REPORT OF THE RICE PRODUCTION AND TRADE IN THE MADRAS PRESIDENCY

BY

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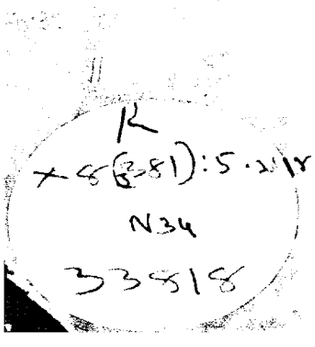

TABLE OF CONTENTS.

APPENDICES.

LIST OF ILLUSTRATIONS.

REPORT OF THE STUDY OF RICE PRODUCTION AND TRADE IN THE MADRAS PRESIDENCY.

I. INTRODUCTION.

1. *Genesis of the enquiry and terms of reference.* The price of rice, the most important food crop of the Province, has been steadily going down during the last two or three years making the position of the rice growers of the Province more and more difficult. Before we could find the actual reasons for this phenomenal fall, it was considered desirable that a detailed enquiry should be undertaken about the conditions of production and marketing obtaining in the Province. The Director of Agriculture, accordingly, sent up proposals to Government to appoint a Special Officer to undertake this enquiry. Government in their G.O. Ms. No. 218, dated 17th February 1934, accepted the proposals of the Director of Agriculture and ordered that a study of rice production and trade should be made and information and fairly accurate data obtained on the following points :—

(*a*) The production in each district, its requirement, how the surplus, if any, is disposed of and how the deficit is made up.

(*b*) The quantity transported internally, the means and cost of such transport.

(*c*) The relative selling price of the local and imported rice and paddy.

(*d*) The nature of treatment given to paddy (whether it is sent as paddy or raw rice or parboiled rice) ; the places where surplus is available, the agency and methods employed for such treatment and the cost thereof.

(*e*) The difference in quality of a particular type or types of paddy grown in different districts and whether it affects the price and to what extent.

(*f*) The agency existing and necessary for improving the internal trade as well as to maintain and expand the outside markets.

2. *Period of enquiry.* The sanctioned period of enquiry was for three months, but this having been found not enough, was extended by another two months. As the obtaining of data for the rail-borne traffic in paddy and rice from the railway companies took more time than was first anticipated, the completion of the report had to be delayed by another month. The enquiry on which this report is based thus lasted for very nearly six months, from 5th March to 27th August 1934.

3. *Sources of materials gathered.* I took up the duties of the Special Officer on 5th March 1934 and finished my itinerary in the districts by the third week of July. As the field of enquiry extended throughout the twenty-four districts of the Presidency, it was only possible to visit a few centres in each of the rice-exporting districts and a few centres in each of the importing districts. A detailed questionnaire was however,

first prepared in consultation with the Director of Agriculture and circulated to all the district officers for the collection in advance of the required information which I amplified during my visits to the respective centres. Particulars of rice trade with places outside the Presidency, Mysore, Hyderabad and Bombay Deccan were obtained through the kind courtesy of the Directors of Agriculture of the respective state or Province. Figures for sea, rail and river-borne traffic were kindly supplied by the Railway Administrations and Government departments concerned. Materials from the season and crop reports of the Presidency were utilized for getting the area and production of rice in the Province.

CHAPTER I—RICE-AREA AND PRODUCTION.

4. *Position of Madras Presidency in relation to other rice-growing countries and Provinces.* In a study of this kind, it is in the fitness of things to compare the position of this Province with some of the chief rice-producing foreign countries and other Indian Provinces. Statements of average areas and production for the two periods 1922–26 and 1927–30 are set out in Tables 1 and 2.

TABLE 1.—*Area and Production of rice in Foreign Countries.*

	Area (1,000 acres). Average for		Increase or decrease per cent.	Production (1,000 tons). Average for		Increase or decrease per cent.
	1922–26.	1927–30.		1922–26.	1927–30.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Formosa	1,318	1,452	+ 10	1,032	1,223	+ 18·6
Indo-China	12,084	13,848	+ 15	5,645	5,907	+ 4·6
Italy	415	346	— 17	569	651	+ 14·0
Japan	7,714	7,848	+ 2	10,257	11,045	+ 7·7
Java and Madura ..	8,082	8,680	+ 7	4,988	5,174	+ 4·0
Korea	3,849	3,928	+ 2	2,610	2,828	+ 8·4
Siam	6,394	6,357	— 5	4,560	4,244	— 7·0
Spain	117	120	+ 2	283	299	+ 5·8
United States of America.	945	947	+ ·2	733	852	+ 16·3

TABLE 2.—*Area and Production of Rice in British Provinces.*

Assam	4,487	4,544	+ 1·3	1,527	1,464	— 4
Bengal	20,793	20,604	— 1·0	7,968	8,615	+ 8
Bihar and Orissa ..	14,446	14,015	— 3·0	4,636	5,466	+ ·18
Bombay including Sind.	3,068	3,142	+ 2·4	1,355	1,372	+ 1
Burma	11,996	12,691	+ 6·0	4,739	4,818	+ 2
Central Provinces and Berar.	5,193	5,486	+ 6·0	1,460	1,605	+ 10
Madras	10,968	11,285	+ 3·0	4,947	5,259	+ 6
United Provinces ..	7,178	6,902	— 4·0	2,168	1,709	— 21

There has been a general increase in both area and production, and the increase of production is striking in Formosa, Italy, Korea, Japan and United States of America. Among the Indian Provinces, Madras occupies the fourth place in rice area and the third in rice production. For the purpose of this report it would, however, be necessary to consider at some

length, the position of the three countries, Burma, Siam and Indo-China that are now exporting their surplus rice to the Madras Presidency. A perusal of Table 3 will show that the percentage increase of area and exports of Siam and Indo-China for the pre-war and post-war periods, is far ahead of that of Burma.

* TABLE 3.—*Statement of average area and average total exports of the three countries, Burma, Siam and Indo-China for two periods,* 1909–13 *and* 1926–30.

	Area in (1,000 acres). Average for		Increase per cent.	Exports (1,000 tons). Average for		Increase per cent.
	1909–13.	1926–30.		1909–13.	1926–30.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Burma	10,065	12,619	25	2,368	3,003	27
Siam	4,521	6,253	38	977	1,388	42
Indo-China	8,546	13,338	56	1,065	1,621	52

* Interim report of the Committee appointed to enquire into rice and paddy trade—Burma.

Table 4 shows that with the increase in their exportable surplus year after year, Indo-China and Siam are coming into competition with Burma in all the rice markets of the world. Since the rice consuming population of the world is chiefly confined to the eastern countries it will be worth-while to consider the export trade of these three countries with other countries in the east.

* TABLE 4.—*Statement of Exports in tons (thousands) from the three countries to Japan, China and Straits Settlements from* 1920–21 *to* 1928–29.

Year.	Japan.			China.			To Straits Settlements.		
	Burma.	Siam.	Indo-China.	Burma.	Siam.	Indo-China.	Burma	Siam.	Indo-China.
1920–21.	12	..	23	28	366	777	..	..	..
1921–22.	2	108	105	46	366	767	134	405	61
1922–23.	80	28	54	272	656	869	192	386	29
1923–24.	128	35	39	229	733	720	199	387	40
1924–25.	224	43	82	80	507	644	242	362	52
1925–26.	285	73	253	182	521	886	230	474	76
1926–27.	121	115	166	188	407	941	235	551	78
1927–28.	150	131	181	105	621	524	229	638	84
1928–29.	7	..	110	61	..	..	219	..	..

* From interim report of the Committee appointed to enquire into rice and paddy trade—Burma.

A gradual tendency for the decline in Burma's exports to some of the other countries is noticeable. Naturally when three countries each having a huge exportable surplus are trying to dispose of their surplus stock in the world markets, the prices of rice cannot but have a downward trend. The position of Madras is entirely different, as in spite of her rice production being on a par with the countries just reviewed, she has very little exportable surplus due to her enormous population. Besides

rice, Madras produces a large quantity of other cereals (millets) which are also consumed. Under normal conditions, she should require only a small quantity of food-grains to be imported in addition to what she herself produces. But this quantity has to fluctuate widely because the production of cereals other than rice is mainly dependent upon the vicissitudes of the weather and monsoonic conditions. The major portion of rice produced in the Madras Presidency is distributed within the province, and it is necessary to see that the price of rice in her markets, is not unduly influenced by the competitive prices of the world's rice markets. Burma, Siam and Indo-China have a huge exportable surplus every year and it has to be disposed of somehow. Madras with a big sea coast is naturally exploited as a possible market for this surplus produce. That it is the unrestricted import of rice from these countries that has been responsible for the fall in price of the local produce is explained later in the report.

5. *Total production of cereals including rice.* While considering rice, the question of cereals other than rice (millets) cannot be ignored because the production of millets reduces the demand for rice in the producing districts. The average annual area cropped under the different cereals during the past three quinquennia is given in Table 5. Rice, the chief among them, is grown over 11·4 million acres (29 per cent of the area under cultivation) as against 13·8 million acres (34 per cent of the area) of all the millets put together.

TABLE 5.—*Statement of area and production of cereals in the Presidency.*

Name of cereals.	Area acres (thousands).			Production tons (thousands).		
	1918–23.	1923–28.	1928–33.	1918–23.	1923–28.	1928–33.
Rice (in the husk) ..	11,156	10,896	11,406	7,485	7,359	7,919
Cholam	5,323	4,732	4,783	1,447	1,304	1,377
Ragi	2,496	2,788	2,212	1,120	1,181	1,035
Kambu	3,116	3,024	2,912	801	781	786
Varagu	1,104	1,118	1,077	417	400	412
Korra	1,272	1,564	1,551	201	300	315
Samai	722	758	801	147	152	163
Maize	109	140	119	52	61	54
Total millets ..	**14,142**	**14,124**	**13,455**	**4,185**	**4,179**	**4,142**

The proportion of areas under rice, millets, other food crops (pulses and root crops) and non-food crops, to the total area sown in each district is given in Appendix I (*a*) and (*b*).

6. *Fluctuations in the area and outturn of rice in Madras Presidency.* Districtwar area of irrigated and unirrigated rice is given in Appendix 2 and the Presidency averages of area and outturn for the three previous quinquennia are set out in Table 6. Though the area under rice was lower in the second quinquennia, it went up again considerably in the third, so that the average area now is nearly 250 thousand acres more than ten years ago.

As regards production the recorded average outturn per acre for the three periods 1918–23, 1923–28 and 1928–33 is 1,736, 1,745 and 1,717 lb. respectively. The total outturn during the period 1928–33 was therefore 433 and 578 thousand tons more than in the periods 1918–23 and 1923–28 respectively.

TABLE 6.—*Statement of annual average acreage and total estimated outturn of rice for the three quinquennia* 1918–33.

Acreage.

Period.	Acres.	Acres.	Acres.
1918–23	11,155,735	11,155,735	..
1923–28	10,896,173	..	10,896,173
Decrease ..	259,562		
1928–33	..	11,406,002	11,406,002
..			
Increase ..	..	250,267	509,829

Outturn.

	Tons.	Tons.	Tons.
1918–23	7,483,978	7,483,978	..
1923–28	7,339,144	..	7,339,144
Decrease ..	144,834		
1928–33	..	7,917,310	7,917,310
Increase ..	..	433,332	578,166

Fluctuations in area and production from year to year during the period 1918–23 of both the irrigated and unirrigated rice in the Presidency are represented in Figures I and II. Such fluctuations in area and outturn are a common feature of this province because of the wide range of seasonal conditions under which this crop is grown in this Presidency. The rice area is divided into two broad groups (1) irrigated, that dependent on an irrigation system, rivers, canals, tanks, spring-channels, etc., and (2) unirrigated, that dependent exclusively on rainfall. Out of the 11·4 million acres under rice, 8·13 millions (72 per cent) are irrigated and 3·27 millions (28 per cent) are unirrigated. The rice crop of the West Coast districts (Malabar and South Kanara 1·3 million acres) depends exclusively on rainfall. Roughly 50 per cent of the rice area in Ganjam and Vizagapatam districts is unirrigated. Next in order comes the crop in the districts of Chingleput, Chittoor and Ramnad where a major portion of the rice crop which is rain-fed in its intial stages of growth, is irrigated after the receipt of the heavy north-east monsoon rains. Taking the whole of the irrigated area in the Province, 75 per cent of it is devoted to rice. Even the irrigated areas are not absolutely free from the vicissitudes of the season. The total area irrigated from the different sources of irrigation given in Table 7 will show that $5\frac{1}{2}$ million acres are irrigated from tanks and wells, whose regular and timely supplies are to a large extent dependent upon the two monsoons which are generally inadequate in the central districts, and sometimes untimely and excessive in the coastal districts. The actual quantity of rice produced in any year in the Presidency is mainly dependent on the strength and distribution of the two monsoons. These, in the main, account for the fluctuations in area and production in the Presidency (vide Table 8).

TABLE 7.—*Statement of area under different sources of Irrigation.*

Source of irrigation.	Area in acres.	Remarks.
Canals (Government and Private) ..	3,930,223	Mainly under rice.
Tanks	3,455,939	*Do.*
Wells	1,606,474	Partly under rice.
Other sources—spring channels ..	522,021	Largely under rice.

TABLE 8.—*Statement of area and estimated production of rice in the Madras Presidency*, 1918–33.

Year.	Irrigated.		Unirrigated.		Total.	
	Area.	Production of rice in the husk.	Area.	Production of rice in the husk.	Area.	Production of rice in the husk.
	ACS. (THOUSANDS.)	TONS. (THOUSANDS.)	ACS. (THOUSANDS.)	TONS. (THOUSANDS.)	ACS. (THOUSANDS.)	TONS. (THOUSANDS.)
1918–19	7,333	5,663	3,136	1,641	10,469	7,305
1919–20	8,571	6,499	3,077	1,557	11,648	8,056
1920–21	7,820	5,800	3,277	1,644	11,096	7,444
1921–22	8,027	6,197	3,253	1,609	11,280	7,806
1922–23	7,997	6,076	3,289	1,734	11,286	7,809
1923–24	7,360	5,267	3,157	1,495	10,517	6,763
1924–25	7,570	5,722	3,300	1,604	10,870	7,326
1925–26	8,061	6,287	3,261	1,656	11,323	7,943
1926–27	7,462	5,444	3,380	1,634	10,842	7,078
1927–28	7,642	5,903	3,287	1,683	10,930	7,586
1928–29	7,745	6,079	3,274	1,678	11,019	7,757
1929–30	8,025	6,052	3,238	1,649	11,262	7,701
1930–31	8,477	6,352	3,200	1,672	11,678	8,023
1931–32	8,262	6,350	3,276	1,688	11,538	8,037
1932–33	8,206	6,454	3,328	1,614	11,534	8,068

N.B.—For 1933–34, only the forecast of production is available. The estimated yield has not been calculated. The forecast for 1933–34 is 5,089,650 tons of rice and therefore 7,634,478 tons of paddy. This cannot be compared with the estimated yield of 1932–33, the forecast for which was 5,237,400 tons of the rice and therefore 7,855,600 tons of paddy as against the final estimated yield of 8,068,220 tons of paddy.

7. *Cropping Seasons of rice.* The districts of Ganjam, Vizagapatam, Godavari, Kistna and Guntur that get the full benefit of both the south-west and the early north-east monsoon, raise a long duration first crop between June and December. Among these, the districts of Godavari, East and West, grow every year a regular second crop, between January and May, in about a third of the total area (nearly 200 thousand acres). Due to the special conditions of weather, the shorter duration second crop does not immediately follow the harvest of the first crop in spite of the availability of water, and there is always an interval of a month or six weeks between the two crops. In the case of Nellore district which depends upon the freshes in North Pennar and the north-east monsoon rains, the rice season starts a bit later than in the northern districts. A long duration variety is grown in the first crop season, July to February,

closely followed by a short second crop, February to May. In the areas under tanks the practices obtaining in the central districts mentioned later, are followed.

The southern districts comprising Tanjore, Trichinopoly, Madura, Tinnevelly and portions of Coimbatore and South Arcot that enjoy a well assured source of irrigation and a fairly heavy north-east monsoon grow between June–March, two crops in favourable portions and a single crop over a major portion of their area. In the double crop areas, short duration *kuruvai* or *kar* (June to September–October) is followed by a long duration *samba* variety (October to February–March). In the single crop areas, however, the season starts late and a single long duration crop is grown between August to January.

The third group forming the districts of Chingleput, South Arcot, North Arcot, Chittoor, Anantapur and Salem, cultivates rice mostly under tanks and wells. According to the availability of water in them, they grow paddy in three seasons, viz., *kar* (June to September), *samba* (July to December) and early *kar* or *manavari* (January to April).

The rice area of the Ceded districts is small and the cropping practices followed are analogous to those observed in the neighbouring districts dealt with already. The practices of Cuddapah are very similar to those of Nellore, those of Bellary and Kurnool similar to those of the Circars, and those of Anantapur similar to those in central districts.

In the West Coast districts, in areas classed as single crop land situated on a fairly high level usually terraced, is grown a short duration variety that can mature with the close of the south-west monsoon; in double crop lands, that are situated in the valleys, are raised a short first crop (June to September, October) closely followed by a long duration second crop (September to January). Under small scattered areas in the hollow of the valleys, that command irrigation from wells and springs, a short third crop is also sometimes raised between February to April.

The harvesting periods when the produce is expected to arrive in the markets in the various parts of the Presidency may therefore be roughly grouped as follows :—

Time of harvest.

Group of districts.	Short duration early first crop.	Long duration single crop or a second crop of *samba*.	Short summer crop.
Circars	End of October.	1st fortnight of December.	April to May.
Nellore	Nil.	January–February, March.	May.
Central districts ..	September–October.	January–February.	May–June.
Southern districts.	Do.	Do.	Nil.

The seasons and the harvest periods are represented diagramatically in Figure III.

8. *Varieties grown.* The widely varying conditions under which the rice crop is grown in the different parts of this Presidency, have resulted in the cultivation of a large number of varieties each suitable to particular conditions of soil, climate and season. The districts that grow the largest number of varieties are Ganjam and Malabar. The chief varieties of each district that come in the market with their special qualities, if any, are given in Appendix 3. Departmental strains in distribution are also mentioned along with the varieties.

9. *Cost of production.* The cost of production must vary widely from tract to tract and should depend upon the agricultural practices and the outturn per acre. It will be well to compare the cost of production with the prevailing market price for the produce at present and before the depression. In the absence of figures from the cultivators themselves about the cost of production, the figures available in the Agricultural Research Stations representative of the tracts they are located in, have been utilized for the purpose. The data on cost of cultivation are from non-experimental areas of these stations and still they must be considered higher that what a typical cultivator might be spending in the tract. Generally better attention is paid on the stations to the cultivation and manuring of the crop and to compensate for the increased expenditure on these items greater yields are usually obtained than in the neighbourhood. From the figures given in Table 9, it will be seen that the cost of prducing 1 cwt. of paddy varied from Rs. 2-6-0 to Rs. 3-2-0 before 1930 when the average market price of 1 cwt. of produce ranged between Rs. 5 and Rs. 5-8-0, i.e., the cost of production was about half the value of produce. The cost of production has, however, gone down in 1932-33 since the depression. It varies only between Rs. 1-10-0 and Rs. 2-5-0 while the average market price of the produce ranges between Rs. 2-4-0 to Rs. 2-12-0. The production cost which formed only about 50 per cent of the produce value before the depression has now gone above 70 per cent. The cost of production has not gone down in proportion to the loss in value of the produce and does not leave a sufficient margin for the cultivator to meet his other demands from. Recently the Paddy Specialist has set apart a special area in each of the Agricultural Research Stations under him where rice is to be grown as a commercial crop to work out the economics of rice cultivation in the respective places. Figures for production are available for only one year (1933-34) and these are given in Table 9.

TABLE 9.—*Figures for cost of rice production at the Agricultural Research Stations (non-experimental areas).*

Items.	1927-28 Palur.	1928-29 Samalkot.	1928-29 Kalhasti-Semi dry.	1928-29 Talipamba.	1927-28 Central Farm, Coimbatore.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Preparatory cultivation ..	18 12 4	10 13 6	12 14 5	15 13 0	12 3 7
Manure and manuring	21 15 7	10 9 1	15 10 6	20 0 0	16 10 0
Seed and sowing	10 8 7	10 1 1	4 1 0	10 5 0	8 5 0
After cultivation	3 7 6	3 12 11	4 0 11	2 13 0	8 1 1
Irrigation	3 5 5	..	4 0 0	0 5 0	8 14 2
Harvesting and threshing ..	7 12 0	34 1 7	9 8 9	6 11 7	25 8 0
Total ..	**65 13 5**	**69 6 2**	**50 3 7**	**55 15 7**	**79 10 10**

Items.	1927-28 Palur.	1928-29 Samalkot.	1928-29 Kalhasti-Semi dry.	1928-29 Talipamba.	1927-28 Central Farm, Coimbatore.
	LB.	LB.	LB.	LB.	LB.
Yield	3,094	3,000	2,000	2,000	4,100
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Cost of production per cwt. of paddy	2 6 4	2 8 2	2 12 8	3 2 2	2 3 0
Average Market price per cwt. then ruling.	Rs. 5 to Rs. 5-8-0 a cwt.				
	1932-33.				1933-34.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Preparatory cultivation ..	14 12 4	11 14 6	12 10 9	11 6 0	25 0 0
Manures and manuring	14 11 2	6 13 2	8 8 1	16 3 0	10 0 0
Seed and sowing	6 8 6	8 3 4	2 13 6	8 0 0	7 0 0
After cultivation	0 7 3	4 0 0	2 8 6	1 11 5	5 8 0
Irrigation	2 4 0	..	..	..	8 0 0
Harvesting threshing	7 10 6	18 1 1	4 11 3	4 13 1	19 0 0
Total ..	**46 5 9**	**49 0 1**	**31 4 1**	**42 1 6**	**74 8 0**
	LB.	LB.	LB.	LB.	LB.
Yield	3,094	3,000	2,000	1,800	3,472
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Cost of production per 1 cwt. of paddy	1 11 0	1 13 4	1 12 0	2 9 11	2 6 6
Maruteru price per cwt.	Rs. 2 to Rs. 2-8-0 a cwt.				
Agricultural Research stations.	Borhampore.	Maruteru.	Coimbatore.	Pattambi.	Adutarai.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Cost of producing 1 cwt. of paddy during 1933-34 at	1 5 6	1 5 6 single crop. 1 9 3 two crops.	1 14 9 single crop.	2 14 2 single crop. 2 4 1 two crops.	1 15 2 single crop. 1 14 8 two crops.

