traders and speculators who accumulate stocks. By various marketing devices, the cultivator is defrauded of the gain from rising prices.

In the case of staple food grains like rice, the interest of the consumers must be considered extremely important. In the case of India's export staples like jute or tea or oilseeds which enter only slightly into the consumption of the masses, a rise of prices may be a net gain to the country, but this is not so in the case of rice and other foodgrains which are produced for local consumption and which enter so prominently into the ordinary man's budget. Especially when the rise of prices is due to an artificial scarcity caused by keeping out external supplies, this may be regarded as a hardship by the masses and may thus cause wide-spread discontent. Hence the great difficulty of touching particular prices, especially cereal prices, in a country where cereals are almost identical with food.

There is no doubt that the cultivators deserve greater encouragement. In particular, the cereal-growers are discharging a public duty, and the State has a special responsibility for their welfare. While the growers of commercial crops (cotton, tobacco, sugarcane, etc.) generally make good profits because of the industrial demand for them, the growers of rice make poor gains, and have withal to bear heavier tax burdens than those who raise commercial crops owing to a fundamental defect in the land revenue policy of the Government. While an acre under rice gives a net income of about Rs 25, an acre under sugarcane or tobacco brings in Rs. 250, yet the latter does not pay a larger land revenue per acre. Rice and other foodstuffs are essential for human existence, and as they are grown under rather discouraging circumstances, those who grow them must be given all assistance. But the assistance must be such as will not make food too dear to the masses. We must help the rice-grower to realize a larger income per acre by enabling him to increase his yield and to keep the whole of the price for himself without giving away large bits as interest, rent, sale commission, etc. Therefore, the use of better seeds and manures comes first, and next come cheaper credit, better marketing, reasonable rents and taxes etc. The improvement in this respect has been too slow, although agricultural departments have functioned in the Provincial Governments for many years. While under sugar cane and jute 80% and 50% of the area sown is under improved strains, the area under improved seed in rice is hardly 6%. Yet, of the food grains consumed in India, one-half is rice, and a third of the net area sown in India is under that crop.

It is true that several countries in the West have lately imposed all kinds of restrictions on imports of foodstuffs in the assumed

interest of agriculture. Serious doubts have been expressed, by statesmen as well as economists about the wisdom of such policies. In any case, India's position is not analogous to that of those countries. In India also, agriculture needs protection, but must be of a more active direct type than tariffs. We have to improve our agricultural methods, but this may not be possible without a radical change in our land tenure and rural economy. If agriculture does not pay adequately, it is because the system of production is thoroughly uneconomic.

Recent Rise in Prices.

Prices have been rising since 1933, and on the outbreak of War, the price of rice rose in most places. The following table will make this clear :—

TABLE 3

AVERAGE PRICES OF RICE IN RANGOON, CALCUTTA AND MADRAS

Year	Rangoon (Rs per maund.)	Calcutta (Rs per maund)	Madras. (Rs. per maund)
1933	1 8	4 0	3·4
1934	.. 1 9	3 7	3 5
1935 (duty)	2 5	4 3	4·0
1936	.. 2 4	5 1	3 8
1937	. 2·6	4 1	3·9
1938	.. 2 4	3 8	3 9
1939 January	.. 2 0	4 0	4 1
„ February	.. 2 1	4·1	4·0
„ March	.. 2 3	4 1	4 0
„ April	2 4	4 0	3·9
„ May	.. 2 6	4 4	3·9
„ June	.. 2 5	4·9	3 9
„ July	.. 2 4	4·8	4·0
„ August	.. 2·4	4·8	4·0
„ September	2·7	5 2	4 2
„ October	.. 2 9	5 4	4·2
„ November	.. 2·8	5 5	

Note.—The figures for Rangoon and those for Calcutta from January, 1939 are taken from the *Indian Trade Journal*.

Thus the price in Rangoon in November 1939 is 17% higher than the average of 1938 and 50% higher than that of 1933. The rise in the districts of Madras is much higher than indicated by the Presidency average. If the war prolongs itself, a great demand is bound to arise for all foodstuffs, and we may soon be face to face with a scarcity of rice, rather than a glut, and this would involve hardships to the working classes.

Seasonal conditions in recent months also indicate that there is a large shortage of rice this year. Crops failed last year in many parts of India. The estimated yield for 1938-39 was 3 million tons less than that for 1937-38 and 4.8 million tons less than that for 1936-37. The result is that the imports of rice have lately increased considerably, as may be seen from the table below

Six months (April to September)

(1,000 tons.)

	1937.	1938	1939.	Percentage increase between 1938 and 1939.
Rice in husk	15,62	14,18	1,40,30	889
Rice not in husk	6,46,13	4,93,28	9,65,91	96

A good part of these imports was for Travancore and Cochin, but the expected shortage in the coming season is also a cause of the increased importation. In these circumstances, it does not seem feasible to erect a tariff wall against Burma rice. All that we may do is to devise some form of import regulation with a view to avoiding both scarcity and glut. When crops are good and prices low, imports may be severely restricted, but when the seasons are bad, and prices begin to rise by the scarcity of corn, imports must be let in rather freely. This may perhaps be managed by a system of import licenses. I believe that with the assistance of the Economic Adviser and the Marketing Adviser, the Government of India will be able to devise a suitable arrangement by which the interests both of the landowners and the consumers will be amply safeguarded.

Conclusion.

The real problem of rice in India is not the price but the shortage of its supply. A tariff will do little to make up the shortage. What is needed is an increase in yield by the use of better seeds. Thereby, not only will the shortage be made up but the income per acre will increase. A tariff may raise prices, but while a rise in the price of our export staples may be a solid gain to the country, a rise in the price of foodstuffs consumed at home is a doubtful boon. A sudden rise in the price of essential foodstuffs will hit the consumer without benefiting the actual producer, and the benefits of a rise are largely reaped by traders (as happened lately); the great majority of agriculturists will profit little unless the rise is maintained for a considerable time, and by that time their cost of production would have also increased. What is really needed is a quick drive to increase the yield by the use of better seeds and manures, so that the income per acre may increase without a rise in the price of rice. Prices have already begun to look up as a result of war. Owing to bad seasons, the shortage this year is likely to be larger than usual. If Burma rice is excluded at the present time, it would lead to hardship among the masses. Some regulation of rice imports may, however, be desirable, but this must be devised in such a way as to ensure an adequate supply of rice in the country at reasonable prices.