CHAPTER II.—QUALITY OF RICE IN THE MARKETS IN RELATION TO AGRICULTURAL PRACTICES.

The chief characteristics according to which the paddy varieties coming into the markets may be classified are —

(i) Size of grain—whether fine, medium or coarse,
(ii) colour of rice—whether red or white,
(iii) texture of rice—whether hard and flinty or soft and mealy,
(iv) the milling qualities of rice, and
(v) the percentage of rice obtained to paddy.

10. *Differences according to size of grain.* In the paddy markets, varieties are classified into fine (*sannam*), medium or coarse (*perinellu* or *mudhaka dhanyam*). This classification is more or less guided by the ratio of length to the width of the grain. The finer varieties which are liked by the well-to-do classes, generally fetch a better price than the coarser ones. But the poor classes, who chiefly consume parboiled rice, would prefer a coarse grain. Though size of grain may be a varietal character, soils and seasons do affect it. It is the common experience among paddy growers in this Presidency that when fine varieties are continuously grown for some years on heavy delta soils or under highly manured conditions, they tend to become coarse to some extent. They try to get over this difficulty by trying to exchange seed of the same variety from one tract to another. GEB. 24, a variety noted for its fineness, has been under distribution in the Godavari and Kistna districts for some years now. The produce of GEB. 24 now coming to the market from these areas is classed more as a medium than a fine variety, and as such, the variety is gradually losing the premium it got in earlier years. Similarly AEB. 65, a fine size *nellore samba* strain from Aduturai is now said to be becoming coarser after cultivation in the Madura district. The variety *molagulukulu* of Nellore has been under cultivation in the Tanjore district for over 20 years under the name of *nellore samba*. The produce of this variety from Nellore is classed as fine and is required by the high and middle class people in the city of Madras and other large towns of the Presidency for consumption as raw rice. The same variety from Tanjore is however, classed as coarse and is exported to Salem and Erode for conversion into parboiled rice to supply the needs of the poor classes. In addition to the differences in size, there are also other reasons why the Tanjore grown *molagulukulu* is not able to compete with Nellore grown *molagulukulu* in the raw rice markets. Again, *gunupur sannam* a variety grown in the Parlakimedi Agency, is highly valued in the Chicacole, Tilaru, Vizianagram and Vizagapatam markets. The produce of the same variety grown in the Ganjam and Vizagapatam plains neither maintains the size nor fetches the same price in the market. The *gunupur sannam* grown in the plains is there grouped under second grade *sannams*.

Similarly a case of shift in size to the finer side came to my notice during the present enquiry. In the Tinnevelly district strain AEB. 65 or locally known as *sembuli* is said to be getting smaller in the *pishanam* crop as a consequence of which it is losing its local market. It appears that when the crop is allowed a full period of growth, July to February, in the single crop area as in Tanjore and Madura, the grain becomes plump and coarse while when the same variety is cultivated as a *pishanam* or second crop, from October to February in an exhausted soil, following a first *kar* crop, the grain is finer. The question therefore of maintaining a particular size for varieties or strains under cultivation in relation to the needs of the market, would appear rather complicated.

11. *Colour of rice.* Rice is generally classed into white or red according to the colour of the bran or seed coat. In the polishing process it undergoes in the mill, practically the whole of the bran gets removed.

Under well-polished conditions, the deeply pigmented red rice can be made to appear white, but can still be distinguished from real white rice. The bulk of the demand is for white rice except in Malabar and parts of South Kanara and Tinnevelly districts. The presence of red grains in white rice is an objectionable feature, and the percentage of it in the sample often determines the price. The larger this percentage, the more is the polishing necessary and hence the more is the loss in milling. It is therefore very necessary to maintain the purity of the produce to obtain the maximum price.

12. *Texture of rice.* In the local markets there is a differentiation made between mealy and hence soft as against flinty and hard rice. The mealy and soft grains are usually characterized by a white abdomen and they easily break white milling. The harder and pearly grains not only suffer less by breakage in milling but they also polish better than the soft grains and hence obtain a better price in the market. As a general rule the short duration *kar* varieties are soft and they cannot usually be milled raw but are fit only for conversion into parboiled rice. While this character is mainly varietal in nature there are other considerations of quality in rice said to be influenced by the soil and the manurial and irrigation practices. In certain tracts like Dindigul, Erode and Salem, produce from lands manured with *kolingi* leaf (*Tephrosia purpurea*) and that from the well irrigated garden lands are highly valued. In the East Godavari delta, produce from the upland areas is considered more suited for raw rice making than the delta produce, the former being harder than the latter. Evidently the differences in quality have a relationship to the nutritive values. Colonel Macarrison's work has shown that rice from dry and garden land is more nutritious than rice from the typically swamp soils. In this connexion mention of a few markets where the produce from a specified area or village is held in high estimation may be made.

(1) *Gunupur sannam* from Gunupur Agency in Chicacole, Tilaru and Vizianagram markets.

(2) *Atragada* from Epur in Tenali market.

(3) *Pudupatti samba* from Rasipur taluk in Salem market.

(4) *Vallur pishanam* in Cuddapah market.

(5) *Samba* from Rettanai in Tindivanam market.

(6) *Sithyankottai samba* in Dindigul market.

(7) *Tiruvelly* rice in Wynad market.

(8) *Ganguli sannam* in Coondapoor market.

13. *Milling qualities.* In milling paddy by the aid of power driven rice hullers, a certain percentage of the grains gets broken in the operation. The variation in the percentage is greatly affected by the harvest practices of the tract. Excessive delay in harvest gives rise to a high percentage of breakage in milling raw rice. It is a well-known fact that the bulk of the Tanjore paddy that is coming into the markets is unfit for conversion into raw rice while the bulk of the Ganjam, Guntur,

Godavari and Nellore produce is milled as raw rice and marketed as such. This difference in the milling qualities of the produce of the two tracts should mainly be accounted for by the differences in the harvest practices.

In the Circars, the rice crop is harvested at a stage when the earheads are ripe and the straw is still green. The sheaves are allowed to dry in the field for three or four days, and then put into stacks where the grain undergoes probably some sort of curing. The stacks are allowed to remain for a period, up to about four months, depending on the convenience of the cultivator before threshing is carried out. In the Tanjore district, the harvest is delayed to the very end and the operations of harvesting and threshing are invariably finished on the same day. In this connexion, one may be surprised to learn that Tanjore district imports the same white *sirumani* rice that it itself grows on a large scale, into some of the towns in the district from Chidambaram mills. This is due to the fact that in the neighbourhood of Chidambaram, cultivators generally adopt the abovementioned Circar's practice of harvesting. That this practice does not obtain in Tanjore may be due to various reasons. There is first of all the insecurity of leaving the stacks in the field, tresspass of men and cattle being much more common here than in Circars. Secondly most of the lands are cultivated under the *varam* system, i.e., the cultivator and the landlord sharing the produce in definite proportions. The share of the cultivator being, however, much smaller than what obtains in other places the landlord cannot be sure of realizing his legitimate portion of the produce unless he is actually present during harvesting and threshing operations. In the Circars, however, the lease system is more prevalent and the tenant has the full liberty to handle the crop as he likes and deliver the stipulated rental in kind within a reasonable time.

Some of the other causes that are said to contribute to a high percentage of broken rice during milling are :—

(*a*) growing rice under partly semi-dry and partly wet conditions,
(*b*) summer ploughing of rice fields,
(*c*) growing rice under deep water conditions,
(*d*) submersion and lodging during the ripening stages or after maturity, and
(*e*) presence of grains of different sizes in the produce.

Though there is no scientific basis for the above statements except probably the experience of millers, we know it for a fact that reasons (*d*) and (*e*) do definitely exist. It is possible, however, to minimise the breakage in milling by adopting better harvesting practices and growing of pure strains which should eliminate uneven ripening and differently sized grains.

14. *Outturn of rice to paddy.* This is mostly a varietal character. *Molagulukulu* and GEB. 24 among others, may be mentioned in this connexion as giving a high outturn of rice to paddy. On this account, the popularity of GEB. 24 is on the increase in certain tracts. Rainy

weather during the setting period of the crop, an outbreak of disease, *Piricularia*, in Tanjore, Nellore and Cuddapah districts a mixture of varieties, etc., bring down the percentage of rice to paddy in milling. It is very pleasing to note that the millers in the delta areas recognize the merit of the departmental strains as regards colour of rice and uniformity of produce which characters contribute to increase the percentage of rice to paddy. It has been brought to my notice that the millers pay in several places a premium of an anna or two per bag of produce (166 lb.) obtained from departmental strains.

The percentage of chaff and half-filled grains in the sample also contribute to a low outturn of rice. The produce from Tanjore district is considered in the markets of Salem, Coimbatore, and Erode to contain an unduly large proportion of chaff and half-filled grains. This is evidently due to the indifferent attention paid to winnowing. As the purchaser is always on the look out for a place that supplies a better cleaned stuff, the producing centre has to pay good attention to winnowing. Paddy obtained from Mysore or Hindupur is considered to be of very good quality in this respect by the millers. In the case of Nellore, Godavari and Guntur districts, the purchasers being themselves millers, are able to watch the quality of paddy brought to the mills. They have a practice of testing samples for the percentage of chaff and immature grains present in each consignment and reducing the price offered accordingly. Preparation of clean produce for the market by better care in winnowing is very essential to maintain a market for the same. It will be well if the association of the millers and merchants could take a joint action in the matter.

CHAPTER III.—RICE CONSUMPTION.

15. *Forms of rice consumed in the Presidency.* In this Presidency, paddy is converted into either raw or parboiled rice for consumption. The consumption of rice, parboiled or raw, varies with the different tracts of the province. While the consumption of raw rice is confined to the upper classes of people, in the Tamil districts, all classes of people use only raw rice in the Circars and Ceded districts. The consumption is exclusively of parboiled rice in Malabar.

16. *Discussion of the data for determining the rice requirements.* Correct estimation of the production of rice, the surplus or deficit in each district is the first desideratum in any scheme to regulate the movement of rice between producing and consuming districts. However, in the absence of any correct statistical data, attempts in this direction present a number of difficulties. Data required for this purpose are :—

(i) production of clean rice and millets,
(ii) adult population,
(iii) proportion of rice and millets consumption, and
(iv) per capita requirement of cereals for the adult population.

17. *Production of clean rice and millets.* The estimated normal outturn of rice and millets as given in the Season and Crop Report of the Presidency has been taken for this purpose. Appendices 4 (*a*), (*b*) and

(c) record the quantity of clean rice and millets available for consumption together with the production of cereals per capita in each district after allowing for the seed requirements.

18. *Adult population.* The quantity of food required by a person will vary according to age. Babies may not consume any cereal food, and young children and old persons may not consume quite as much food as an adult. For calculation purposes we have to reduce the total population in terms of adult population which actually consume the total cereal production of the Province. This has been arrived at as follows.

According to the census report of 1931, the population by different ages of a few typical districts is given below :—

District.	Population in percentage of ages.		
	0–3.	3–10.	10–15.
Ganjam Plains	8·8	18·6	11·5
Vizagapatam Plains	7·9	19·7	11·9
East Godavari	7·6	18·9	11·6
West Godavari	8·3	18·8	11·8
Kistna	8·3	18·7	11·7
Cuddapah	7·2	18·9	11·6
Anantapur	8·0	19·7	11·8
Chittoor	8·2	19·1	11·6
Salem	9·6	19·3	11·9
Tanjore	8·1	17·7	10·9
Madura	8·7	18·7	11·4
Tinnevelly	8·7	17·9	11·3
Average ..	**8·3**	**18·8**	**11·6**

If children between 0 and 3 years of age are assumed not to take rice or millet nearly 8·3 per cent of the population need not be provided for. The percentage of population between ages 3 and 10, and between 10 and 15 is 18·8 and 11·6 respectively or 30·4 together. The food requirements of persons between ages 3 and 15 should vary much. The quantity required will be very small in the lower ages up to 6 or 7 and will gradually increase as the age advances, the quantity required by persons beyond the ages of 12 to 14 almost amounting to that required by an adult. If on an average two persons between ages 3 and 15 are assumed equal to an adult in the matter of food requirements, this portion of the population together with the children under 3 years comes to 23·5 ($\frac{1}{2}$ of 30·4 + 8·3) per cent. Therefore the percentage of population that has to be provided for is only 76·5. Even from this we may have to allow for persons of very old age who may require very little food. Though it is not possible to make any estimate towards this, it has been considered that if we exclude another 1·5 per cent of the population as those who do not require any food due to old age, we may not be far wrong. Thus the net percentage of population to be provided for is only 75 (76·5 — 1·5). This works out to 34·786 millions for the province.

19. *Proportion of millets and rice consumption.* There are no authenticated data to decide what percentage of the population consumes rice and what percentage consumes millets. A perusal of Appendix 4(c) will show that every district produces both rice and millets in varying quantities. Again districts producing more of millets and less of rice are invariably those that import rice from rice producing districts. It is found that normally there is very little movement of millets from district to district which should mean that what is produced in a district is usually consumed there and any surplus left over is stored for future requirements. If we can correctly estimate the quantity of millets required per head of the adult population, we might, from the production figures, estimate the proportion of the population in each district that are rice eaters. It is on the correct estimation of the daily ration per head of the population and that the quantity of cereal surplus or deficit for each district will depend. Even a small difference in the actual and estimated daily consumption per head of the total population would make a big difference in the total requirements. For example a difference of 1 oz. in consumption per head per day would amount to nearly 400 thousand tons of rice in the annual requirements of the province. It is, however, well to remember that after all the figure for production is only an estimated one, though there are no reasons to believe that it may be far from the actual.

20. *Per capita requirement of cereals for adult population.* At the Crop-planning Conference, recently held at Simla, mention was made that an adult took 1·25 lb. of rice per day in Madras some ten years ago and that there has been a growing tendency for more people to take to rice diet. Colonel McCarrison mentions the quantity of polished rice taken per day per head of the population as 21 oz. for a poor Hindu family and 23 oz. for a well-to-do family, besides other food stuff in the way of pulses, milk, oils, vegetables, etc. Dr. Slater in his studies of South Indian Economics estimates the daily ration of raw rice at 27 oz. and of ragi at 25 oz. In the absence of any recorded statistical data, on this point, the best way to arrive at the actual ration would appear to be to use a number of these arbitrary figures and see how they agree or differ from the actual state of things determined by taking into consideration the total production, the exports and imports and the probable consumption of cereals in each district.

TABLE 10.—*Requirements of the province on adult and total population at* 1·23 *and* 1·25 *lb. per head per day.*

	Total population.		Adult population.	
	46,381,000		34,786,000	
Ration in lb.	1·25 (or 4 cwt. per year). (in 1,000 tons).	1·23	1·25 (in 1,000 tons).	1·23
Total quantity of food required.	9,421	9,276	7,065	6,957
Total quantity of millets produced.	3,638	3,638	3,638	3,638
Balance	5,783	5,638	3,427	3,319
Total quantity of rice produced.	5,036	5,036	5,036	5,036
Total deficit	— 747	— 602	..	..
Total surplus	..	..	+ 1,609	+ 1,717

In Table 10 two rations at 1·25 lb. and 1·23 lb. per day are compared, first for the total population of the province, and then for the adult population as determined in paragraph 18. If the two rations 1·25 lb. and 1·23 lb. are allowed for the total population there should be a deficit of 747 thousand tons of rice for the former and 602 thousand tons for the latter. But if the same rations are allowed for the adult population only there should be a surplus of 1,609 thousand tons and 1,717 thousand tons respectively. The question of such huge deficits is not reconcilable when it is known that there is annually a net import into the Province of a quantity of rice between 2 to 300 thousand tons.

TABLE 11.—*Statement showing the net import of rice and paddy into the Presidency.*

	1929–30.	1930–31.	1931–32.	1932–33.	1933–34.
Import of rice into the Madras ports.	294,762	350,973	500,254	516,684	635,452
Import of paddy converted into rice.	91,940	86,296	100,318	50,302	57,089
Total ..	**386,702**	**437,269**	**600,572**	**566,986**	**692,541**
Deduct imports of rice and paddy *into Cochin port.*	154,901	196,296	285,758	269,047	289,854
Import into the Presidency ..	231,801	240,973	314,814	297,939	402,687
Add despatch * by rail from Cochin to Coimbatore, Nilgiris, Salem and Malabar.	Not available.	Not available.	Not available.	25,687	38,166
Total ..	**231,801**	**240,973**	**314,814**	**323,626**	**440,853**
Deduct exports	96,487	104,242	62,578	65,728	76,336
Net import into the Presidency.	**135,314**	**136,731**	**252,236**	**257,898**	**364,517**

* Figures for despatch of rice from Cochin by boat or by road are not available. They are not estimated to be large.

The deficits arrived at when the above rations are allowed for the whole population are much more than the actual net imports into the Province. It is more than probable that the ration mentioned, 1·25 lb. per head per day, is calculated on the whole population and not on the adult population only. If the adult population alone is to be considered the ration per head will have therefore to be increased. That the ration for an adult must be higher becomes evident from the consideration of the actual case of the two districts, Godavari and Kistna, for which the figures of production and export are available for the year 1930–31. If it is assumed that the net production in the districts, after deducting the exports is actually consumed in the two districts, and if this quantity is divided by the calculated adult population we get the ration of 1 lb. 10 oz. per head per day. (Table 12.)

TABLE 12.—*Statement working out the rate of consumption in Godavari and Kistna districts.*

	TONS.
Quantity of rice produced	999,689
Quantity of rice exported	247,144
Balance of rice consumed in the district ..	752,545
Quantity of millets produced	176,636
Total food consumed by 2,298,000 adults ..	**929,181**
Quantity consumed by an adult	·271 ton per year or 1·66 lb.—1 lb. 10 oz. per day.

If we now take this ration of 1 lb. 10 oz. per head of adult population per day and calculate the requirements of the Province we find that there is a deficit of 602 thousand tons of rice. If, however, this ration is slightly reduced to 1 lb. 8½ oz. per day which works out to 5 cwt. per year there is still a deficit but it is only about 22 thousand tons. (Table 13.)

TABLE 13.—*Requirements of the Province at two typical rations per adult.*

	At 5·33 cwt. per year or 1 lb. 10 oz. per day.	At 5 cwt. per year or 1 lb. 8½ oz. per day.
Total adult population ..	34,786,000	34,786,000
	TONS.	TONS.
Total food requirements ..	9,276,000	8,696,000
Total millets produced ..	3,638,000	3,638,000
Balance required	5,638,000	5,058,000
Total rice produced ..	5,036,000	5,036,000
Deficit	**602,000**	**22,000**

The question that next arises is whether this ration of 5 cwt. per year per head of the adult population can be adopted uniformly for all the districts of the Province. In Appendix 5, a ration of 1·23 lb. or 4 cwt. per year per head of adult population is allowed for each district and we find there is a surplus of 250 thousand tons of millets and 1,468 thousand tons of rice. If, however, the ration is increased to 5 cwt. per head, there is a deficit of 108 thousand tons of rice and a surplus of 87 thousand tons of millets. (Appendix 6.) But a closer scrutiny of the surplus and deficit figures of each district presents some glaring anamolies. In the case of Ceded districts which are often famine stricken, there is a surplus of both millets and rice whereas they are actually importing rice to the extent of 32 thousand tons from Kistna and Godavari every year. Similarly in the case of the Southern districts Madura, Ramnad and Tinnevelly there appears a big deficit nearly twice the quantity of the actual imports into the districts. In the case of Godavari, Kistna and Nellore

districts, the surplus arrived at is more than the actual exports from these districts. This anamolous position can be reconciled, only if we assume that the rations allowed must vary with the people of each district. The figure 5 cwt. per year may be too small for some districts and be more than the requirements for others.

It is reasonable to imagine that the average consumption per head of population must be more in the district where a large quantity of food grain is actually grown than in another which has to import the same from long distances. Moreover the quantity consumed per head will vary according to whether it is millets or rice. From the figures available for Ceded districts it must be assumed that the per head consumption of millet must be much more than that allowed for rice in purely rice districts like Tanjore and Godavari. Even in rice, people of different districts eat it in different forms as was pointed out in paragraph 12. The quantity of rice consumed must vary according to whether it is fresh raw rice, old raw rice or parboiled rice. The ration allowed for people in Circars who mainly consume fresh raw rice must be more than for people in the Tamil districts who consume mostly parboiled rice. Taking into consideration in the case of each district, the total quantity of cereals produced, the quantities of exports and imports of cereals and the adult population, the daily ration required per head of the population may be roughly arrived at as given in Table 14.

TABLE 14.—*Statement of daily ration of rice and millets per adult fixed for each district.*

District.	Millets.	Rice.	Remarks.
	(In ounces).		
Circar—Ganjam, East and West Godavari, Kistna and Guntur.	26	26	Producing districts and consume raw rice.
Nellore	32	26	Do.
Ceded districts	36	24½	....
Anantapur	26	24½	....
Chingleput	26	24½	Producing district. Partly raw and partly boiled rice.
Tanjore	26	24½	....
Coimbatore	26	24½	Industrial town and garden land cultivation.
South Kanara	26	24½	....
South Arcot	26	24½	....
Malabar	26	24½	....
Madras	..	22	Purchasing centre.
Trichinopoly	26	19½	Purchasing districts, consume boiled rice.
North Arcot	26	19½	
Salem	26	19½	
Chittoor	26	19½	
Ramnad	26	19½	
Tinnevelly	26	19½	
Madura	26	19½	
Nilgiris	26	19½	

21. *Surplus or deficit of rice in the districts.* The consumption figures for rice which vary from 19½ to 26 oz. per head per day have been used in calculating the surplus and deficit of cereal production for each district (Appendix 7) and these are found to approach fairly the export and import figures available.

The districts that have an appreciable surplus available for export are Godavari, Kistna, Nellore, Guntur and Tanjore which all have an assured supply of water from the rivers Godavari, Kistna, Pennar and Cauvery.

	Surplus. TONS.		Surplus. TONS.
Godavari East	59,905	Guntur	32,664
Godavari West	166,670	Nellore	71,746
Kistna	129,364	Tanjore	124,293

Next to these come the districts Ganjam, Chingleput, South Arcot and North Arcot which have a small surplus in years of good harvests.

	Surplus TONS.		Surplus TONS.
Ganjam	22,855	South Arcot	20,599
Chingleput	22,337	North Arcot	17,734

Then there are districts like Malabar, Coimbatore, Salem and Vizagapatam which always show a deficit, and have to import rice to meet their requirements.

	Deficit. TONS.		Deficit. TONS.
Madras	109,220	Salem	92,757
Malabar	247,048	Vizagapatam	65,965
Coimbatore	88,317		

Next there are the districts like the Southern districts, Ceded districts and South Kanara which also show a deficit but not to the same extent as those mentioned above.

	Deficit. TONS.		Deficit. TONS.
Tinnevelly	20,986	Anantapur	24,977
Ramnad	31,951	South Kanara	11,192
Madura	28,180	Cuddapah	5,221
Chittoor	13,191	Trichinopoly	3,416
Bellary	19,728	Nilgiris	20,965
Kurnool	4,472		

The results on this basis for the Presidency are given in a consolidated form in Table 15, and it is found that the total deficit arrived at nearly tallies with the actual normal imports of rice into the Presidency.

TABLE 15.—*Statement of rice requirements of the Madras Presidency (worked out on the basis explained above).*

Total population of the Presidency	46,381,849
Total adult population	34,786,382
Adult population for whom 3,638,833 tons of millets are sufficient	12,706,116
Balance of population requiring rice	22,080,266
Quantity of rice required in tons	5,146,151
Quantity of rice produced in tons	5,036,332
Deficit in tons	**109,819**

CHAPTER IV.—EXPORTS AND IMPORTS OF RICE.

22. *Exports—Foreign—Ceylon.* The foreign export trade of the Madras Presidency is carried on principally in parboiled rice and to a very small extent in paddy also. with Ceylon, Federated Malay States, and Strait Settlements and the districts which are concerned in this trade are Tanjore, Godavari and Kistna. Full details of the export from 1929 to 1933 are presented in Table 16. The export of 96,487 tons in 1929–30 which formed about 2 per cent of the total production in the Province has later declined. A perusal of exports to Ceylon represented in Figure IV a, b, reveals the complete decline of the Godavari trade while that from Tanjore, though showed signs of decline in the beginning, has since been recovering gradually. This should be accounted for by the fact that Godavari has been supplying coarse parboiled rice and paddy to Ceylon and with the fall in price and the improvement in quality of rice imported from Burma, it does not now pay the Godavari merchants to export a *similar quality* of rice to Ceylon. On the other hand Tanjore is supplying a special class of rice, *nuthu samba* or *white sirumani*, which is used by the well-to-do classes of Ceylon in preference to the cheaper Burma rice. There was the danger of this Ceylon market being lost to Tanjore as the price of this rice in Ceylon after meeting the railway freights was considerably higher than that of the Burma rice. There was a price difference of Rs. 2–12–0 per bag of 160 lb. between the two. Fortunately, however, the railway freight was reduced from Rs. 16–9–0 to Rs. 14–10–0 per ton, and this encouraged the exports once again.

When coarse rice from Godavari delta is not able to successfully compete with Burma in Ceylon market in spite of cheap steamer transport facilities through Masulipatam and Cocanada ports, it should be much more difficult for Tanjore to do so with any of her coarse rice so long as the transport is mainly by rail. In fact even with the reduced railway freight charges, the two delta tracts find it increasingly difficult to retain their markets within the Province, particularly in West Coast and Tinnevelly where Burma rice finds a way in through the seaports of Tuticorin, Cochin and Calicut. It is therefore very doubtful whether it will be possible for Madras to meet the great demand in Ceylon for coarse rice which is now almost fully met by Burma.

TABLE 16.—*Foreign Exports from Madras Presidency.*

Place from	Year. 1929–30.	1930–31.	1931–32.	1932–33.	1933–34.
	TONS.	TONS.	TONS.	TONS.	TONS.
(i) Export to Ceylon.					
(a) Rice.					
Cocanada	19,584	22,171	6,989	2,583	1,336
Masulipatam	1,510	1,124	1,678	1,267	405
Tanjore	67,353	72,923	47,838	56,121	70,266
Total ..	**88,447**	**96,218**	**56,505**	**59,971**	**72,007**

TABLE 16.—*Foreign Exports from Madras Presidency*—cont.

Place from	Year. 1929–30.	1930–31.	1931–32.	1932–33.	1933–34.
	TONS.	TONS.	TONS.	TONS.	TONS.
(i) Export to Ceylon—*cont.*					
(b) Paddy.					
Cocanada	425	951	777	1,139	230
Masulipatam	2,728	1,934	1,160	328	623
Tanjore	944	959	310	543	228
Total ..	**4,097**	**3,844**	**2,247**	**2,010**	**1,081**
(ii) Export of rice to Federated Malay States and Straits. (Through Negapatam, Porto Novo, Karikal, Cuddalore.)					
Total ..	**5,308**	**5,461**	**4,625**	**4,447**	**3,264**
(iii) Abstract.					
Ceylon—					
Rice	88,447	96,218	56,505	59,941	72,007
Paddy converted into rice ..	2,732	2,563	1,448	1,340	721
Federated Malay States and Straits.	5,308	5,461	4,625	4,447	3,264
Total exports from Madras ports in terms of rice.	**96,487**	**104,242**	**62,578**	**65,728**	**75,992**

23. *Federated Malay States and Strait Settlements.* The export trade with Federated Malay States and Strait Settlements is mainly in parboiled *sirumani* rice from Tanjore district through the ports of Negapatam and Porto Novo. The quantity exported in 1929–30 was 5,308 tons : this has since gone down to 2,778 tons in 1933–34. The return of a large number of Indians from Federated Malay States due to the general trade depression is the main cause for this fall in exports. When the general conditions improve we may expect a recovery of the exports, but the quantity concerned will still be too small to deserve any serious attention. It will thus be seen that while Madras Presidency can hope to maintain her foreign export in special classes of rice, with the help of reduced railway freights, it is doubtful whether she can ever build up an export trade in coarse rice with Ceylon and Strait Settlements in competition with Burma, Siam or Indo-China.

24. *Exports—Internal.* The exports of Madras rice within India are concerned with Mysore, Hyderabad, Bombay—Deccan and to a small extent with Trivandrum, Cochin, Pudukkottai, Pondicherry and Goa.

Mysore State. The demand from Mysore generally varies with the nature of the crop in the State. It takes both raw and parboiled rice and also some of the foreign broken and parboiled rice imported into Madras. The total exports from Madras to the Mysore State are set out in Table 17. The demand, though fluctuating, reveals a gradual decline due probably to better production within the State and the fall in the price of local produce.

TABLE 17.—*Quantity of paddy and rice imported into Mysore in pallas.* (1 *palla* = 3 *maunds.*)

Year.	Madras Presidency (excluding outside ports).		Madras port	
	Paddy.	Rice.	Paddy.	Rice.
1928–29	1,143	395,711	626	144,941
1929–30	825	378,265	6	112,942
1930–31	20,229	283,811	27	81,821
1931–32	4,884	313,598	1	79,804
1932–33	4,976	322,171	721	97,721
1933–34	2,740	216,109	1	66,719

Due to the reduction of railway freights on the South Indian Railway during the year 1933–34, Tanjore is also sending her rice to the markets of Bangalore, Kolar Gold Fields and Bowringpet. Though the rice from Godavari and Kistna deltas had a reputation for its quality in the Bangalore market, the volume of traffic has considerably decreased in the year 1933–34. This is partly due to the high proportion of freight charges when compared to the present value of the produce. The railway freight from Kistna delta to Bangalore varies between Rs. 2–4–0 and Rs. 2–12–0 per bag of three maunds (246 lb.). This works out to 25 per cent of the cost (Rs. 7–8–0 to Rs. 8) of coarse rice and 20 per cent of the cost (Rs. 9–10–0) of fine rice. Besides the freight there are the incidental charges at two ends. It will thus be seen that the cost of transporting rice from Kistna to Bangalore is nearly a third of the price of the commodity at the place of production. If the present rate of 13 to 15 annas per maund be reduced to the prewar level of 8 to 9½ annas, there is every possibility of the demand for Kistna rice in Mysore increasing though it is doubtful whether the demand for fine rice will do so. Mysore herself produces a large quantity of fine rice, the area under G.E.B. 24 having increased to a phenomenal extent in recent years.

25. *Hyderabad.* The State grows a certain quantity of rice mostly of a coarse type and draws her requirements mostly in the form of fine rice from the nearest delta districts of the Madras Presidency. The quantity of the Godavari and Kistna delta rice imported into the Hyderabad State is represented in (Figure V). The delta rice has a reputation in the Hyderabad market for its quality and freedom from grit and stones. No supply comes to the State from Central Provinces as the rice of Central Provinces is considered even inferior to Burma rice and would not compare with the delta rice. With the easy availability of large quantities of fine rice at anytime in the neighbouring districts there has been a tendency on the part of the Hyderabad merchants to sell away the locally grown rice early in the season and draw their requirements from the delta centres later on. The demand from Hyderabad on the delta markets fluctuates according to the local production (Figure VI). When the season is bad in Hyderabad she requires a large quantity of coarse rice also from the delta. The total export from the delta to the Hyderabad State is shown in Tables 18 and 19. It will be seen that Bezwada on account of the key position it occupies in the delta monopolises 60 per cent of this export

trade. The cities of Hyderabad and Secunderabad consume 60 per cent of the imports into the State from the delta but this import meets only half the requirements of the two cities, the balance being met by rice grown within the State. Till recently the State depended for her fine rice requirements on the delta. I, however, understand from the report received from the Director of Agriculture, Hyderabad State, that this demand for fine rice is likely to fluctuate with the increase in the cultivation of the fine varieties within the State. It is stated that such a development has already taken place in Warrengal and Khammammet areas. Therefore the delta must, ere long, be prepared for a fall in the demand in fine rice from the Hyderabad State. A scrutiny of Table 19 reveals that imports have been particularly high in 1930–31 and 1931–32 followed by a fall in 1932–33. The imports have begun to increase again from February 1934. The fall in imports in 1932–33 is stated to be due partly to the imposition of an import tax by the Government of His Exalted Highness and partly due to an increase in the local production. The Director of Agriculture, Hyderabad, thinks that the import duty by itself will not be enough to keep down the imports.

TABLE 18.—*Export of rice from Bezwada and via Bezwada combined to the Hyderabad State (in thousand maunds).*

Year.	From Bezwada.	Via Bezwada.	Total
1921–22	619	1,031	1,650
1922–23	952	703	1,655
1923–24	1,062	972	2,034
1924–25	891	473	1,364
1925–26	675	372	1,047
1926–27	498	154	652
1927–28	822	258	1,080
1928–29	594	832	1,426
1929–30	699	223	922
1930–31	990	730	1,720
1931–32	986	673	1,659
1932–33	509	221	730
Average ..	777 — 64 per cent.	493 — 36 per cent.	1,328

TABLE 19.—*Statement of monthly import of rice into Hyderabad and Secunderabad cities (in thousands of pallas)* 1 *palla* = 3 *maunds.*

Year.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.
1926–27	1	5	14	12	8	12	11	12	6	12	12	8
1927–28	5	8	12	11	15	9	5	11	10	9	7	7
1928–29	5	6	5	2	7	9	12	8	9	5	7	3
1929–30	2	8	7	21	8	15	23	20	5	23	34	21
1930–31	15	8	10	36	33	46	34	38	42	27	19	19
1931–32	18	19	33	34	32	31	26	18	22	20	12	30
1932–33	14	2	9	7	17	26	17	18	17	12	6	7
1933–34	8	22	10	11	34	45	36	32	..	..	..	..
Average ..	9	22	13	10	17	21	18	18	16	17	14	9

26. *Bombay-Deccan.* Places mentioned in the margin are some of the chief centres of import in the Bombay Presidency for the Godavari and Kistna rices. In the year 1930–31, the imports into the Bombay Presidency were over 18,000 tons of rice from Godavari and Kistna districts alone. A third of this quantity should have been sent from the Tenali and Repalle markets. The quantity exported to these places during the year 1933–34 is 22,690 tons. During my enquiry it was mentioned by the merchants that the imports to some of these centres are beginning to be irregular on account of the high railway freights and the availability of cheaper Burma rice which gets into the interior through the Bombay port. The information furnished by the Deputy Director of Agriculture, Southern Division, Dharwar, confirms this point. In the Gadag market, Burma rice is selling one rupee less per bag of 246 lb. than the rice imported from the delta. In the Bagalkot market, Bezwada rice is selling at 19 lb. per rupee as against 23 lb. of local rice (Hubli). The prices at the Bijapur market for Bezwada and Burma rice are compared in Table 20.

Miraj
Hubli
Gadag
Sangli
Katgeri
Bijapur
Bagalkot
Sholapur
Sholbal
Kudehi.

TABLE 20.—*Statement of price of rice at Bijapur market.*

Kind of rice.	Price per bag of 246 lb.		
	1931–32.	1932–33.	1933–34.
	RS. A.	RS. A.	RS. A.
Bezwada Rice.			
Kusuma	14 0	13 0	11 0
G.E.B. 24	16 0	15 0	13 0
Delhi Bogham	16 0	15 0	13 0
Burma Rice.			
Nani mill	11 4	10 2	9 0
Special	10 8	9 6	8 4
Mill sagondhi	15 0	13 10	12 12

Though delta rice is considered superior to either Burma or local rice, the cheapness of the Burma rice is contributing to a larger consumption of the same. It is also said that the quality of Burma rice has improved considerably, compared to what it was ten years ago. If Burma rice is allowed to capture these markets by virtue of its cheapness, the demand on the delta rice is sure to decline eventually and it will be very difficult to regain the market when the people get once accustomed to use cheap Burma rice. A small difference in price between the delta and Burma rice might not affect the consumption of the former because of its quality and this can only be effected by a reduction in railway rates which are now nearly double those that obtained in 1914–15. At present the freight charges to the places in the Bombay Presidency vary between 2½ to 3 Rupees per bag of 246 lb. A reduction of even 4 annas per maund would reduce the price of the delta rice by 12 annas per bag.

27. *Goa.* The export of rice to Goa from South Kanara district through the two minor ports of Hangarakotta and Coondapoor, mainly as boiled rice, is presented in Table 21. It is said that the decline here is also due to the inflow of Burma rice through the Bombay port.

TABLE 21.—*Export of rice from South Kanara district to Goa (in tons).*

Ports of despatch.	1930–31	1931–32	1932–33	1933–34
Hangarakotta	1,771	1,217	789	865
Coondapoor	729	800	675	418
Malpe		8	2	..
Total ..	2,500	2,025	1,466	1,283

28. *Other Minor Centres : Pudukkottai, Pondicherry, Trivandrum, Trichur.* Supplies of rice and paddy to these centres are generally drawn from the nearest producing district. Trivandrum obtains a large portion from the Tinnevelly district and a small quantity of a special parboiled rice, *Tiruppur Samba* or G.E.B. 24, from Madura, and some raw rice from Nellore. Formerly, Periyakulam taluk in Madura district and Sankarankoil taluk in Tinnevelly district were supplying parboiled rice to the labour population of the Travancore hill plantations. Owing to higher cost of transport from these places to the plantations as compared to the cheaper transport facilities for Burma rice from the Cochin port, the trade has declined. Pondicherry obtains its requirements from South Arcot, Tanjore, Chingleput and Madras. The quantities supplied in the two years 1932–33 and 1933–34 are noted in Table 22. The demand of the Pudukkottai State is met from the adjoining districts, Trichinopoly, Tanjore and Ramnad. Major portion of the supplies is transported in country carts, and the quantity sent by rail is so small that the figures have been omitted.

TABLE 22.—*The quantity of rice sent to Pondicherry from different districts.*

Districts.	1932–33.	1933–34.
	MAUNDS.	MAUNDS.
North Arcot	5,992	1,399
South Arcot	15,858	14,170
Tanjore	48,253	65,612
Madras	*	22,525
Chingleput	18,074	..

* Not available.

29. *Imports.* Imports into the Presidency may be conveniently classified into—

(1) Foreign imports.
(2) Coastwise imports.
(3) Import by rail and road.

A glance at Table 23 reveals an increase in imports of rice from 300 thousand tons in 1929–30 to 635 thousand tons in 1933–34. The above figures include the arrivals in the port of Cochin. As most of the Cochin imports get distributed within Cochin and Travancore States, we might leave out this quantity from consideration. The imports will then be

175 thousand tons and 366 thousand tons during 1929–30 and 1933–34 respectively. This high increase is inexplicable in the face of falling exports from the Province and increased estimated outturn within the province (Figure VII). The possible explanations are that either the actual outturn may have fallen short of the estimate or that the rice consumption in the province may have increased. It appears to me that it is very likely that the consumption of rice in the country should have been increasing with the availability of cheap rice in the markets. It is not possible to check the accuracy of the estimated production. During my enquiry I was told that the production in South Kanara, Malabar, and Central districts has not been quite satisfactory during the years 1932–33 and 1933–34. It is also stated in general that the poor price obtained for the produce has removed the incentive on the part of the cultivator to manure his fields.

TABLE 23—(*a*) *Import of rice in tons into the Madras Presidency.*

	1929–30.	1930–31.	1931–32.	1932–33.	1933–34.
Foreign (Siam and Indo-China).	4,892	3,585	17,197	35,293	77,407
Burma	278,247	331,838	446,127	377,141	523,379
Other Provinces (Calcutta, Bombay, Sind ports), Orissa and Central Provinces by rail ..	11,623	15,550	36,930	104,250	34,666
Total import ..	294,762	350,973	500,254	516,684	635,452
Import into Cochin ..	119,613	157,486	240,353	243,048	268,943
Import into Madras Presidency.	175,149	193,487	259,901	273,536	366,509

(*b*) *Import of paddy in tons into the Madras Presidency.*

Foreign	699	1,551	9,030	..	4,379
Burma	102,942	98,535	106,349	61,032	75,493
Bombay	8,222	8,629	4,868	7,078	3,280
By rail from Central Provinces and Orissa	26,549	21,083	30,430	7,405	Not available.
Total import ..	138,412	129,798	150,677	75,515	83,152
Import into Cochin ..	49,148	55,164	64,609	35,887	30,363
Import into Madras Presidency.	89,264	74,634	86,068	39,628	52,789

30. *Foreign Imports—Siam and Indo-China.* The two foreign countries that are trying to build up a trade in rice with Madras are Siam through Bangkok Port, and Indo-China through Saigon (Vide Appendix 8). The imports of rice into the Presidency from these two countries began in 1927–28. Siam stopped her export during 1929–30 and started it again in 1930–31 with 101 tons which has risen to 53,259 tons in 1933–34. But a review of the monthly imports from Siam and Indo-China from December 1933 to July 1934 (Figure VIII and Appendix 9) will show that the imports are getting alarmingly high and continuous into all the important ports of the Presidency. Indo-China commenced with a large export along with Siam and has been maintaining it with a very gradual increase except in 1928–29 when there was a sudden rise in the quantity.

The imports from these two countries were until recently, mainly broken rice, and occasionally paddy also. Of late, however, the import of paddy has considerably increased and small consignments of parboiled and raw rice have also begun to arrive in the market. The Siam rice whose quality compares favourably with our poor quality rice combined with its cheapness is sure to place the home grown product soon at a disadvantage. The import of the very cheap broken rice was hitherto mainly responsible to bring down the price of local rice relatively, but the import of whole rice, both raw and parboiled, is capable of causing greater disturbance in the future. The price of the local produce which is already bad is sure to get worse.

31. *Coastwise Imports—Burma.* The province of Burma has been enjoying an unfailing trade with the Madras Presidency from a very long time. Appendix 10 (*a*, *b*, *c*) present the total imports of paddy, rice (raw, parboiled and broken) into the principal ports of the Presidency. In the prewar days Burma was not supplying parboiled rice. After 1920 more mills in Burma were equipped with parboiling plants to meet the growing demand for parboiled rice in Ceylon, Straits and South India, particularly the Malabar coast. In the earlier years of the trade in parboiled rice, the Burma produce was definitely poor in quality characterised by an unwholesome smell on cooking and it could not make much headway. The process of preparing parboiled rice has since undergone improvement so much so that some of the grades now obtained are almost the same in quality as that made locally in the Presidency mills. The quantity of annual imports for the period 1924–34 is graphically represented in Figure IX. The average imports of rice alone that were ranging between two to three hundred thousand tons in the period 1924–30, have risen to about three to five hundred thousand tons during 1933–34.

32. *Kinds of imported rice.* Burma sends all kinds, raw rice, parboiled rice and broken rice but the quantity of raw rice sent is comparatively small. Indo-China and Siam are sending broken rice mostly. This broken rice is, however, graded into different sorts according to the size of the grains constituting the sample. It is stated in some quarters that the broken rice which is largely imported meets a particular and special need of the labouring classes and so cannot affect the prices of paddy and rice as a similar product is not available in this country in quantities required to meet this demand. Broken rice is only a by-product in the preparation of rice for the market. In a country where there is a large exportable surplus of paddy which has to be milled and exported as rice, and where the milling is concerned with a mixed produce of varieties grown essentially under swampy conditions, the quantity of broken rice produced must be large. Since the finished product sent out by these countries to the world markets must be attractive, scrupulous care is taken to remove all broken rice. This broken rice must be disposed of somehow, irrespective of whether the price it obtains is economical or not. This is exactly the position of the broken rice that comes into the Madras market from Siam and Indo-China. A bag (240 lb.) of Siam broken rice A-1 and A-2 qualities is sold in Madras at Rs. 6–6–0 and Rs. 5–6–0 respectively when a bag of the parboiled rice from Godavari delta sells at Rs. 8–10–0. There is no produce of the same quality available locally in the province which can compete with the broken rice. The percentage

of broken rice obtained in the milling of rice in the Presidency is comparatively small due to the fact that varieties of paddy are milled separately, and about 50 per cent of the paddy is converted into parboiled rice. Further in the northern districts the milling of raw rice is mostly confined to coarse rice and no attention is paid to the complete elimination of broken grain, firstly because the milling charges will go up and secondly the finished product is mainly intended to meet the demand of the poorer classes where cheapness is the main consideration. The little quantity of broken rice that is obtained is generally consumed in the vicinity of the mills and a regular trade in broken rice does not exist.

33. *Influence of imports on the price of local rice and millets.* Millers in Nellore district generally pay better attention to the elimination of broken rice than millers in other areas, as they cater to the needs of the upper and middle class people who can pay better prices. The quantity of broken rice obtained is sent out to the local bazaars. Even in these local markets, it comes in competition with the imported broken rice obtained from Madras and hence has to be sold much cheaper than before. As the price of milled whole rice is fixed in reference to the amount realized from the sale of the broken rice obtained from it, the comparatively low price obtained for the latter does necessarily affect the price of the former. If the price of the whole rice is proportionately increased, it cannot sell against the imported whole rice and this the miller cannot afford to do. To maintain his margin of profits he naturally offers less for the paddy bought of the cultivator and it is in this way that the price of the home grown produce declines.

Broken rice is largely consumed as such by the poor classes, mainly labourers, and it is also utilized by the Indian restaurants and the innumerable tea shops in the country side. The whole rice and millets that were being used formerly are now, being replaced by broken rice, mainly due to its cheapness. The result has been that the consumption of the local rice and millets has been affected in the country. Moreover, the appearance and cooking qualities of the better grade broken rice, A-1, are so good that it is more than probable that some of the middle class people in this province would soon begin to use it for their consumption. The rice when cooked almost approaches the cooked rice of the fine *sirumani* variety of Tanjore. The very fact that the imports of broken rice are on the increase is in itself an indication that the people using them are also on the increase, and to that extent the demand for whole rice or millets must show a decrease. The inevitable result of a fall in price should follow consequent on more supply and less demand in the places of production. The demand for the local produce has not only gone down at the ports where the broken rice actually arrives but also into the interior where the broken rice gets transported.

34. *Distribution of the imported rice from ports into the interior.* A close study of the movement of the imported rice from the different ports shown in the Presidency map (Figure X) shows how it permeates to every nook and corner of the districts whose production is far short of the local requirements. The actual quantities of paddy and rice supplied during 1932–33 and 1933–34 from the different ports to the consuming districts

are represented in Table 24. It is found that the figures for 1933–34 show an enormous increase over those for 1932–33. This increase is noticeable in the case of every individual centre of the consuming districts (*vide* Appendix II). The flooding of the markets at the ports with cheap imported rice from foreign countries and Burma and the distribution of the same to such of the markets in the interior having a short lead from these ports, have tended to considerably depress the price level. The producing areas in the Presidency have naturally to regulate their price of the commodity in relation to the price of the imported rice so as to be able to compete with it.

TABLE 24.—*Statement of the quantity of rice and paddy despatched from Ports to the districts in the Presidency.*

Ports.	Districts.	Quantities in railway maunds. 1932-33. Paddy.	1932-33. Rice.	1933-34. Paddy.	1933-34. Rice.
1 Vizagapatam ..	Anakapalle and Vizianagram	..	..	..	8,814
2 Madras, S.I.R.	Chingleput, South Arcot, North Arcot, Salem, Tanjore, Madura, Pondicherry and Trichinopoly	1,139	17,280	16,071	126,819
Madras, M.S.M.	Chingleput, North Arcot, Chittoor, Cuddapah, Nellore, Bangalore, Salem and *Bowringpet*	Not available.		9,361	878,007
3 Cuddalore ..	Salem, South Arcot, North Arcot, Tanjore and Trichinopoly	548	62,546	430	83,790
4 Tuticorin ..	Tinnevelly, Ramnad, Madura, Trichinopoly, Coimbatore, Tanjore, Ramnad and Salem.	9,998	631,287	36,318	641,387
5 Cochin ..	Coimbatore, Nilgiris, Salem, Madura, Malabar and South Kanara	5,492	700,357	12,492	997,155
6 Calicut ..	Coimbatore, Nilgiris, Malabar and Salem.	4,761	312,079	5,658	331,772
7 Azzikal ..	South Kanara and Malabar	1,435	3,669	1,560	10,699
8 Cannanore ..	Do.	23,302	21,981	60,331	67,716
9 Tellicherry ..	Do.	4,713	14,580	7,451	16,214

The largest producing areas, viz., Kistna, Godavari, Nellore and Tanjore have the additional disadvantage of being situated away from the districts like Salem, Malabar, Coimbatore and Nilgiris which have a big demand. The charges for transporting the produce by rail over long distances being high, the price offered by the millers to the growers has to be reduced so that the transported product may sell in the markets, where imported rice is competing. The relative advantage which the imported rice enjoys over that of the home grown rice will be apparent, from a perusal of Table 25 which gives the comparative distances between the ports and the centres of consumption on the one hand and that between the centres of production and the same centres of consumption on the other.

TABLE 25.—*Statement of comparative distances in miles from ports and producing centres to centres of consumption.*

* Ports and centres of production.	Centres of consumption. Salem market.	Krishnagiri.
Cuddalore	119	..
Madras	..	163
Bezwada	476	..
Tadepalligudem	555	448
Nellore	318	273
Nidadavole	443	498
Shiyali	154	..
Koradacheri	234	..
Kumbakonam	176	..

* Places underlined represent ports and the rest centres of production.

TABLE 25.—*Statement of comparative distances in miles from ports and producing centres to centres of consumption*—cont.

* Ports and centres of production.	*Centres of consumption.*					
	Erode.	Coimbatore.	Pollachi.	Udamalpet.	Mettupalaiyam.	Coonoor.
Cochin	180	126	144	163	147	163
Calicut	177	115	135	154	138	154
Tadepalligudem ..	580	640	663	682	663	678
Nellore	355	417	437	449	437	453
Shiyali	175	237	221	202	253	273
Kumbakonam ..	143	205	199	170	225	263
Tiruvarur	145	207	201	170	227	263
Ranipet	..	223	..	..	..	247
Vellore	..	238	..	..	..	262

	Koilpatti.	Madura.	Virudunagar.	Tinnevelly.
Tuticorin	42	99	69	38
Shiyali	240	183	210	280
Kumbakonam	208	151	178	248
Tiruvarur	210	153	180	250

	Cuddapah.	Vellore.	Chittoor.	Bangalore.
Madras	189	81	101	222
Bezwada	309	305	285	490
Tenali	289	285	265	470
Mayavaram	..	176	196	311

	Vizagapatam.	Anakapalle.	Vizianagram.
Vizagapatam	..	21	38
Nidadavole	139	118	177
Biccavole	105	84	143
Berhampore	173	..	135

* Places underlined represent ports and the rest centres of production.

The places where imported rice has not penetrated are the districts of Bellary, Kurnool and a major portion of the Anantapur district. This is due to their being situated far from any ports of landing. The districts of Godavari, Kistna, Guntur and northern parts of Nellore do not obtain foreign rice as none of the ports nearby import foreign rice and as the local surplus produce itself sells cheap. However, in the case of Tanjore, a district having a large surplus, due to its nearness to the ports of Cuddalore and Negapatam where foreign rice arrives, the imported rice is offered for sale.

As an example of how small differences in quality and price affect the trade differently in two different centres the following case may be mentioned. Parboiled rice is usually in great demand in Malabar and Coimbatore districts. This demand was being partly met by the Godavari delta until very recently. Now parboiled rice from Burma is imported straight into Calicut and sells at 4 annas per bag of 2 maunds cheaper

than this with the result that the export from the Godavari delta has dwindled. (Table 26). The same rice from Godavari, however, sells at Madras where people who are used to this do not mind paying a few annas more than for the Burma rice. The huge increase in the import of the Godavari rice into Madras in 1933–34 must be partly accounted for by the failure of the crops of Chingleput, which used to meet a portion of the Madras demand. In Malabar where people do not mind very much the quality, the price is the determining factor. Even in Madras, if the difference in price of the rice, from Godavari and from Burma, had been a little more, the imports from Godavari would probably have been adversely affected.

TABLE 26.—*Export of parboiled rice from the West Godavari district.*

To.	1930–31.	1933–34.	Difference.
	MDS.	MDS.	MDS.
Madras	406,690	1,060,360	+ 653,670
West Coast and Coimbatore ..	702,898	179,124	— 523,774

The price curves for parboiled, raw and broken rice at Madras from December 1933, to June 1934 represented in Figures XI-a and b, will show that the rise or fall in the price of local rice and millets closely follows that of the imported broken rice. Table 27 brings out the fall in the price of the different sorts of rice at some of the chief centres of production in the presidency from 1929 to 1934. It will be incidentally observed that the fall in the price of the fine rice has been even greater than for the coarse rice, the margin of difference between the two being much less now than before.

TABLE 27.—*Variation in price per bag of 166 lb. of rice.*

Year and months.	Burma coarse rice.	Cocanada coarse rice.	West Godavari rice (medium).	Nellore fine rice.	Kistna coarse rice.	Tanjore coarse rice.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
January 1929	9 13 0	9 8 0	..	14 2 10	..	8 15 5
December 1929	9 11 2	10 8 0	..	14 2 10	..	8 15 11
January 1930	9 0 7	9 3 6	..	14 2 10	..	6 11 3
December 1930	5 15 11	6 0 0	..	12 2 5	..	..
January 1931	5 14 2	5 6 0	6 0 7	11 2 2	8 7 0	..
December 1931	5 14 2	5 8 0	7 8 9	7 12 0	7 6 10	4 12 0
January 1932	5 11 6	5 5 0	6 15 8	8 1 7	5 6 5	4 8 7
December 1932	4 15 10	5 1 0	6 12 8	9 1 10	6 12 0	5 3 0
January 1933	4 13 4	4 10 0	5 5 5	8 12 5	5 1 0	4 8 7
December 1933	4 13 4	4 8 0	4 14 5	6 12 0	5 3 9	..
January 1934	4 4 6	4 0 0	4 14 5	6 12 0	4 4 10	4 5 6

The unchecked increase in the imports of foreign rice in the large consuming centres should in course of time result in a rapid fall in the demand of the local rice, unless the price of the latter is brought down to the level of the former. It has already been pointed out that the producing centres are at a great disadvantage from the point of view of distance between them and the consuming centres. Therefore, any successful competition between the two is possible only when special transport facilities are provided for the local produce and deterrent rates are levied for moving the imported rice into the interior.

35. *Imports from other provinces : Punjab.* A special class of raw rice of a superior quality called *Amritsar* or *Delhi* rice is obtained from Punjab in a negligible quantity to meet the demand of a small section of the Madras population, mostly Muhammadans and Gujaratis. 30,525 maunds of this rice was obtained during the year 1933–34. This rice is selling at 15 to 18 rupees per bag of 3 maunds in Madras, where the price of the local fine rice is only Rs. 9 to Rs. 10.

36. *Bengal.* Calcutta has been sending out a superior variety of parboiled rice called *seethasali* to the Madras, Coimbatore and West Coast markets both by sea and rail. Consequent on the fall in the price of the local fine rice, it does not now pay them to transport this rice in large quantities over such long distances. The quantity obtained by rail during 1933–34 was 12,370 tons. The quantities obtained by sea for the period 1929–30 to 1933–34 are recorded in Table 28.

TABLE 28.—*Statement of rice (in tons) obtained by sea into the Madras ports from Calcutta.*

To ports.	1929–30.	1930–31.	1931–32.	1932–33.	1933–34.
Cuddalore	..	27	..	..	..
Negapatam	37	..	..	..	..
Tuticorin	14	17	..	3,945	372
Madras	389	331	3,618	8,631	777
Ponnani	308	207	70	1,257	60
Calicut	36	34	185	4,555	..
Badagara	2	17	157	1,140	7
Tellicherry	789	696	1,662	2,523	392
Cannanore	12	24	60	716	83
Total ..	1,587	1,353	5,752	22,767	1,691

37. *Bombay.* The imports from Bombay presidency come through the West Coast ports into the districts of Malabar and South Kanara and these consist of both paddy and rice, but more of the former. A perusal of Table 29 will show that the import of paddy is decreasing and that of rice gradually increasing. The increase is especially noticeable in the case of South Kanara ports. This is due to the re-export of Burma rice arriving in Bombay. The paddy that is obtained from Bombay to the Malabar ports is of a long type and is said to make good broken rice required by some of the middle class people of Malabar who prefer to prepare their own broken rice. This has, however, gone down of late due to the high cost.

TABLE 29.—*Imports from Bombay Presidency into Madras ports (in tons).*

Ports.	1929–30.		1930–31.		1931–32.		1932–33.		1933–34.	
	Paddy.	Rice.	Paddy.	Rice.	Paddy	Rice	Paddy	Rice.	Paddy	Rice.
Madras ..	..	..	..	..	..	..	..	..	..	..
Cuddalore ..	..	..	..	6	..	..	..	116	..	84
Tuticorin ..	..	211	..	266	..	13	1,728	1,311	158	7
Kulasekarapatnam.	..	..	..	..	..	500	..	..	..	..
Ponnani ..	..	776	..	..	..	31	..	..	..	1,490
Cochin ..	3,110	86	2,664	92	3,317	..	2,696	2,628	956	259
Calicut ..	2,561	269	2,945	350	1,110	450	1,062	567	357	398
Badagara ..	4,944	210	5,054	346	2,464	45	946	425	783	50
Tellicherry ..	178	444	180	591	54	76	1	1,185	349	2,430
Cannanore ..	12	9	16	10	..	..	..	802	..	49
Azzikal ..	..	85	..	85	..	..	..	..	..	..
Total ..	10,805	2,084	10,859	1,746	6,942	1,117	6,734	2,603	4,386	4,691

TABLE 29.—*Imports from Bombay Presidency into Madras ports (in tons)*—cont.

Ports.	1929–30.		1930–31.		1931–32.		1932–33.		1933–34.	
	Paddy.	Rice.	Paddy.	Rice.	Paddy.	Rice.	Paddy.	Rice.	Paddy.	Rice.
South Kanara district—										
Mangalore ..	461	655	372	559	243	802	358	1,213	126	734
Malpe	65	236	72	231	..	356	12	371	..	597
Coondapoor ..	..	..	..	165	..	86	689	131	431	713
Hangarakatta	..	..	..	..	..	21	66	6	120	25
Kasaragod ..	..	..	..	..	..	6	7	..	..	..
Badar ..	..	..	..	5	..	..	..	13	..	22
Total ..	526	891	444	951	243	1,271	1,132	1,734	677	2,091

38. *Orissa.* The rice mills that have been erected in the districts of Ganjam and Vizagapatam within the last ten years import some paddy from Orissa to supplement the local supplies to keep their mills running for a [illegible] time in the year. The imports fluctuate according to the production in the two districts and in the Orissa country. The import is mainly by rail. The paddy from the Puri district, however, is got down in country crafts through the Chilka lake up to Rhamba in Ganjam, and thence carted or railed to its final destination. The quantity of paddy imported by rail at the different stations in the two districts is given in Table 30.

TABLE 30.—*Import of paddy into Ganjam and Vizagapatam districts from Orissa and Bengal Provinces by rail.*

To places.	1927–28.	1928–29.	1929–30.	1930–31.	1931–32.	1932–33.
	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.
Vizianagram ..	10,111	6,814	14,774	9,226	10,201	2,795
Kothavalasa ..	..	..	..	..	1,250	1,110
Pandruti ..	..	..	..	1,170	850	879
Chepurupalle ..	..	..	..	..	540	341
Vizagapatam ..	1,828	..	2,884	..	242	191
Bobburu	..	..	..	..	1,217	811
Berhampore ..	..	..	3,497	6,008	7,873	7,485
Somepata	..	..	..	..	320	504
Mandasa road ..	..	..	..	..	428	444
Palasa	..	..	..	..	530	1,893
Kota Bomali ..	..	..	..	..	1,025	1,385
Pundi	..	..	..	..	..	294
Tilaru	..	..	..	..	506	941
Naupada	..	..	..	..	..	598
Chicacole road ..	..	..	..	..	565	2,039

Places of export are—(1) Khurda Road, (2) Kalupara Ghat, (3) Balugam, (4) Delang Tapang and (5) Nirakarpur.

39. *Central Provinces.* The imports from the Central Provinces commenced only very recently with the opening of the Raipur-Vizianagram line. This new line connects directly one of the rice producing areas of the Central Provinces with Vizagapatam, a district which has been usually drawing her requirements from Ganjam and Godavari districts. The import is all in rice and consists of three varieties, *gurmatia* (coarse), *chida* (medium) and *hamsa barik* (fine). These directly compete with the three grades of Godavari rice, *konamani* (coarse) *akkulu* and *krishnakattukullu* (medium) and GEB. 24 (fine). In 1932–33, the Central Provinces rice ruled the markets of Vizianagram, Vizagapatam and Anakapalle because of the comparatively cheap rate at which it was selling. However, the demand for this rice soon declined partly on

account of its poorer quality and hence its unsuitability for consumption as cold rice, and partly due to the further fall in the price of Godavari rice. The quantities of rice imported by the stations in Vizagapatam district from the Central Provinces during the year 1932–33 are given in Table 31. The existing competition between the Godavari delta and the Central Provinces in the Vizianagram market is apparent from the figures in Table 32. A larger supply from the Central Provinces means a reduction in the import of Godavari rice. The successful retention of Vizianagram market by the Godavari delta will depend upon the continuance of the favourable railway freights which the Madras and Southern Mahratta Railway has allowed.

TABLE 31.—*Statement showing the quantities of rice imported into the markets of Vizagapatam district from Central Provinces, 1932–33.*

	Stations in Vizagapatam district.				
	Chepurupalle.	Vizianagram.	Kothavalasa.	Vizagapatam.	Anakapalle.
Total (tons)	1,860	16,486	2,550	4,150	3,367

TABLE 32.—*Movement of rice into Vizianagram market from Raipur and Ganjam side as against delta.*

Year.	Ganjam and Raipur.	Delta.
	MDS.	MDS.
1931	254,845	130,562
1932 *	637,873	1,503
1933	452,598	208,649

* Year in which Raipur commenced to import large quantities at very low rates.

40. *Mysore.* Though Mysore State herself imports a fairly large quantity of rice from the Madras Presidency she also exports a certain quantity of paddy and rice to a few centres in South Kanara, and North Arcot districts and to Erode. However, the major portion of the import from Mysore is in the shape of paddy into the northern taluks of the South Kanara district, through the ghat roads by country carts. It is called Ghat rice (coarse) in the Udipi and Coondapoor markets. Occasionally rice is also obtained from the Shimoga mills. Merchants at Udipi, Coondapoor, Ganguli buy paddy from Mysore side early in the season soon after the harvests, mill and store it as rice for selling later during the monsoon when the price usually rises. The approximate estimated quantity imported annually from Mysore through the ghats is given in Table 33.

TABLE 33.—*Estimated import of paddy and rice from Mysore to South Kanara district.*

To places.	In tons.	
	Paddy.	Rice.
Karkal	80	20
Coondapoor	4,350	325
Bynood	2,200	500
Udipi	2,000	500
Hangarakotta	300	500
Handadi	650	..
Total ..	**9,580**	**1,845**

The imports into Salem, Erode and Tiruppur are from Tumkur, Gubbi and Nittur by rail. The quantity imported from these centres is given in Table 34.

TABLE 34.—*Export of paddy from Mysore to Madras Presidency by rail.*

Places of exppert of Mysore State.	Place of import in the district of		
	North Arcot— Ambur, Vaniyambadi and Gudiyattam.	Coimbatore— Erode.	Salem— Salem market.
	MDS.	MDS.	MDS.
Gubbi, Tumkur and Nittur ..	37,966	21,960	10,530
Total ..	69,556 maunds.		

41. *Coorg.* Paddy from Coorg comes into Chirakal, Kottayam and Wynaad taluks of Malabar district. The trade with Coorg is mostly in the hands of the *Mappilla* merchants. They buy paddy in Coorg during the harvest time at cheap rates and stock it at convenient centres in the taluks for sale in retail. It is said that the Coorg paddy gives a very low percentage of broken rice, because the sheaves are allowed to cure for a few days after harvest. It is estimated that about 8,500 tons of paddy arrive from Coorg annually into the Kottayam taluk alone. It is not possible to give the quantities received in other taluks.

CHAPTER V.—MOVEMENT OF RICE WITHIN THE PROVINCE.

42. *Nature of produce dealt with.* Internal movement of paddy and rice in the Presidency may be differentiated into movement between districts and that within the district. Inter-district movement takes place mostly by railway and also by waterways wherever available. Movements within each district are carried on mainly with country carts and recently motor lorries are also coming into use. Although in general it may be taken that the surplus produce of one district is sent to another with a deficit, it is not uncommon to find that the surplus produce even of a local area within a deficit district is sent out to another district.

Before considering individually each of the surplus and deficit districts for rice, it is necessary to explain some outstanding features of the movement of the produce from the various producing areas. The Ganjam, Kistna, Guntur and Nellore districts send out their surplus produce mostly in the form of raw rice. Godavari, East and West, meet demands for both raw and parboiled rice. Except for the large circulation of paddy within the three districts, Godavari East, Godavari West and Kistna, caused by the rice mills competing with one another to increase the number of their working days, hardly any paddy goes out of these districts. In the case of Tanjore and minor producing areas in the south and Central districts, the supplies to the deficit districts are done in all

the three forms, paddy, parboiled rice and raw rice. Raw rice is not generally exported from the rice areas in the south except a single case where the rice mills in Chidambaram send a small quantity of raw rice to Tanjore, Cuddalore and Trichinoply. The raw rice demand in these districts is almost entirely met by the Nellore district. This is due to the fact that the major portion of the population in the South, Central and West Coast district use parboiled rice. Among them, a certain section of the people prefer parboiled rice prepared locally to that prepared in the large mills of the delta. The installation of rice hullers in almost all the important towns and villages of the southern districts has become a common feature and consequently the demand for paddy from the producing centres is continuously on the increase. It is this increasing demand particularly from Coimbatore, Salem, Trichinopoly and Madura districts, that is responsible for the smaller number of working days of the large mills in the Tanjore district.

Figures in Table 35 showing the total quantities of both paddy and rice imported into and exported from each district give an idea of the relative importance of the districts with regard to rice. The quantities mentioned are only those transported by rail and canals and do not include the transports by country carts for which no figures can be collected.

TABLE 35.—*Statement of the total arrivals and despatches of rice and paddy in maunds (thousands) into and from each of the districts in the Presidency by rail and canal only for the year* 1933–34.

Name of districts.	Paddy (thousand maunds).		Rice (thousand maunds).	
	Arrival.	Despatch.	Arrival.	Despatch.
Ganjam	..	..	107	240
Vizagapatam	13	..	1,296	..
Godavari, East	132	230	327	737
Godavari, West	253	1,189	42	2,760
Kistna	1,051	54	213	2,950
Guntur	10	6	520	736
Kurnool	..	..	658	..
Bellary	..	15	441	..
Anantapur	..	22	252	25
Cuddapah	..	..	433	..
Chittoor	8	3	491	..
North Arcot	191	16	175	158
Nellore	3	54	179	856
Chingleput	171	52	101	75
South Arcot	22	118	132	443
Tanjore	3	3,013	38	2,085
Trichinopoly	352	16	109	382
Madura	248	20	427	63
Tinnevelly	14	41	89	551
Ramnad	100	16	455	6
Coimbatore	1,986	..	1,703	13
Malabar	6	144	284	372
South Kanara	66	6	131	13
Nilgiris	..	..	182	..
Salem	337	32	226	9
Madras	115	25	2,189	1,007
Total ..	**5,081**	**5,072**	**11,200**	**13,481**

What each district obtains from other districts and exports to other districts in the shape of paddy and rice is given in Appendix 12 and 13. A detailed examination of the figures supplied by the Railway Company shows clearly how complicated is the movement of paddy and rice in the different parts of the Presidency. In the producing areas there are a number of milling centres and in the districts of deficit production there are a number of importing centres. It is found that every importing centre has dealings with a number of milling centres from which it draws its requirements in small quantities and in a similar way every milling centre supplies produce in small quantities to a number of importing centres in a particular area. For example Gudivada, a milling centre in Kistna, supplies rice to over hundred different stations, and every other milling centre in the same district has dealings with a number of similar stations. Again an importing centre like Ongole or Nandyal draws its supplies from about nine centres in Kistna, ten centres in West Godavari and seven centres in Guntur district. There is no organization worth the name to bring together the interests of the mill owners or the importers. There is rivalry and competition every where and the business done on such small scales can hardly be efficient. The present state of affairs may be partly due to want of mutual trust among the different millers and importers and partly to the absence of any standardized unit either by measure or by weight in dealing with the produce. The different milling centres of each producing area and the different importing centres of each district with whom they deal are given in Appendix 14 (*a*) and (*b*). The quantities of import into each district from the different producing areas are shown pictorically in Figure XIX.

Details of movement of rice in the various districts. The chief districts having exportable surplus are :—

Major—Godavari, East and West, Kistna, Guntur, (delta area), Nellore, South Arcot (Chidambaram taluk) and Tanjore.

Minor—Ganjam, Chingleput, North Arcot, South Arcot and Trichinopoly.

43. *Major producing districts—Godavari, East.* The varieties produced in this district are *rasangi, basangi, punasa-konamani, konamani, akkullu*, GEB. 24 in the first crop season and *garikisannavari* and *nallarlu* in the second crop season. Of the above *akkullu* may be said to belong to the medium group, GEB. 24 to the fine group and all the rest to the coarse group of rice. The production of fine rice in the district is small. The second crop varieties are invariably converted into parboiled rice for export. The other varieties are either made into raw or parboiled rice according to the requirements in the markets. Raw rice is usually sent to the markets in the Vizagapatam district and parboiled rice to the West Coast, Coimbatore, Pollachi, Madras City and Ceylon. As already pointed out in paragraph 22 of this report the trade with Ceylon has considerably declined. The supply to Vizagapatam is now and then being hampered by the influx of cheap rice from the Central Provinces. Recently small consignments of Burma rice have begun to arrive through the Vizagapatam port. It is feared that this import may increase in

view of the large consuming centres like Anakapalle and Vizianagram being quite near. The supply to the West Coast ports from Cocanada by sea and rail has also gone down. A comparative statement of rice sent out from the district in 1930–31 and 1933–34 is given in Table 36. It will be seen that all the usual channels of movement for the produce from East Godavari district are unsettled.

TABLE 36.—*Despatch of paddy and rice from East Godavari district.*

To districts.	1930–31.	1933–34.	Remarks.
	MDS.	MDS.	
By rail—			
Vizagapatam	252,489	509,749	Raw rice.
Madras	19,594	59,820	Parboiled rice.
Malabar	155,976	98,395	Do.
Coimbatore		24,312	Do.
Ganjam	Nil.	11,216	Raw rice.
Guntur	592	2,552	Do.
West Godavari (including by canals)	Not available.	29,175	Do.
Minor	Nil.	1,781	
Total	**428,651**	**737,000**	

To districts.	1930–31.		1933–34.		Remarks.
	Rice.	Paddy.	Rice.	Paddy.	
	TONS.	TONS.	TONS.	TONS.	
By sea—					
To West Coast ports	20,446	..	1,575	..	
To Ceylon	22,171	951	1,336	230	
Total	**42,617**	**951**	**2,911**	**230**	

To districts.	1932–33.		1933–34.		Remarks.
	Rice.	Paddy.	Rice.	Paddy.	
	TONS.	TONS.	TONS.	TONS.	
By canal—					
To West Godavari—					
Via Vizeswaram lock	2,886	14,903	966	6,186	
Via Narasapur lock	14	696	49	317	
Total	**2,900**	**15,599**	**1,015**	**6,503**	

44. *West Godavari.* This district also is capable of supplying both raw and parboiled rice. Unlike East Godavari, West Godavari has a large area under fine varieties of rice. Hence it supplies the fine rice requirements of both East Godavari and Vizagapatam districts. The mills at Gudivada, Bezwada and Dosapad in the Kistna district draw fairly large quantities of fine varieties of paddy, *krishnakatukulu* and GEB. 24 for exporting the same as rice to the markets nearby. The usual markets for the parboiled rice of this area, are the West Coast, Madras City and Coimbatore district. This demand for parboiled rice except in the case of Madras City has been going down. The despatch of raw rice is mostly to Hyderabad, Bombay, Bangalore, Guntur and Ceded districts. As a good portion of the surplus is sent away as paddy to

the neighbouring district (Kistna), the quantity of rice exported direct to Hyderabad, Mysore and Ceded districts, has been going down. The relative quantities sent out from this district during 1930–31 and 1933–34 are recorded in Table 37 which reveal the declining position of rice export from this district to Vizagapatam, West Coast, Mysore and Hyderabad. The marked increase in the supply to Madras City and the proportionate fall in the export to West Coast clearly points out its inability to supply a distant market where cheaper imported foreign rice is available.

TABLE 37.—*Despatch of rice in maunds from West Godavari.*

To districts.	1930–31.	1933–34.	Remarks.
By rail—			
Madras	406,690	1,060,360	Boiled rice.
Nellore	76,952	20,170	
Guntur	..	257,078	Raw rice.
Kistna by rail and canal	12,779	123,551	Do.
Vizagapatam	375,881	280,841	Do.
Hyderabad	92,631	5,064	Do.
Mysore State	260,480	217,654	Do.
Bombay Presidency	1,152	12,548	Do.
Kurnool	117,724	104,985	Do.
Bellary	174,006	77,626	Do.
Anantapur	22,869	36,080	Do.
Cuddapah	23,973	27,186	Do.
Chittoor	7,803	19,729	Do.
North Arcot	29,864	9,474	Do.
Via Arkonam South Indian Railway	7,155	2,140	Do.
East Godavari	293,895	..	Do.
East Godavari by canal	..	326,107	Do.
Salem	702,898	3,991	Parboiled rice.
Coimbatore		47,923	
Malabar		127,210	
Total	**2,604,752**	**2,759,717**	

	1932–33.		1933–34.		Remarks.
	Rice.	Paddy.	Rice.	Paddy.	
	TONS.	TONS.	TONS.	TONS.	
By canal—					
To East Godavari—					
Vizeswaram lock	14,640	7,179	10,990	4,801	
Narasapur lock	403	2,306	459	3,151	
Total	**15,043**	**9,485**	**11,449**	**7,952**	
To Kistna—					
Ellore lock	862	836	3,036	13,401	
Tadinada	178	14,102	466	1,761	
Lakshpuram lock	466	1,761	81	572	
Total	**1,306**	**16,699**	**3,583**	**15,734**	

45. *Kistna.* Kistna district mainly prepares raw rice for export from varieties *kusuma, konamani, ramasagaram* or *pedha atragada, akkullu, Delhi-bogham* or *vankisannam* and GEB. 24. The first two are classed as coarse, the next two as medium and the last two as fine varieties. The rice from the *krishnakatukulu* variety imported from West Godavari is sent out under the name of *akusannam* and sometimes used

to adulterate other fine varieties like GEB. 24 or *vankisannam*. *Nallaralu* paddy from the Collair area grown in the second crop season was being exclusively sent to Jaffna from the Masulipatam port, but this export to Ceylon has recently declined as in the case of Cocanada. The statement of despatches for 1930–31 and 1933–34 is presented in Table 38. There is a noticeable fall in the supply to Madras City, Nellore, Guntur, East Godavari, Hyderabad, via Bezwada, via Jalarpet and to southern districts, but there is an increase in export to Ceded districts. I was told at the time of my enquiry that the demand from Bombay has begun to be irregular.

TABLE 38.—*Despatch of raw rice from the Kistna district in maunds.*

To districts.	1930–31.	1933–34.
By rail—		
Madras	133,152	85,766
Nellore	41,152	28,743
Guntur	282,063	257,730
Vizagapatam	11,185	664
West Godavari	619	13,130
East Godavari	17,848	882
Hyderabad dominion ..	Not available.	596,334
Hyderabad via Bezwada.	587,052	
Kurnool	278,944	394,192
Cuddapah	29,229	82,573
Anantapur	102,687	146,687
Bellary	263,490	307,169
Chittoor	3,318	11,122
North Arcot	10,622	4,770
Salem	62,606	11,577
Coimbatore		4,890
Nilgiris		948
Malabar		7,536
Mysore State	414,754	417,497
Bombay Presidency ..	487,911	573,925
Via Arkonam South Indian Railway	4,643	3,744
Total ..	**2,731,275**	**2,949,879**

	1930–31.		1933–34.	
	Rice.	Paddy.	Rice.	Paddy.
	TONS.	TONS.	TONS.	TONS.
By sea—				
From Masulipatam to Ceylon	1,124	1,934	159	413

46. *Guntur*. The delta taluks of Guntur, Tenali, Repalle and Bapatla grow *kusuma*, a coarse variety on a large scale in addition to small areas under *ramasagaram*, *molagulukulu* and *delhi-bogham*—and the whole of the surplus paddy is exclusively converted into raw rice. This district meets the nearer demand of her dry taluks and that of the

Kavali taluk in the Nellore district. In the South, the towns of Coimbatore and Tiruppur have been getting a portion of their raw rice requirements from this district from a very long time. In addition, a certain portion of the needs of Cuddapah, Chittoor, Bellary, Anantapur, Kurnool, Hyderabad and Bangalore is also being met by this tract. The quantity despatched during the year 1933–34 is set out in Table 39.

TABLE 39.—*Despatch of raw rice from Guntur district.*

To districts.	1933–34. MDS.	To districts.	1933–34. MDS.
By rail—		By rail—*cont.*	
Anantapur	62,114	Bombay Presidency ..	39,949
Kistna	88,935	Kurnool	158,443
Madras	13,670	Chittoor	61,267
Cuddapah	70,813	Mysore State	17,241
Bellary	52,898	Coimbatore	27,984
North Arcot	2,074	Minor despatches ..	1,339
Nellore	89,471	Total ..	**735,791**
Hyderabad	49,602		

	1932–33.		1933–34.	
	Rice.	Paddy.	Rice.	Paddy.
	TONS.	TONS.	TONS.	TONS.
By canal—				
Kistna	3,069	433	3,234	619

47. *Nellore*. This district is unique in confining itself to growing one variety *molagulukulu* for export purposes. The centres of export are four in number of which two are comparatively more important. The variety being a long duration one and classed as fine, is always priced high and therefore, the demand for it could come only from the well-to-do classes of the population in the Presidency. Consequently there is some demand for this rice from all the large towns of the Southern and Central districts. The City of Madras is its chief market. The despatch of rice from Nellore to Madras City through the Buckingham Canal during 1933–34 is double that in 1932–33. It is obvious from a review of the relative quantity sent out from the Nellore centres to the Southern towns for the two years 1932–33 and 1933–34 (Table 40) that the demand has greatly fallen in all the towns in the South. This is mainly accounted for by the availability of a cheaper and an almost equally fine variety of rice, *madia* rice, obtained from Burma through the Tuticorin port. This Burma rice sells a measure and a half more per rupee than the Nellore rice. Though the price of the Nellore rice, has fallen, the long distance and the consequent high railway freights are still standing in the way of its regaining its market in the southern towns. Special railway concessions from stations in the Nellore area to all the important towns in the South, could alone increase the demand for the Nellore rice.

TABLE 40.—*Despatches of raw rice from Nellore district to the southern districts.*

To districts.	1932–33.	1933–34.
	MDS.	MDS.
By rail—		
Salem	38,980	43,655
Coimbatore	84,851	86,181
Trichinopoly ..	25,792	8,362
Madura	59,098	45,356
Ramnad	26,899	29,561
Pudukkotta	4,845	..
Trivandrum Central.	2,759	3,113
Tinnevelly	13,932	10,276
Nilgiris	1,781	1,620
Tanjore	4,522	2,120
Malabar	3,562	1,958
Total ..	**267,021**	**232,202**

Paddy and raw rice from Nellore (in tons) by canal to Madras.

	1932–33.	1933–34.
Rice	7,483	14,415
Paddy	3,377	1,455

48. *Tanjore.* Tanjore district grows a superior variety called *sirumani* (white and red husk) and a number of coarse varieties, *nellore samba*, *kattai samba* or *korangu samba*, *sembalai*, *vadansamba*, *kuruvai* and *kar*. The *sirumani* variety is mostly converted into parboiled rice for export to Ceylon and Federated Malay States. The surplus produce of other varieties is sent to a number of districts, Coimbatore, Salem, Trichinopoly, Madura and Ramnad both as paddy and as parboiled rice. Export as raw rice is very rare. In fact Tanjore district imports into the towns of Mayavaram, Kumbakonam and Negapatam, a small quantity of raw rice from Chidambaram, and some broken rice from the Cuddalore port. The reasons for despatching paddy and importing raw rice have been explained in the earlier part of this report, paragraph 22. Since the reduction in railway freight, during the year the export to Ceylon is showing an improvement. If further reduction in freights to Ceylon were possible, Tanjore might attempt to trade in coarse rice also with Ceylon. Since last year the demand for rice from Bangalore and Bowringpet is also being met by Tanjore. This again is the direct result of the reduction in railway freights on the South Indian Railway during the year. It is quite clear from the above that the volume of traffic between places of production and demand is influenced by the railway freight. Similarly the despatches to Erode and Salem have also improved. The

exports to Madura and Ramnad have, however, shown a decline in 1933–34. Statement of despatch of paddy and rice from the Tanjore district to other districts is given in Table 41.

TABLE 41.—*Despatch of paddy and rice from the Tanjore district in maunds.*

To	Paddy.		Parboiled rice	Parboiled rice
	1932–33.	1933–34.	1932–33.	1933–34.
By rail—				
Coimbatore	1,317,930	1,823,402	81,575	198,355
Salem	117,382	218,801	20,183	10,725
Madras	2,938	11,577	91,240	114,168
South Arcot	26,070	21,560	38,300	70,368
Tinnevelly	45,058	11,592	47,160	55,030
Madura	272,894	238,209	39,920	15,355
Ramnad	117,867	48,860	99,287	84,769
Trichur	14,705	20,034	..	..
Trichinopoly	339,270	344,110	82,158	72,950
Trivandrum	..	3,283	1,501	829
Pudukkotta	18,443	5,979	8,444	1,590
Pondicherry	645	3,636	48,253	65,612
Chingleput	17,835	144,390	34,480	49,470
North Arcot	20,290	120,764	2,181	18,095
Nilgiris	..	..	17,937	17,469
Mysore State	..	..	7,735	88,138
Cuddapah	..	..	..	4,698
Chittoor	..	..	1,415	..
Ceylon by rail	..	..	..	1,217,425
Total ..	**2,311,327**	**3,013,197**	**621,769**	**2,085,046**

Export by sea to Ceylon in tons from Tanjore.

Ports of despatch.	1932–33.		1933–34.	
	Parboiled rice.	Paddy.	Parboiled rice.	Paddy.
Tirumalavasal	5,775	230	5,003	40
Karaikal	296	100	156	..
Adirampatnam	4,389	213	7,062	188
Negapatam	4,487	..	3,532	..
Total ..	**14,947**	**543**	**15,753**	**228**

Export to Federated Malay States and Straits.

Ports of despatch.	Parboiled rice.	
	1932–33.	1933–34.
Karaikal to Straits ..	293	274
Negapatam to Straits.	2,683	1,266
Negapatam to Federated Malay States..	1,414	1,608
Total ..	**4,390**	**3,148**

49. *Minor producing districts—Ganjam.* Ganjam district grows a large number of varieties and, therefore, a mixed produce is received in the markets. It is only superior varieties like *byyahunda, rathnachudi, gunupur sannam* which are grown on a larger scale that are available as pure samples. The grades therefore recognized in the Ganjam markets are *rasulu*, classes I and II (mixture) and *sannam* (fine varieties). The production of rice in the milling centres of the district meets the demand of the internal markets and a portion goes to the Vizagapatam district. A fair amount of rice from the mills at Tillaru and Chicacole is sent by carts to Vizianagram, Chepurupalli and Ponduru and so the total quantity exported from the Ganjam district cannot be correctly assessed.

The demand for the fine rice from the Ganjam district at the Vizianagram and Vizagapatam markets is also said to be declining on account of the import of G.E.B. 24 and *krishnakattukullu* rice from the Godavari district. The demand for the coarse rice is also going down because of the arrivals of cheap coarse rice from Central Provinces. In years of poor harvest, the district gets its rice requirements both from the Godavari district and from Orissa Province.

50. *Chingleput.* The chief varieties cultivated in the Chingleput district are *kar, sirumani* and *vadansamba* and the produce from the southern taluks comes into the Madras City markets for sale as paddy. In years of good harvest, she has a small surplus to send out to other places as parboiled rice and sometimes also as paddy to Coimbatore, Pondicherry, Madura, Dindigul, Ranipet, Tirupati and Nilgiris, the main exporting centres being Tiruvallur, Conjeeveram, Chingleput and Madurantakam. However, in years of poor harvest, paddy and rice are obtained from Madras, Tanjore and the adjacent areas in the South and North Arcot districts. Figures in Table 42 showing despatches from and arrivals into the district for 1932–33 and 1933–34 are self-explanatory as to her surplus and requirements according to the harvest in the respective years.

TABLE 42.—*Despatch of rice and paddy by rail from Chingleput.*

Despatch to	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
	MDS.	MDS.	MDS.	MDS.
Coimbatore	67,353	..	52,316	1,244
Salem	12,526	..	5,011	654
Madras City	96,517	31,129	44,616	36,235
South Arcot	2,933	..	6,425	..
Madura	5,625	1,105	29,666	1,007
Ramnad	37,361	..	..	96
Cochin	3,207	..	..	..
Trivandrum	1,706	..	..	..
Pondicherry	18,074	..	8,260	103
North Arcot	1,184	813	..	10,581
Nilgiris	2,302	..	..	..
Chittoor	3,763	32,351	..	1,723
Cuddapah	..	6,811	..	142
Malabar	..	3,021	..	..
Trichinopoly	..	..	18,162	..
Pudukkotta	..	..	1,940	..
Total ..	252,550	75,230	166,396	51,785

Arrivals into Chingleput district by rail in maunds.

	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
	MDS.	MDS.	MDS.	MDS.
From districts—				
Madras City	123	29,077	..	15,404
South Arcot	6,430	16,583	..	7,626
Tanjore	34,480	49,470	17,835	144,390
North Arcot	..	..	..	124
Ramnad	..	..	..	3,136
Madura	..	..	..	534
Nellore	..	3,996	..	..
West Godavari ..	..	1,616	..	..
Total ..	41,033	100,742	17,835	171,214

51. *South Arcot.* The exports from this district are mainly from Cuddalore by sea and from Chidambaram by rail. The imported rice of Siam and Indo-China is being obtained at this port in regular quantities since January 1934 and forms the bulk of the consignments from Cuddalore. A major portion of the Chidambaram taluk's surplus produce is sent to Ceylon by rail through Chidambaram and Kuttalam stations and a very small quantity by sea through the port of Porto Novo. Isolated places in the district like Chinna Salem, Vriddhachalam, Tindivanam and Tirukkoyilur which collect the surplus produce of the surrounding villages send out small quantities to the centres in the adjacent districts of Salem, Chingleput and North Arcot. The quantities of rice and paddy received into the district and railed to other districts are noted in Table 43. It will be seen from this that South Arcot is both an importing and an exporting district.

TABLE 43.—*Despatch of rice and paddy by rail from the South Arcot district.*

Despatches to districts.	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
	MDS.	MDS.	MDS.	MDS.
Coimbatore	1,981	7,982	24,556	4,119
Salem	69,186	73,443	97,527	91,488
Madras	21,567	13,543	4,308	5,343
Tinnevelly	1,572	3,457	274	..
Madura	2,269	7,307	1,617	..
Ramnad	5,930	3,216	2,087	2,016
Trichinopoly	6,157	10,241	7,389	384
Pudukkotta	418	2,722	3,452	189
Pondicherry	15,858	14,170	4,956	2,785
Tanjore	35,246	27,930	3,867	2,658
Chingleput	6,430	16,583	..	7,626
North Arcot	1,478	4,778	1,681	3,752
Ceylon	..	257,262	..	..
Total ..	168,092	443,475	151,714	117,575

Arrivals of rice into the South Arcot district.

From districts.	1932–33.	1933–34.
	MDS.	MDS.
North Arcot	44,459	2,342
Chingleput	2,933	53,720
South Arcot	27,663	35,910
Tanjore	38,300	70,368
	..	1,725
	..	1,638
Total ..	**113,355**	**165,703**

52. *North Arcot.* This district, like Chingleput, has some surplus to export in years of good harvest and draws its want in years of low production from the neighbouring districts. The regular arrivals of paddy in the chief local markets of Arcot, Arni, Vellore, Polur and Tiruvannamalai from the surrounding rice areas make it possible to prepare parboiled rice to meet the needs of Ooregum, Bowringpet, Bangalore and Nilgiris markets. Consequent on the large supply of cheap rice from Burma, Tanjore and Godavari into the same markets, the demand for the North Arcot rice is now getting very limited. Places between Gudiyattam and Kuppam obtain rice and paddy from the neighbouring areas in the districts of Chingleput and Bangalore. The quantity despatched and received by some of the important centres is given in Table 44. The big exports in 1932–33 have declined during 1933–34 as a result of poorer local harvests.

TABLE 44.—*Despatches of rice and paddy from North Arcot district by rail*

Despatched to districts.	South Indian Railway stations.				Madras and Southern Mahratta Railway stations.	
	Rice.		Paddy.		Rice.	Paddy.
	1932–33.	1933–34.	1932–33.	1933–34.	1933–34.	1933–34.
	MDS.	MDS.	MDS.	MDS.	MDS.	MDS.
Chingleput	..	..	..	124	246	..
Coimbatore	36,071	1,571	17,870	9,441	16,210	..
Salem	32,888	179	17,610	360	..	..
Madras	6,256	1,976	..	2,731	9,972	..
South Arcot ..	44,459	2,342	750	787	..	..
Trichinopoly ..	..	473	..	138	..	..
Madura	..	..	1,656	..	..	..
Malabar	26,133	464	..	..	..	..
Ramnad	..	..	1,400	362	..	..
Tinnevelly	..	297	..	..	..	..
Cochin	3,638	595	..	..	..	..
Travancore	1,289	178	..	..	..	..
Pondicherry ..	5,992	1,399	1,290	..	..	..
Nilgiris	..	..	..	..	5,014	..
Mysore state ..	..	..	..	..	112,069	2,004
Hyderabad	..	..	..	..	403	..
Cuddapah	740	826	..	..	449	..
Chittoor	1,401	2,436	..	..	478	..
Total ..	**158,867**	**12,736**	**40,576**	**13,943**	**144,841**	**2,004**

Arrival of rice and paddy into North Arcot in Maunds.

From districts—	South Indian Railway stations.				Madras and Southern Mahratta Railway stations.	
	Rice.		Paddy.		Rice.	Paddy.
	1932–33.	1933–34.	1932–33.	1933–34.	1933–34.	1933–34.
	MDS.	MDS.	MDS.	MDS.	MDS.	MDS.
Nellore	928	1,239	..	..	..	..
West Godavari ..	..	..	..	..	9,474	471
Kistna	..	..	..	..	4,770	282
Guntur	..	..	..	..	2,074	2,275
Nellore	..	..	..	..	18,721	1,426
Madras	144	5,203	..	..	110,771	3,776
South Arcot ..	1,478	4,778	..	..	..	3,752
Tanjore	2,181	18,095	..	..	..	120,764
Chingleput ..	..	..	..	..	..	10,581
Salem	..	..	..	..	..	441
Chittoor	..	..	..	..	..	2,643
Anantapur ..	..	..	..	..	..	7,142
Mysore	..	..	..	..	..	37,244
Total ..	**4,731**	**29,315**	..	..	**145,810**	**190,797**

53. *Trichinopoly.* The production in this district should be more or less sufficient for the requirements of the district. However, Trichinopoly city is a large market centre for paddy and rice by virtue of its situation, being close to a large producing area, Tanjore, on one side and areas of deficient production on all other sides. Table 45 records the arrivals and despatches of paddy and rice into and from the district by rail for the years 1932–33 and 1933–34. Fairly large quantities are obtained by road from the Tirukkattupalli area of the Tanjore district and are also sent out from Trichinopoly by road to the Namakkal area of the Salem district.

TABLE 45.—*Despatches of parboiled rice from Trichinopoly district by rail.*

To Districts.	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
	MDS.	MDS.	MDS.	MDS.
Coimbatore	41,400	206,860	5,058	8,695
Nilgiris	..	176	..	..
Salem	3,620	703	..	..
South Arcot	..	1,638	..	..
Pudukkotta	313	1,925	..	..
Tinnevelly	..	1,178	..	..
Madura	135,574	155,538	3,076	2,217
Ramnad	14,688	11,126	3,408	392
Trivandrum	..	1,467	..	..
Tanjore	..	1,178	..	..
Total ..	**195,595**	**381,789**	**11,542**	**11,304**

Arrival of rice and paddy into Trichinopoly district in maunds.

	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
	MDS.	MDS.	MDS.	MDS.
From—				
South Arcot	6,157	10,241	7,389	384
Tanjore	82,158	72,950	339,276	344,110
Tinnevelly	8,203	3,152	..	..
Madras	2,811	10,967	..	..
North Arcot	..	473	..	138
Chingleput	..	..	18,162	..
Salem	..	470	..	209
Kistna	..	2,195	..	..
Madura	..	..	..	463
Nellore	..	8,362	..	..
Ramnad	..	..	1,624	6,368
Total ..	99,329	108,810	366,451	351,672

54. *Salem.* Salem district has always to depend for her rice supply on other producing areas of this Presidency. The chief centres of import for rice and paddy are Salem, Sankaridrug and Krishnagiri. Salem market in addition to its sharing the major portion of the imports from outside, draws a fair supply from within the district, Attur and Dharmapuri. The only export from the district that is worth mentioning is, for Coimbatore 31,033 maunds of paddy and 6,500 maunds of rice. The quantities of paddy and rice got from other districts of the Presidency for the two years are given in Table 46.

TABLE 46.—*Arrivals of rice and paddy in the Salem district by rail.*

From districts.	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
	MDS.	MDS.	MDS.	MDS.
North Arcot	32,888	179	17,610	360
Anantapur	..	..	..	10,004
Cochin	24,879	26,151	..	..
Chingleput	12,526	..	5,011	654
Madras	7,224	33,266	..	..
Mysore	..	..	..	10,384
West Godavari	..	3,991	..	..
Kistna	..	11,577	..	..
Nellore	38,930	43,655	..	..
Malabar	1,768	21,976	..	..
South Arcot	69,186	73,443	97,527	91,488
Tanjore	20,183	10,725	117,382	218,801
Tinnevelly	1,749	288	..	..
Trichinopoly	3,628	703	826	4,901
Total ..	212,961	225,954	238,356	336,592

55. *Coimbatore.* The demand for rice in the markets of this district is always high and ever growing on account of the rapid industrial developments, and their close proximity to the plantations on the Nilgiris and Anamalai hills. The chief centres that import both rice and paddy are Coimbatore, Erode, Pollachi, Udumalpet, Tiruppur, Karamadai and Mettupalaiyam. A comparative statement of the quantities of paddy

and rice obtained for two years is set out in Table 40. Marked increase in the arrivals of foreign imported paddy and rice from Cochin and Calicut ports is particularly noticeable. At the same time the quantities got from Trichinopoly and Tanjore are also showing an improvement. The only despatch from this district is for Nilgiris from Coimbatore and Erode stations.

TABLE 47.—*Arrivals of rice and paddy in the Coimbatore district by rail.*

From districts.	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
	MDS.	MDS.	MDS.	MDS.
North Arcot	36,071	17,781	17,870	9,441
Cochin	556,411	821,353	5,492	12,452
Chingleput	67,352	..	52,316	1,244
Salem	3,833	6,519	23,009	31,033
Nellore	84,851	86,181	..	..
Mysore	..	..	..	12,178
Calcutta	Not available.	9,032	..	..
West Godavari	..	47,923	..	6,646
Anantapur	..	..	..	785
Kistna	..	4,890	..	..
East Godavari	..	24,312	..	..
Madras	..	..	..	438
Guntur	..	27,984	..	..
Tanjore	81,575	198,355	1,317,930	1,823,402
Malabar	189,464	225,547	51,066	72,892
South Arcot	1,981	7,982	24,556	4,119
Tinnevelly	24,412	17,116	9,983	..
Madura	827	1,166	318	1,173
Ramnad	..	..	274	1,101
Trichinopoly	41,400	206,860	5,058	8,695
Total ..	1,088,177	1,703,001	1,507,872	1,985,599

Despatches of rice from Coimbatore district.

	1932–33.	1933–34.
	MDS.	MDS.
Nilgiris	8,208	10,972
Malabar	2,038	1,458
Total ..	10,246	12,430

56. *Malabar.* The production in the district is low whereas the population per square mile, 610, is the second highest in the Presidency. Consequently, it absorbs the largest quantity of imported rice compared to any other deficient district. In the past, the demands from this district were partly met from all the producing areas of the Presidency, Tanjore, Godavari, Chingleput and North Arcot. At present, the supply from even the major producing areas has considerably declined. The despatches from the port towns of this district to Coimbatore, Nilgiris and South Kanara are all imported foreign rice. Locally grown paddy from Palghat taluk goes to Coimbatore and Pollachi markets both by road and rail. Trichur in the Cochin state collects paddy in the Palghat and Walluvanad taluks for the use of their rice mills. Comparing the figures for the two years 1932–33 and 1933–34, given in Table 48, it will be observed that the imports from Burma and other foreign countries have gone up by 50 per cent in 1933–34, while the

imports from the delta areas have gone down by 80 per cent. Again the imports from Siam during the three months, April, May and June, 1934, have been quite as much as for the whole year 1932–33. These facts clearly point out how these important markets for rice within the Presidency have been flooded by imports from Burma and Siam. The result of this flooding is that the demand from these important markets which used to accelerate the price level of the delta parboiled rice from June onwards has been lost in recent years.

Apart from the imports by rail and sea, a fair quantity of paddy from Coorg and Nilgiris (Gudalur) arrives either by lorries or country carts by road into the taluks of Kottayam, Chirakkal and Wynaad. Imported foreign rice and paddy from Cochin also find a way into the district through the backwaters up to Tirur.

TABLE 48.—*Arrivals into the Malabar district by rail in maunds.*

From	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
By rail—				
South Kanara	35,752	12,926	2,879	5,838
North Arcot	26,133	464	..	..
Nellore	3,562	1,958	..	..
Coimbatore	2,038	1,458	..	..
Cochin	28,905	29,637	..	..
Chingleput	15,572	3,021	..	..
West Godavari	Not available.	127,210	..	..
East Godavari	Do.	98,395	..	..
Kistna	Do.	7,536	..	..
	111,962	282,605	2,879	5,838
	in tons			
By sea—				
Foreign countries	8,585	12,934	..	120
Burma	99,336	139,929	15,819	25,193
Other Madras Ports	10,104	2,011	285	62
Other Presidency Ports Bombay and Calcutta.	15,147	5,070	2,356	1,813
Total ..	**124,172**	**159,944**	**18,460**	**27,188**

Imports into Malabar ports. (*In tons*).

	1934			
	April.	May.	June.	Total.
Siam—				
Raw rice	50	..	..	50
Parboiled rice	..	1,904	610	2,514
Broken rice	8,915	4,067	190	13,172
Paddy	336	1,210	1,442	2,988
Total ..	**9,301**	**7,181**	**2,242**	**18,724**
Burma—				
Rice	22,994	25,463	15,616	..
Paddy	2,759	3,501	5,321	..
Total ..	**25,753**	**28,964**	**20,937**	..

57. *South Kanara.* Imports of raw and parboiled rice from Burma have recently begun to arrive at the Mangalore, Malpe, Hangarakota and Coondapoor ports either directly or by re-export from Bombay port. The Malabar ports, Cannanore and Tellicherry, send out rice and paddy (65 thousand maunds of rice and 116 thousand maunds of paddy) to all the railway stations in the Kasaragod and Mangalore taluks. Paddy and rice also arrive into the taluks of Udipi and Coondapoor by road from Mysore through the ghat road. The out goings of rice from the district are from Mangalore to Goa by sea and to Malabar by rail. Laccadive Islands also get their requirements from Mangalore.

58. *Madura, Ramnad and Tinnevelly.* The production in the three districts is supplemented by imports from Burma through the Tuticorin port and by supplies from Tanjore, Trichinopoly, South Arcot and Chingleput districts. Raw rice is obtained from the Nellore district. Recently, fine raw rice from Burma is replacing the Nellore raw rice in the important towns of these districts. In the Madura district, Dindigul has been importing fairly large quantities of rice and paddy from the Tanjore area and passing them on to other centres in the interior unconnected by railways. The importance of this centre has, however, been lost with the opening of the Dindigul-Pollachi Railway as consignments are now booked direct to these centres, Palni, Udamalpet, Kanakanpatti and Oddanchatram which were getting their requirements through Dindigul before. The black soil areas of the Ramnad district, draw their needs through Sattur, Sivakasi, Virudhunagar and Aruppukkottai while Chettinad and Karaikudi areas get small quantities from a number of different places. In the Tinnevelly district, Tuticorin and Kovilpatti areas consume a large quantity of rice and paddy imported from Burma. The coastal taluks of Nanguneri and Trichendur obtain their requirements from the adjacent taluks in the district and from Tuticorin through the Kulasekarapatnam port. The Ambasamudram taluk supplies a portion of the demand of the neighbouring Travancore State. The arrivals into the district are noted in Table 49.

TABLE 49.—(*a*) *Arrivals into Madura district of rice and paddy in maunds.*

From	Rice.		Paddy.	
	1932–33.	1933–34.	1932–33.	1933–34.
Tinnevelly	183,063	192,880	1,874	372
South Arcot	2,269	7,307	1,617	..
Tanjore	39,920	15,355	272,894	238,209
Trichinopoly	135,574	155,538	3,076	2,217
Nellore	59,098	45,356	..	..
Ramnad	2,712	1,188	4,544	5,741
Cochin	3,492	2,938	..	..
Chingleput	5,625	1,105	29,666	1,007
Other minor despatches	..	1,025	..	..
Madras	2,022	4,123	..	..
Total ..	**433,775**	**426,815**	**313,671**	**247,546**

(*b*) *Arrivals into Tinnevelly district of rice and paddy in maunds.*

From	Rice.		Paddy.	
	1932-33.	1933-34.	1932-33.	1933-34.
Ramnad	1,643	2,132	4,831	..
Nellore	13,932	10,276	..	..
South Arcot	1,572	3,457	..	..
Tanjore	47,160	55,030	45,058	11,592
Madura	6,179	16,347	2,737	2,777
Other minor despatches	..	747	..	..
Trichinopoly	342	1,178	3,408	392
Total ..	**70,828**	**89,167**	**56,034**	**14,761**

(*c*) *Arrivals into Ramnad district of paddy and rice in maunds.*

South Arcot	5,930	3,216	2,087	2,016
Tanjore	99,287	84,769	117,867	48,860
Tinnevelly	297,598	304,807	20,282	34,684
Madura	13,965	20,976	11,678	13,672
Trichinopoly	14,688	11,126	3,404	392
Chingleput	37,361	..	..	..
Nellore	..	29,561	..	..
Minor despatches	..	1,016	..	458
Total ..	**468,829**	**455,471**	**155,318**	**100,082**

59. *Ceded Districts and Chittoor.* These districts depend on the Kistna, Godavari and Nellore districts for their rice supply. The quantities of rice and paddy obtained during the years 1933–34 are presented in Table 50. In good seasons, Hindupur taluk of the Anantapur district has a small surplus. This is sent out to Salem and Chittoor districts. Hospet area in Bellary, which enjoys an assured water-supply, despatched in 1933–34, 15,328 maunds of paddy, chiefly GEB. 24, to the adjacent Bombay area. Nandyal area in the Kurnool district distributes a very small quantity of a high class variety called *bangaruthegulu* to the towns in the Ceded districts.

TABLE 50.—*Arrivals of rice into Ceded districts and Chittoor by rail in maunds during* 1933–34.

From	Bellary.	Anantapur.	Kurnool.	Cuddapah.	Chittoor.
West Godavari ..	77,626	36,080	104,985	27,186	19,729
Kistna	307,169	146,687	394,192	82,573	11,122
Guntur	52,898	62,114	158,443	70,813	61,267
Nellore	..	3,972	..	54,425	75,484
North Arcot	..	..	..	1,275	2,914
Madras	..	3,057	..	183,056	276,694
Anantapur	3,324	3,475	..	2,389	10,476
Chingleput	..	..	..	6,811	32,351
Tanjore	..	..	..	4,698	..
Other minor arrivals.	325	..	260	196	645
Total ..	**441,342**	**255,385**	**657,880**	**433,422**	**490,682**

60. *Madras City.* Apart from the imports by sea from Burma, Siam and Indo-China, Madras City obtains rice from all the producing areas of the Presidency, notable among them being parboiled rice from Godavari, raw rice from Nellore, Guntur and Bezwada. South Arcot, Tanjore, Chingleput and Calcutta also send out some quantities of parboiled rice and paddy. The special class of rice Delhi or Amritsar rice required by the Muhammadan population is obtained from the Punjab. Madras acts as a distributing centre for the imported rices in the up-country districts. Arrivals into and despatches from the city of Madras given in Table 51 are self-explanatory.

TABLE 51.—*Arrivals into Madras by rail.*

From	Rice.		Paddy.	
	1932-33.	1933-34.	1932-33.	1933-34.
	MDS.	MDS.	MDS.	MDS.
North Arcot—				
South Indian Railway	6,256	1,976	Not available.	2,731
Madras and Southern Mahratta Railway.	Not available.	9,972	Do.	..
West Godavari	Do.	1,060,360	Do.	2,049
Kistna	Do.	85,766	Do.	..
East Godavari	Do.	59,820	Do.	8,954
Guntur	Do.	13,670	Do.	..
Nellore by rail	Do.	34,789	Do.	40,012
Nellore by canal	Do.	396,412	Do.	7,753
Chingleput—				
South Indian Railway	96,517	2,119	44,616	27,896
Madras and Southern Mahratta Railway.	..	29,010	Not available.	8,339
South Arcot	21,567	13,543	4,308	5,343
Calcutta	Not available.	336,614	..	..
Tanjore	91,240	114,168	2,938	11,577
Punjab	Not available.	30,525	..	..
Total ..	**215,580**	**2,188,744**	**51,862**	**114,654**

Despatches from Madras by rail.

To	Rice.		Paddy.	
	South Indian Railway 1932-33.	South Indian Railway 1933-34.	Madras and Southern Mahratta Railway 1933-34.	Madras and Southern Mahratta Railway and South Indian Railway, 1933-34.
	MDS.	MDS.	MDS.	MDS.
Salem	7,224	8,568	24,698	..
South Arcot	2,084	53,720	..	..
Madura	2,022	4,123	..	..
Trichinopoly	2,811	10,967	..	..
Pondicherry	734	22,525	..	..
Tanjore	1,405	3,121	..	..

Despatches from Madras by rail—cont.

To	Rice.		Paddy.	
	South Indian Railway 1932–33.	South Indian Railway 1933–34.	Madras and Southern Mahratta Railway 1933–34.	Madras and Southern Mahratta Railway and South Indian Railway, 1933–34.
	MDS.	MDS.	MDS.	MDS.
Chingleput	123	17,725	11,352	15,404
North Arcot	144	5,203	110,777	3,776
Mysore State	Not available.	..	227,035	..
Cuddapah	..	..	183,056	..
Chittoor	..	..	276,694	4,603
Anantapur	..	..	3,057	..
Nellore	..	..	40,964	..
Hyderabad	..	..	1,684	667
Minor despatches	643	..	1,822	..
Total ..	**17,190**	**1,007,091**		**24,450**

61. *Nilgiris.* Requirements of the population in the towns of Coonoor, Ootacamund, Kotagiri and Aravankadu are obtained from Cochin, Calicut, Coimbatore, Erode and several centres in North Arcot, Tanjore and Nellore districts. A small quantity of coarse rice grown in the Gudalur taluk finds an outlet in the Ernad taluk of the Malabar district. The quantity of rice obtained in 1932–33 and 1933–34 is given in Table 52.

TABLE 52.—*Statement showing arrivals in Nilgiris district in maunds by rail*

From districts.	Rice.	
	1932–33.	1933–34.
North Arcot	5,680	5,014
Coimbatore	8,208	10,972
Cochin	80,849	134,505
Chingleput	2,302	..
Nellore	1,781	1,620
Kistna	Not available.	948
Malabar	47,495	10,946
Tanjore	17,937	17,469
Tinnevelly	..	450
Trichinopoly	271	176
Salem	..	306
Total ..	**164,493**	**182,406**

CHAPTER VI.—PREPARATION OF RICE FOR THE MARKET.

62. *Producers' practice—cleaning and grading.* Paddy that is offered for sale in the market contains a certain percentage of unwanted matter such as particles of clay, grit, dust, chaff and half filled grains.

The proportion of the foreign matter present will depend on the condition of the crop at harvest and on the threshing practices. In the northern delta areas, the paddy crop often lodges before harvest on account of the rains received during or immediately after the grain setting period, and sometimes also during the harvest. The amount of mud that sticks to the earheads will therefore depend upon when the lodging occurs, and the moisture condition of the soil at harvest. In the southern rice areas, the harvest of the first crop invariably has to be done in wet weather during the break of the north-east monsoon. Produce from the tankfed and the well irrigated areas in the Central districts is comparatively cleaner, there being no damage due to rain, and the cleaning is more carefully done on account of the smallness of the crop handled. The preparation of the threshing floor, winnowing and sieving operations also influence the amount of the mud, dust, etc., present in the produce. In the Circars and Nellore district, portions of fields are themselves temporarily converted into threshing floors. In the south, pieces of high ground common to the whole village, small narrow patches of land on the road side and broad portions of the channel bunds are all made use of as threshing floors. The clean preparation in these improvised common floors, which get congested during the general harvests is practically impossible. It is only the big landholders who have their own threshing floors, that take some care in threshing. The tenants pay very little attention to clean the produce thoroughly. They are even interested in mounting it with foreign matter to make up the quantity that goes to the share of the landlord. Careful landlords generally stipulate in their agreements as to the quality of the produce to be given to them. In spite of this, the tenant will always have thousand excuses by way of weather, rain, etc., for the excessive presence of foreign matter and chaff in the grain rent brought by him. In this Presidency, no sort of power or hand winnowing machine has come into use to clean the threshed produce. The winnowing is usually done by throwing up the threshed produce in a stream against the direction of the wind. The chaff and half-filled grains are blown to a distance and the heavier and sound grain falls nearer, the separation of chaff thus being mainly dependent on the strength and continuity of the wind blowing at the time. The removal of stones and mud-particles can only be done by seiving. Seiving, however, is never done as a general practice. The proportion of clay particles in the delta produce is generally high and spoil the appearance of the sample. The use of rectangular hand seives operated by two women as the grain is poured over it by a third coolie has been tried with success at the Agricultural Research Station, Maruteru. It costs less than six pies to seive a bag (166 lb.) of grain while such cleaned produce fetches always a couple of annas more than the unseived stuff. This is a direction in which the cleaning of the produce can be improved.

During the days when the price of rice was high, the millers, on account of the keen competition among themselves in making large purchases, seldom paid any attention to this question. In turn the cultivators also generally got slack and brought to the market an imperfectly cleaned and indifferent stuff. The merchants in order to make

up the loss resulting from an imperfectly cleaned produce generally manipulated the weights or measures used for buying the produce.

High proportion of the unwanted material in a sample, results in a low outturn of rice to paddy during milling. With the fall in price and the low margin of profits which the millers now-a-days are making, a practice of testing the samples for the amount of foreign matter present in it for each consignment is now slowly coming into vogue in the Nellore, Guntur and Masulipatam markets. The price of a consignment whose sample shows more than the accepted percentage (1 seer for every bag) is proportionately reduced. It is very desirable that the produce brought to the market for sale should be clean and attractive. This can be achieved easily if the millers and merchants co-operate and offer a better price for a cleaner produce instead of manipulating the weights and measures.

63. *Mixing of qualities.* In this Presidency, trade of paddy is usually done as varieties and very rarely can two varieties be mixed up because they might vary in size and colour of the outer husk. However, in the districts of Ganjam and Malabar, where big land-holders, who are unable to store the varieties separately on account of the number of varieties brought by their tenants, usually mix them before storing. In actual cultivation also, admixture of varieties gradually takes place, and if left unnoticed for a few years, the whole produce becomes very badly mixed. The Department has, however, been doing very valuable work to counteract this, by supplying pure seed to the cultivators. On this account, it may be said that the major portion of the produce in the deltas that is now coming to the market is pure for colour of rice and size of grain. Supply of pure strains of rice and the maintenance of their purity will therefore have to be one of the main items of work of the Agricultural Department until such time when organized private seedsmen take up the business. Where a large number of varieties are actually under cultivation it is not always possible to stop varieties getting mixed either in seed-beds or in threshing floors. The question may be asked whether the number of varieties actually grown cannot be restricted. I think it should be possible to do it to a certain extent. Although the number of varieties grown in a particular area may be many, the main ones, those that occupy the largest areas are always comparatively few. For example, out of the million acres under rice grown in Tanjore there are not more than four or five major varieties which take up nearly 80 per cent of the area, and definite strains have also been made available by the Agricultural Department in all these major varieties. Though the spread of these strains has gone on considerably, if anything could be done to accelerate this spread as rapidly as possible there will be very large areas under definite varieties and the produce arriving in the markets should be fairly pure. The rapid spread of departmental strains in all the rice areas will also be very helpful in fixing standards for quality which is well nigh impossible in a mixed produce.

64. *Assembling and packing.* In producing areas soon after the harvests, the smaller cultivators who are generally needy, take their produce to the merchants or millers either directly or through a broker. The

prices being usually low then, the merchants try to store up the produce as much as possible so that it may be released in a rising market. After some months the millers and the merchants go about the villages and buy paddy according to the requirements of the markets then. In some big centres like Masulipatam, Guntur, Tenali, Bezwada and Salem, the produce from the surrounding villages is brought by the cultivators to a common spot called *mathsulu* or *chavadi* every morning. Buyers and brokers collect there and the grain is actually auctioned. Either each consignment is auctioned separately or the amount realized in auction for the first consignment of a particular variety is taken as the price for that variety for the day. In the smaller producing areas in the South, practically every town has a place called *nellu mandi* (paddy bazaar) where paddy from the villages is sent by the cultivators for sale on commission. These *mandi* merchants have a group of villages with which they usually do business. They sometimes advance money to the cultivators on the standing crop.

The practice adopted in the case of rice is different. Rice from the mills is either sent direct by the millers to the merchants in other consuming centres or a big commission agent collects all the indents from the merchants in the surrounding consuming centres and then orders for the quantity required of a particular rice as per sample obtained previously. Sometimes early in the season, the miller or the merchant in the delta areas sends rice to a commission agent in the other centre for selling the stock at the price fixed by him. If it is not saleable for some time, he directs the commission agent to sell it with reference to the price of rice received from other centres at that centre. Later in the year, merchants at the consuming centre, purchase rice on their own account. Thus early in the season, because of the cheap price and a glut in the paddy market, milling is busy and rice is offered at low prices in the consuming markets. Later in the season rice is supplied only on demand.

Paddy is ordinarily brought to the market or transported to other places in gunnies. It is only in Ganjam district that it is brought from the agency area loose, in carts with narrow-rectangular holds made of bamboo covered with straw and plastered over. In South Kanara rice is invariably brought to the market in straw balls called *muras*.

65. *Traders' practice—Grading and fixing standards.* There are no accepted grades or standards for paddy. The standard for paddy is fixed by the varieties and the grades according to the characteristics of the sample offered, namely, colour of grain quantity of chaff, amount of red rice, percentage of breakage in milling, etc. Even in rice, there are no accepted grades or standards to produce which the milling operations are adjusted. Apart from the variety, the quality of rice depends upon the freedom from broken rice and the amount of polish it has received. This quality may vary from mill to mill and the final qualities of the finished product will depend upon the requirements of a particular market for which the milled produce is to be despatched.

66. *Preparation of raw rice in big mills.* The rapid increase in the number of power-driven rice hullers installed even in small areas has

practically done away with the time-honoured hand-pounding method with the wooden pestle and mortar. It is only in some of the interior portions of South Kanara and Malabar districts that the practice of hand-pounding still obtains. Unlike in milling, in hand-pounding the rice cannot get a good polish. Although food reformers have been advocating consumption of unpolished rices, it is of ten difficult to get unpolished rice. Because of the hard and tiresome nature of the rice-pounding wo k, coolies would not do it now, even for their own requirements.

Paddy after being delivered into the hopper of the mill, passes through the first preliminary cleaning machines where immature grain, chaff, stones, grit and mud are removed. The product so cleaned is taken by elevators to the disc shellers. The shelled grain and husk are separated by blowers. The husk obtained is used as fuel for boilers generating steam. The rice obtained is passed through hullers for polishing once, twice or even thrice. In order to avoid too much breakage in the polishing process, an interval extending from three days to a fortnight is allowed between any two operations. Thereafter, the grains are allowed to pass through seives for the separation of broken grains. As most of the coarse rice is intended to meet the demand of the poorer classes, high polishing is not usually done. It is only the fine rice in demand by the upper and middle classes that is polished twice or thrice.

67. *Colour polishing.* In certain of the raw rice markets in Hyderabad, Mysore, Vizagapatam and Ceded districts there is a special demand for rice with an yellow or a rose tinge. The colouring is specially given to the rice in the mills during the polishing process by mixing a small quantity of yellow ochre and turmeric for the yellow or golden hue, and red ochre for the rose tinge. In the consumption of raw rice people would prefer old rice as it is considered more wholesome and gives a greater volume when cooked, than fresh rice. As rice gets old, it naturally gets the yellowish tinge and the yellow colouring given in the mills might be to pass off fresh rice as old. Similarly, paddy with red kernels, even after milling and polishing, will show a sort of reddish tinge and the red colouring used in the mills might help to pass off white rice as red rice in places where there is a preference for the latter. It is said that though the colouring helps to increase the keeping quality of rice during storage, the bran from the colour polished rice is considered inferior. The colouring matter used in the process being nothing but earth must necessarily reduce the feeding value of the bran for animals.

68. *Adulteration.* Raw rice prepared out of freshly harvested grain is always poor in quality and can even produce digestive disorders. Hence rice prepared out of paddy that had been stored for some time is preferred and fetches a better price in the market. Similarly there are inherent differences in quality in different varieties of rice. Generally rice out of short duration varieties, like *kar*, is not considered quite so good as the rice of long duration *samba* varieties and the prices of the two always differ. Adulteration in rice therefore, consists mainly of mixing new with old, and an inferior with a superior rice. Millers in their anxiety to find a rapid sale for their production quote less for the

produce than is economically possible, and try to make up the loss by having recourse to the adulteration indicated above. For example, in West Godavari, *krishnakatukallu* rice, a medium grade variety, is used to adulterate high quality rices like GEB. 24 or *Delhi bogham*. Similarly, millers in the Nellore district sometimes obtain a cheaper variety from the neighbouring Guntur district and adulterate it with the high class *motagulukulu* rice. This practice has lowered the reputation of Nellore rice and has also partly contributed to a shrinkage in the demand. Usually the proportion of the new rice for adulterating the old starts with a ten per cent early in the season immediately after the harvests, and is gradually increased to thirty or forty per cent in about three to four months' time. Adulteration between local rice and imported rice is also not uncommon. Local rice is generally preferred to the imported rice. If the price difference between the two is high, people go in for the cheaper imported rice. In order to attract customers for the local produce, the price of local rice is brought down by mixing it with the cheaper imported rice and selling the mixture as pure local rice. As examples of such a practice the following may be mentioned. *Madia* rice imported from Burma has been ousting Nellore rice in the markets of Tinnevelly and Madura on account of its cheaper price. In order to dispose of the stock of Nellore rice already imported, it was mixed with *madia* rice in certain proportions to reduce the price difference between the two pure rices to the minimum. Similarly rice from Raipur (Central Provinces) was selling cheaper than the Ganjam rice in the Vizianagram market during 1932–33, and the price of the latter was brought down by adulterating it with Raipur rice to make it sell in the market. Thus the adulteration practised both at the producing and at the consuming centres has affected the reputation of the standards.

69. *Preparation of parboiled rice in big mills.* The quality of paddy used in the preparation of parboiled rice is not of such great concern as in the case of raw rice. Apart from the variety of paddy, the conditions that influence the quality of parboiled rice are, the time of steeping, the water used (hot or cold), renewal of water during the period of steeping, the time of steaming or boiling and the amount and nature of drying given before milling.

A short account of the method of preparing parboiled rice in big mills may not be out of place here. Paddy is first steeped in water in masonry tanks of the capacity of 300 to 400 bags, for a period varying from 24 to 72 hours according to the nature of the paddy. New and wet paddy require a longer soaking period than old paddy. In the Tanjore district, cold water is used with longer soaking period, and the water is changed every 24 hours. In the Circars where steeping is done in warm water, the soaking is restricted to 24 hours. The advantages in the longer soaking in cold water are stated to be reduction in the percentage of breakage and a higher percentage of rice to paddy. But the colour and flavour of the rice get affected unless scrupulous care is bestowed to change the water at intervals. The steeped paddy is then conveyed to wrought iron drums of 20 to 50 bags capacity, where it is subjected to live steam under pressure for ten to twelve minutes. The steamed

paddy is removed quickly and is either spread in thin layers for drying on special floors or allowed to remain in heaps for some time according to the variety and the market for which the rice is intended. In the case of *vadan samba* variety of the Tanjore district, it is said that the steamed paddy should be kept in heaps for some time as otherwise breakage is more during milling. In the drying floors the steamed paddy is exposed to the direct rays of the sun for about eight hours or so being raked over at intervals until dry. The drying has to be done with care as either overdrying or underdrying affects the milling qualities. The milling of parboiled paddy is similar to that described for raw rice except that the final polishing is generally given in this case by passing the rice through cone polishers. The rice before bagging is sometimes mixed with a white flour which acts as an agent for absorbing the moisture in the rice and at the same time gives the rice an attractive whitish appearance.

Recently two changes are being introduced to get over some of the defects in the parboiling process in the big mills. In the Circars in addition to the usual steaming of the grain after soaking the dry paddy is first steamed under pressure for ten minutes and then conveyed to the soaking tanks filled with cold water and allowed to remain there for 24 hours. Though this extra steaming process entails an additional expenditure of an anna and a half, the keeping quality of rice is enhanced and the produce resembles rice prepared from old paddy. In the Tanjore district the large steaming tanks are now being replaced by smaller ones to facilitate the expeditious removal of paddy for drying as any delay is said to affect the colour of rice obtained. Opinions vary among the millers about the effect of the variations in the practices of soaking, steaming, drying, etc., on the quality of rice. In the absence of any scientific investigations on the question it is hard to say which are the correct methods to be adopted.

70. *Preparation of parboiled rice in small mills.* In spite of the large mills the preparation of parboiled rice by the country method is still largely adopted in several places particularly in the south of the province. Paddy is first soaked in tubs or masonry tanks of varying capacity (15 to 30 bags) for 18 to 24 hours and then conveyed to rectangular wrought iron pans of 10 to 15 bags capacity which are fitted with iron gauze inside to allow space for steam to be generated. The soaked paddy is boiled at the atmospheric pressure for about two hours. Thereafter the boiled paddy is spread out to dry in the sun for the day and under shade in the night. In some parts as in Salem, special care is bestowed to dry the paddy during the nights in floors provided with low thatched roof as it is supposed to improve the quality of rice obtained. The parboiled paddy is thereafter milled in Engleburg type hullers driven by oil-engines. Here husking, cleaning and polishing the grain are all done at one operation. There is no separate polisher, the paddy being pushed through twice through the hulling cylinder. There are some inherent disadvantages with these small plants. The percentage of finished rice obtained is poor, breakage of grain is considerable, and the appearance and the finish of the rice distinctly inferior. The husk and bran are also mixed together and fetch a very low price as cattle food.

In some places as in South Kanara district, the tenant gives the landlords' share as rice in neatly packed straw bundles, the rice pounding, serving as an off-season work for his family. In several places of the Southern and Central districts preparation of parboiled rice is still an important home industry for many families.

71. *Cost of milling.* The cost of milling paddy into rice here referred to applies only to the large scale mills. It varies according to the amount realized in the saleable bye-products. The present cost of parboiling and milling paddy into rice obtaining in the West Godavari mills is given below :—

	Cost per 100 bags of paddy (1 bag = 166 lb.). RS.	A.	P.
Pouring into steeping tanks	1	0	0
Removing to steaming drums	1	0	0
Steaming	5	0	0
Drying	1	0	0
Removing to the mill	1	0	0
Milling charges	19	8	0
Total ..	28	8	0

Taking the rice outturn to be two-thirds of the paddy, the charges come to about seven annas per bag (164 lb.) of rice. In the Nellore district the charges vary between Rs. 25 to Rs. 30 per 100 bags of paddy milled. In the Tanjore district, the charges for milling the same quantity of paddy works out to Rs. 50 or 12 annas per bag (164 lb.) of rice. The higher cost of milling in Tanjore may be due to the fact that the bran, a bye-product, does not fetch as good a price as in Godavari, there being no general demand for the same. The above is probably a reflection on the care taken by the Tanjore people with regard to their cattle. Further in the Godavari district, the husk and the ashes from the steam boilers, realize some amount as they are used in the brick-making industry.

Though the milling charges given above may be taken as the averages, they may vary slightly according to the demand and pressure on the mills. The charges for the preparation of boiled rice by the small plants and by manual labour carried on as a home industry vary between 6 to 8 annas per bag of rice, according to the nature of fuel used and the wages of labour.

72. *Storing practices.* The storage dealt with here refers only to paddy. Though the grain meant for sale immediately after harvest may be stored loose or in gunnies, larger quantities that are meant for sale later in the season have to be stored in special receptacles. The receptacles in use vary in kind and size in the different tracts. In the Circars large quantities are stored in specially built granaries called *gadis*. These are elevated structures built on pillars and provided with walls of bamboo thatties on all sides, thickly plastered over, and a pucca

roof with projecting eaves. The capacities of these may vary from 300 to 1,000 bags of paddy. These are generally owned by the producers but sometimes they are also let out to the merchants to store their grain in. Then there are the circular *puris* or *pattarais* with walls made of straw twists temporarily erected on either special circular masonry platforms or on an elevated piece of ground. These *puris* are very common in Tanjore also, and their capacities are definitely less, the largest of them probably not holding more than 200 bags of paddy. Then there are the shallow underground pits sometimes used for storing paddy for short periods. This practice obtains both in Ganjam and Nellore. For the preparation of raw rice, paddy must be stored for some time after harvest as there is probably a sort of curing process going on during such storage. In the case of the pitted grain, due to the heat developed, this curing is hastened and a sample that has remained underground for a couple of months is probably equal to one year old paddy. The millers in Nellore invariably adopt this practice before milling the freshly harvested produce. In the southern parts of the province paddy is generally not stored for a long time. The produce is usually disposed of before the commencement of the next harvest. There are other receptacles commonly used, the granary made of planks in Malabar, the straw bundles *muras* used in South Kanara, the common mud bins used all over the tamil districts, etc.

In the case of the merchants they make the bulk of the purchase of paddy soon after the harvest. The small cultivators are obliged to sell their produce early to meet cash demands like land revenue, interest on loans borrowed, etc. Big mills have got special godowns attached to them where the grain is kept partly in gunnies and partly loose. If the millers do not themselves buy and stock the grain, they allow the merchants to stock it in their godowns free of rent.

Rice as such is not stored for a long time. The only receptacle used for storing rice even for temporary periods is the common gunny. It is said that in the case of paddy stored either in underground pits or *gadis*, the rice after milling gets a sort of brownish appearance whereas the grain stored in straw *pattarais* gives an attractive white rice. This might be due to the latter receptacle being not absolutely air tight. Sometimes the millers, to increase their profit, mill the paddy with a certain amount of moisture in it, particularly in the case of the preparation of parboiled rice. This, if it cannot be sold immediately, is apt to become mouldy and diseased and to lose much of its nutritive value. Mouldy rice is often purchased by poor people because of its cheapness but it has to be washed in many changes of water before it is fit to be consumed. Though paddy does not go bad so quickly as rice, nevertheless great care has to be taken to store it properly.

73. *Loans on Produce.* Because the preparation of raw rice is the more common practice in Circars and paddy has to be stored for some time before raw rice can be prepared, people always buy paddy in the beginning of the season and store it for sale later when the price usually rises. A number of banks and money lenders-usually advance loans on the security of the stored grain. Even small tenant cultivators used

to take advantage of this arrangement and do some business on their own. Merchants and big landlords always do this with the help of the advances obtained from the banks. A large number of these people came to grief during the early part of the present depression period as there was no rise in prices subsequent to the stocking of the produce. This business has now gone down considerably and the landlords do not take any risks by handling any more stock than they themselves produce. The merchants also do not go in for loans now but on account of the low price of rice they are able to turn out twice as much business as they used to for the same amount of capital. The procedure adopted by the bank is as follows. The banks estimate the total value of the pledged paddy stock at four to eight annas per bag less than the prevailing market rate, deduct twenty per cent of this value as margin to cover risks, and advance the balance as loan. The borrower executes a pro-note and gives a declaration that he has stored so many bags of paddy in a particular godown which has been insured, that the stock belongs to him only and that no one but the bank has any claim on it. If later, the price of grain falls in the market below the rate advanced by the bank, the bank calls upon the borrower to make up the amount, so that the borrowed amount is never less than the market value by more than twenty per cent.

The items of expenditure incurred in this transaction up to the time of selling the grain are given below :—

	Per bag of 160 lb.		
	RS.	A.	P.
(1) Godown rent	0	2	0
(2) Cost of moving the grain to the godown ..	0	0	3
(3) Interest on the value of 1 bag at 7½ per cent	0	2	0
(4) Insurance charges	0	0	3
(5) Cost of removing the paddy from the godown	0	0	6
(6) Establishment charges	0	0	3
(7) Commission charge for sale	0	1	0
(8) Shortage and wastage	0	0	3
Total ..	**0**	**6**	**6**

Under this arrangement unless the difference between the purchase price and the selling price of one bag of paddy is more than 6½ annas there will be a loss. Sowcars and Marwaris also advance money on the produce but at a lower rate of interest than the banks without even insisting on the godown and the produce being insured. As a compensation against these risks, they charge penal interest if the amount is not paid before a stipulated time. In the Tanjore district, money is advanced by merchants and mill owners to landlords of good standing for delivery of the paddy at a later date, soon after the harvests, at the rates prevailing in the markets then.

Small cultivators have not got proper financial facilities and have to depend upon the local Sowcar who finances him on conditions that the produce is sold to him immediately after harvest along with interest,

also paid in the shape of grain. It is these small cultivators particularly that need help. Any co-operative organization with warehouses which can take the grain as security and advance loans at reasonable rates of interest until such time when prices improve in the market, will be a step in the right direction. There may be difficulties with regard to co-operative warehouses, the material being not all of the same standard of quality, but these difficulties are probably not unsurmountable. In any case, this arrangement will be worth the trial at least in a few typical centres of the delta areas where the difficulties of the ryot are probably more acute than anywhere else.

74. *Weights and measures.* Rice is packed for transport in gunnies in definite quantities either by weight or by measure according to the requirements of the particular market. In this Presidency the pu chase or sale of paddy and rice is transacted in weights in the Circars and in measures in all the other districts from Nellore downwards. The units adopted in the different places vary widely and are often confusing. A bag of paddy in East and West Godavari districts generally weighs 166 lb. while in Guntur it weighs 173 lb. A bag of parboiled rice produced in Godavari weighs 164 lb. uniformly but the unit adopted for the raw rice varies according to the market to which it is consigned. While the consignment to Vizagapatam district is in 224 lb. unit, that sent to Mysore and Hyderabad is in 246 lb. unit. The consignment of rice coming to the same Vizagapatam market from Ganjam district is in 180 lb. bags. The merchants sometimes buy in one unit and sell in another unit. Though the merchants in Vizagapatam market buy rice from Godavari in 224 lb. bags, they sell the same only in 214 lb. bags, the difference of 10 lb. being made to cover incidental charges. In Nellore district, rice bags for the Madras market are filled with either 32 or 42 Madras measures. For other markets, the bags are of 50 measures. In the Tanjore district, parboiled rice sent to the Ceylon market is packed in 190 lb. bags. In this way, examples of variations in units adopted in rice trade in the province may be multiplied to any extent. The importance of standardising the unit adopted in the trade cannot be over emphasised. It would be very desirable to adopt only a weight unit as any manipulation in measuring the grain would then get eliminated. It will also be highly advantageous if a common unit is adopted throughout the province for both paddy and rice. It would hen facilitate an easy comparison of the prices in the different markets of the province.

CHAPTER VII.—MEANS OF TRANSPORT AND COSTS.

The different means of transport for the paddy and rice from one place to another are :—

(1) Railways,
(2) Waterways : steamers on the coasts, and country crafts along navigable canals and backwaters, and
(3) Roads : country carts and motor lorries.

Of the above the railways are the most important.

75. *Railways.* A comparison of the freights charged by Madras and Southern Mahratta Railway and South Indian Railway between some important stations, prevailing now, with the rates that prevailed before the World War (Tables 53 and 54) will show the great disparity between the two. So long as price of commodities was high, the enhanced rate was not felt oppressive because it formed only a fraction of the value of produce. Now the price of produce has gone down by 50 per cent and more, whereas the freights remain as high as before. With the fall in price of commodities, the freight charges on steamers, country carts and double-bullock carts have all been considerably reduced. The railways on the other hand have allowed reduced rates only in such cases where they meet with competition with other means of transport. Against steamer competition, favourable rates are given by Madras and Southern Mahratta Railway from the Godavari delta to the West Coast port towns. Rates from stations in the interior of the delta to stations at the head of the delta or milling centres are reduced during the months when canals are kept open. In the West Coast, the South Indian Railway allows concession rates from Mangalore to Malabar ports during the non-monsoon months. Similarly rates for short distances have been reduced wherever there is competition from country carts. In this last case however, the railway companies have not been particularly successful in capturing the traffic. During 1933 and early in 1934, the South Indian Railway company revised its rates, reducing it progressively for distances of 176 miles and more. This has had a beneficial effect particularly on Tanjore area as will be seen below. The total quantity of rice exported from Tanjore district to Bangalore was only 7,755 maunds in 1932–33, but it went up to 88,138 maunds in 1933–34 as a result of this concession. In this connexion it may be pointed out that some of the important markets which Tanjore could monopolize are just near about the distance limit from which concession rates begin, so that full advantage of the concession shown cannot be taken. The mileage limit above which concession is allowed should, I think, be brought down to 100 miles to be of real help to the cultivators of the Tanjore district. This extension of the concession will, I am sure, increase the traffic of paddy and rice from the Tanjore district.

TABLE 53.—*Comparative statement of railway freights for paddy and rice per maund in the Madras and Southern Mahratta Railway.*

To stations.	From stations. Cocanada Port or town.			Tadepallegudem.			Ellore.		
	1916.	1934.	Percentage of increase.	1916.	1934.	Percentage of increase.	1916.	1934.	Percentage of increase.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.	
Madras ..	0 5 3	0 7 0	33·3	0 6 1	0 7 0	15·0	0 5 7	0 7 0	22·0
Bangalore City ..	0 9 5	0 15 6	64·6	0 8 9	0 12 10	46·7	0 8 6	0 12 5	46·0
Katpadi ..	0 8 0	0 11 6	43·8	0 7 4	0 9 9	32·9	0 6 11	0 9 0	30·0
Cuddapah ..	0 8 1	0 13 9	70·0	0 7 5	0 12 6	78·5	0 7 9	0 11 9	67·8
Adoni ..	0 8 1	0 13 9	70·0	0 7 4	0 12 6	70·0	0 7 0	0 11 9	67·8
Gooty ..	0 7 11	0 13 6	70·5	0 7 2	0 12 1	68·6	0 6 10	0 11 4	65·8
Anantapur ..	0 8 3	0 13 9	68·7	0 7 6	0 12 7	67·8	0 7 2	0 11 10	65·1
Bellary ..	0 8 1	0 13 9	70·0	0 7 4	0 12 5	69·3	0 7 0	0 11 8	66·7
Calicut ..	..	..	..	..	..	..	..	..	..
Coimbatore ..	..	..	..	..	..	..	..	..	..

To stations.	From stations—*cont.* Bezwada. 1916. (11) RS. A. P.	Bezwada. 1934. (12) RS. A. P.	Bezwada. Percentage of increase. (13)	Nellore. 1916. (14) RS. A. P.	Nellore. 1934. (15) RS. A. P.	Nellore. Percentage of increase. (16)
Madras ..	0 5 0	0 7 0	40·0	0 2 4	0 4 6	93·8
Bangalore City ..	0 8 1	0 12 0	48·4	0 6 3	0 10 1	61·3
Katpadi ..	0 6 6	0 8 0	23·0	0 4 1	0 5 8	38·8
Cuddapah ..	0 6 7	0 10 10	64·6	0 4 3	0 5 11	39·2
Adoni ..	0 6 7	0 10 10	64·6	0 6 5	0 10 6	63·6
Gooty ..	0 6 5	0 10 5	62·3	0 5 9	0 8 11	55·0
Anantapur ..	0 6 8	0 10 11	63·8	0 6 0	0 9 5	57·0
Bellary ..	0 6 7	0 10 9	63·3	0 6 5	0 10 6	63·6
Calicut ..	..	..	..	0 7 7	0 13 5	77·0
Coimbatore ..	..	..	..	0 7 1	0 12 7	77·7

TABLE 54.—*Comparative statement of railway freights showing rates for rice and paddy per maund in the South Indian Railway (rates are for wagon loads).*

Distance.	Schedule rate per maund exclusive of terminals, etc. 1917–18. RS. A. P.	Schedule rate per maund exclusive of terminals, etc. 1932–33. RS. A. P.	Percentage of increase.	Revised schedule rate, 1934. RS. A. P.	Percentage of decrease over 1932–33.
51	0 1 3	0 1 6	20·0	..	..
100	0 2 6	0 2 11	16·7	..	..
150	0 3 4	0 4 5	32·5	..	..
200	0 4 2	0 5 10	40·0	0 5 4	9·0
250	0 4 7	0 6 10	49·0	0 5 6	19·5
300	0 4 8	0 7 4	57·0	0 5 10	20·5
350	0 4 9	0 7 11	66·7	0 6 0	24·2
400	0 4 9	0 8 5	77·2	0 6 2	26·7
450	0 4 10	0 8 11	84·5	0 6 6	27·1
500	0 4 11	0 9 4	89·8	0 6 11	26·0

Many of the rice importing centres in the south are very far from Kistna, Godavari and Nellore districts, and have to meet heavy freight charges (Table 25 supra). For example the railway freight on a bag of rice (246 lb.) from Nellore to Madura is now Rs. 2–7–0 which is nearly 25 per cent of the cost of the rice at Nellore. Similarly in the case of rice sent from Bezwada to places in the Bombay Presidency and in the Mysore State the freight charges amount to 30–35 per cent of the cost price of rice at Bezwada. Since the reduction in the freight rate between Tadepalligudem and Madras from As. 10–6 to As. 7–4 per maund, the volume of traffic from this station has been on the increase. In this connexion a case of disparity in railway rates between stations should be pointed out. Freight rates and distances from Tadepalligudem to some of the centres in the West Coast of the Province are noted below :

Rates per maund from Tadepalligudem to	RS. A. P.	Distance in miles.
Calicut	0 6 10	748
Coimbatore	0 10 0	641
Tiruppur	0 13 9	610
Erode	1 0 6	581

Special rates are given to Calicut because of the steamer competition from Cocanada to Calicut. The rates for places in the Coimbatore district are higher than for Calicut though they are nearer to Tadepalligudem. In fairness, the rates for some of these important centres may be made at least the same as for Calicut. At the existing rates, the Erode merchant pays for a bag of parboiled rice Rs. 2–1–0 or 33 per cent of the cost of rice at Tadepalligudem as freight. As a consequence, the merchants at Coimbatore, Tiruppur and Erode are getting more and more of their requirements from Calicut or Cochin at a less cost. The disparity in railway rates thus encourages the movement of foreign rice from the ports to the interior. Similarly also the high railway rate between Nellore and Madura is encouraging the movement of foreign rice from Tuticorin to Madura which replaces Nellore rice. The railway companies should recognize that the low steamer freights are partly responsible for the arrival of foreign rice at the ports and that reduction of freights will alone help the local rice to compete with the imported rice. The guiding principle in the fixing of special rates should be to give full scope for the sale of the local produce in the internal markets of this presidency. First of all the present rates between all the important stations in the producing areas and the different important consuming markets should be favourably revised. Secondly the maximum class rates should be maintained for the movement of rice from the ports to inland stations, so that foreign rice cannot compete with the local rice there. It is only then that the full benefit of the revision will be realized. The reduction of freights will not only increase the traffic and thus maintain the receipts of the companies but will also help to improve the purchase price of the commodity at the producing centre and thus benefit the cultivator.

76. *Waterways—Steamers.* The coast trade of India is controlled by a combine of three shipping companies called the "*Conference line.*" The merchants dealing in coast trade have come to an agreement with the companies according to which they undertake to send all the goods they deal in by their ships and get in return a rebate on the amount of freights paid by them during the year. The freight rate for a ton of rice from Rangoon to Madras was Rs. 15 in 1928 but this has since been reduced to Rs. 10. The shipping companies allow a rebate of Rs. 2–4–0 per ton on this so that the amount spent by the merchants as freight charges for moving one ton of rice from Burma to any port of the Madras Presidency is only Rs. 7–12–0. Recently the Combine has broken down and there is a freight war going on among the companies concerned. The freight charges I understand, have been temporarily brought down to Rs. 4 per ton.

Freight rates on imports from Siam or Indo-China have been even less than from Burma. Japanese steamers are specially chartered at concession rates of Rs. 6 to Rs. 7–8–0 per ton. In addition to the cheapness in freight the imports from Siam and Indo-China get a benefit in the landing charges. The cargo of the coasting steamers has to be landed by the agents of the companies. In the case of chartered foreign steamers however, the merchants can employ private labour to land the goods at a smaller cost. Thus the merchants who import rice from

Siam and Indo-China gain an advantage both in steamer freights and landing charges, with the result that they can sell the imported rice even cheaper than Burma rice whose price is already low.

77. *Waterways : Country crafts.* In Kistna and Godavari deltas country craft in canals is the main source of transport. There are also small cargo boats which carry rice from Kistna delta and Nellore through the Buckingham Canal to the Madras City. Along with the recent fall in the prices of paddy and rice the conveyance charges by boats have also come down, the fall amounting to over 30 to 40 per cent of the rates prevailing previous to 1929. The present charges at some important places are given below :—

From	To	Distance in miles.	Rates per 100 bags of rice or paddy. RS. A. P.
Nidadavole	Palacole	28	5 0 0
Do.	Samalkot	45	10 8 0
Do.	Bezwada	80	15 0 0
Bezwada	Madras	270	50 0 0
Nellore	Madras	110	19 0 0 to 22 0 0

78. *Road—Country carts.* The abolition of toll gates, the fall in the prices of cattle food and a fall in the prices of animals have now reduced the cost of transport by bullock carts to about 50 per cent of what it was in 1927–28. This transport is still utilized largely for distances up to 40 and 50 miles even though the stations concerned may be connected by railways. When the distance is small, the direct road transport by cart is found to be even cheaper than transport by rail as it dispenses with the expenditure on moving the produce from the godown to the station at one end and from the station to the godown at the other, besides the loading and unloading charges at the stations. In these days of agricultural depression traffic by road offers the small cultivator an additional source of income and gives some employment in the off-season for himself and his cattle. Transport of paddy by motor lorry from Coorg to Malabar costs Rs. 10 to Rs. 12 per ton which is just as much as the cost of transport by double bullock carts.

The importance of road communications in the rural areas is well recognized. The inaccessibility of the villages to the markets, particularly characteristic of some of the deltaic tracts, acts as a serious deterrent to the movement of produce and makes primary marketing costly. This question in its applicability to the marketing of rice was considered beyond the scope of this enquiry and hence has been omitted.

79. *Railway freight and its relation to cost of produce.* The present price of rice is the same as that which obtained sometime before the war, i.e., 1906–1910. It was explained earlier (Tables 53 and 54) that the railway freights now prevailing are about 50 to 80 per cent higher

than the prewar rates. While the higher freight rates were not serious previous to the present depression when the price of the commodity was high, they must be considered serious now, when the price has gone down considerably. The percentage of the cost of rice paid as railway freight before and after the depression is given in Table 55 for comparison.

TABLE 55.—*Comparison of freight rates as percentages on cost of produce during* 1927–28 *and* 1933–34.

From station to stations.	1927–28. Freight per maund. RS. A. P.	1927–28. Price of rice per maund. RS. A. P.	1927–28. Per cent.	1933–34. Price of rice per maund. RS. A. P.	1933–34. Per cent.
Bezwada to—					
Kurnool	0 10 11		13		31
Bellary	0 10 10		13		31
Sholapur	0 11 3		13		32
Dharwar	0 15 3		18		44
Bangalore	0 12 0	5 5 0	14	2 3 0	34
Erode	1 0 1		19		48
Salem	0 14 0		17		43
Bijapur	0 13 0		15		37
Nellore to—					
Madura	0 12 5		11		23
Tuticorin	0 13 5		12		25
Karaikudi	0 12 4		11		23
Erode	0 11 0		10		20
Dindigul	0 12 0	7 0 0	11	3 5 4	23
Coimbatore	0 13 0		12		24
Tellicherry	0 13 5		12		25
Bangalore	0 10 1		9		19
Madras	0 4 6		4		8
Cocanada to—					
Bangalore	0 15 6		18		46
Cuddapah	0 13 9		16		40
Bellary	0 13 9	5 8 0	16	2 2 0	40
Katpadi	0 11 6		13		34
Tadepalligudem to—					
Bangalore	0 12 10		15		38
Bellary	0 12 5		14		37
Cuddapah	0 12 6	5 8 0	14	2 2 0	37
Adoni	0 12 6		14		37
Papanasam to—					
Karur	0 5 0	2 12 0	11·5	1 6 0	23
Trichinopoly	0 2 0	per *kalam*	4·5	per *kalam*	9
Koilpatti	0 13 11	of 24 Mad-	32	of 24 Mad-	64
Erode	0 6 9	ras mea-	16	*ras mea-*	32
Dindigul	0 5 11	sures of	13	sures of	26
Virudunagar	0 8 8	paddy.	20	paddy.	41

CHAPTER VIII.—PRICES.

80. *Data for fixing price.* The purchase price of paddy and rice produced in any area will depend upon the price they can obtain in markets either local or outside in competition with other paddy and rice that may be coming there. For example the price of paddy grown in Salem or Coimbatore will have to be fixed with reference to the price of rice coming into Salem from Tanjore and Godavari. So also the price of

sirumani paddy in Tanjore should have a relation to the price it can obtain at the Colombo market in competition with Burma rice. The various items of expenditure that have to be incurred between the produce leaving the producer and reaching the consumer are—

1 Cart hire to transport paddy from villages to the mills,
2 commission to the village broker,
3 merchant's or miller's profits,
4 milling charges,
5 commission to wholesale rice exporting agents,
6 freight charges,
7 incidental charges at both ends,
8 commission or profit of the importing agents, and
9 retail sellers' profit.

As an illustration let us take the case of the parboiled rice from West Godavari which sells at Rs. 6 per bag of 164 lb. at Madras. The price per bag of paddy at Godavari can then only be Rs. 2–13–0 as shown below :—

Charges incurred per bag before the rice arrives in Madras.

	RS.	A.	P.
Commission at Madras	0	1	0
Freight and incidental charges	1	2	0
Cost of gunny	0	3	0
Milling charges	0	4	6
Profit of the miller or merchant	0	1	0
Brokerage, weighing, etc.	0	0	6
Total ..	**1**	**12**	**0**

Therefore the price of 164 lb. of rice or its equivalent 246 lb. of paddy will be Rs. 6 minus Rs. 1–12–0 or Rs. 4–4–0 in Godavari and hence the price of one bag of paddy 166 lb. will be Rs. 2–13–0. Any reduction or complete elimination of expenditure under any of the above mentioned items would tend to increase the share obtained by the producer of the price paid by the consumer. During the last two or three years the expenditure under most of the above items have already been reduced to the absolute minimum and would not offer scope for any further reduction. The only item that can possibly be revised is railway freight as has been shown already.

81. *Trend of prices.* The average harvest price of rice for the different districts for a period of 30 years (1904–33) is presented in Appendix 15 and the same represented graphically in Figure XII. The prices in the Central and Ceded districts are always higher than in the delta areas, because they represent the price in the delta plus the transport and incidental charges from the delta to these places. A close perusal of the monthly prices of rice at Rangoon and Cocanada for the years 1928–1934

(Figure XIII) will show that the Cocanada prices follow more or less the Rangoon market, because they both cater to the same markets in the south of the Province. The prices at the other centres also follow the same trend. A scrutiny of the Figures XV and XVI shows that during the years 1932–33 and 1933–34, the variations in the price within a year is not so apparent as in earlier years when prices were high. The price difference between fine and coarse rice, and that between new and old rice at some of the centres are represented in Figures XIV, XVII and XVIII-a, b, and c. They show that the differences that existed during the earlier period of the depression have later narrowed down. Again, even within a year, the price difference between old and new rice is maintained only up to June-July, there being practically no difference thereafter. The demand for fine rice is comparatively small and so long as the production of fine rice was limited, it fetched better prices. Because of the better price obtained for the fine rice, the production of the same has been increasing in the Godavari and Kistna deltas during the last two years, with the result that the difference in value between fine and coarse rice has got smaller.

82. *Market service.* There is nothing like an organized and controlled grain market in the Presidency. In the Southern districts, grain markets called *pettais* or *mandies* are the places where the sale of paddy is usually carried on. Paddy and rice are also sold and purchased in the weekly *shandis* in all places. The merchants or commission agents both at the producing as well as at the consuming centres keep in touch with each other regarding the fluctuations in the market. The merchant at the consuming centre compares the prevailing prices at all the producing centres and orders for the rice or paddy from a particular centre where the prices are most favourable to him. The merchant at the exporting centre usually sends samples of the produce when he quotes prices. The business is mostly transacted by individuals and not by any organized body of people. Each merchant carries on business generally with his own set of customers in the tracts he deals with. There are mill owners' association at Nellore and Tanjore but there is no organized attempt in the name of the association to buy paddy, to fix prices, to collect information about market prices and to explore the possibilities of new markets. I am sure there are a number of ways in which these associations can function usefully. Ascertaining and publishing periodically the current prices of paddy and rice in the different markets within and outside the Province for the information of the members of the association and of the public will be a very useful work. The grain merchants' association at Bangalore is doing such work to the benefit of its members. The association can also bring about useful reforms in the way of standardizing weights and measures adopted in the different parts of the country. With regard to the timely publication of the market prices, probably the vernacular dailies of the Province could be utilized. The *Swadesamitran* of Madras is publishing the price of rice in Madras and Rangoon. It will be a distinct advantage to the trade if the prices of paddy and rice at the different important centres within the Province could be included in the publication at least once a week.

CHAPTER IX.—MISCELLANEOUS.

83. *Commercial uses of rice.* A small quantity of inferior or broken rice is used in the preparation of *conjee* required by washermen and weavers. Paddy is also used for making beaten rice, *aval* and pop rice, *pori*. Coarse varieties of rice with a mealy and soft kernel are generally preferred for preparing beaten rice from. The preparation is made mainly with fresh paddy, the grain that has been stored for some time being unfit. It is only in North Malabar, South Kanara and Central districts that the beaten rice is prepared on a commercial scale to meet the local demand. There are a number of important centres in the Ceded and Central districts which specialize in the preparation of pop rice each having its own particular variety of rice. Some of the special varieties that are used in the preparation of pop rice are *bairivadlu* in Gudiyattam, G.E.B. 24 in Hospet, and *anaikomban* in Avanashi.

The beaten rice prepared in South Kanara is of the best kind, thin and broad. If instead of human labour a simple machine could be used in its preparation the product might be made even thinner than is possible with the wooden pestle, so that it will take less time to get soft when soaked in milk or water. The product can then probably be made into small packets and sold. Similarly pop rice can also be made into attractive packets for sale. There is a fair amount of corn flakes, force, shredded wheat, pop corn, etc., that is imported into the country and suitable rice products in the shape of beaten rice and pop rice can be made to take their place in the country. It may also be worth investigating the industrial possibilities of using rice for the manufacture of beer (which is made on a large scale in Japan), power alcohol, pure starch, etc., in the country.

84. *Improvement in cultivation and outturn.* Apart from attempting to raise the price level of paddy by other means, the producer can also strive to counteract the fall in price to a limited extent by improving his acre yields. There is no doubt that the acre yields could be improved by growing superior strains and by adopting more intensive methods of fertilizing the rice fields, than at present practised. The department has already made available a large number of superior strains for most of the important rice areas of the Province. While some of them are limited in their suitability, others are cosmopolitan in nature, doing well under a variety of conditions. G.E.B. 24 strain isolated in Coimbatore has met with universal approval throughout the Province, and strain Aduturai 11 of Aduturai has been found suitable for Nellore, Tanjore, Madura and Tinnevelly tracts. The production of new strains for tracts still untouched is under way. The mere growing of strains is likely to give on an average a 10 per cent increase in yield and involves no extra expense in cultivation costs. The department has been arranging for the supply of pure seed on a large scale by running a large number of seed farms at different places in the tract.

As regards manuring, application of bulky organic manures has always given striking results in every part of the Presideney. Wherever the system of growing a green manure crop or the application of green leaves

or oil cakes prevails, the average acre yields are high as in Coimbatore, Hospet area of Bellary, area under Cuddapah-Kurnool canal in Cuddapah and the Godavari delta. Under favourable conditions green manure crops like sunnhemp (*Crotalaria juncea*) and *pillipasara* (*Phaseolus trilobus*) give up to 15 to 20 thousand pounds of green matter costing only about a rupee or so per thousand pounds, and the quantity from one acre should be enough for manuring 4 to 5 acres. Oil cakes are also very cheap in the market and it is unfortunate that a greater use is not made of these valuable organic manures. What systematic and intensive manuring combined with growing of strains can do to improve the acre yields is well exemplified from the results of the Central Farm wet lands where the average acre yield has now been brought up to over 3,500 lb. Similar high yields are also obtained even now in different places where special attention is paid to manuring. Experiments at the Departmental Stations have proved that the response to intensive methods of manuring and cultivation is much greater when the crop is raised from strains rather than from the mixed seed.

CHAPTER X.—RECOMMENDATIONS.

85. *Prohibition of foreign imports.* The price of paddy and rice has been going down badly within the last two or three years with the result that the average cultivator, the back bone of the country, has been hit hard and a great deal of hardship is experienced. There must be some endeavour made to find ways and means of bringing about some improvement in his condition and this can be possible only if the price of rice, the primary commodity, improves. We have first to see whether there are any direct contributing causes to accentuate the troubles due to the general economic depression that is already gripping the whole country, nay the whole world. Madras has always been importing a certain amount of rice of an indifferent quality from Burma and the poorer classes of people in South India are quite familiar with it. Apart from this, during the last fifteen or sixteen months, unusually large quantities of rice from Siam have found their way into Madras and other ports. The total quantity of this import from Siam in 1934 has (up to August) gone up to nearly 200 thousand tons. The South Indian rice markets are now practically flooded with the foreign rice. There is no doubt that this huge uncontrolled import of a cheap rice has been the primary cause to dislocate the price levels of the local rice and to make the position of the rice grower precarious. The price level of the local product could only recover when the price of the imported rice is raised to the level at which the local rice should sell if the cultivator is to derive a reasonable profit over his cost of cultivation. This can be achieved by either completely stopping the foreign import or restricting the quantity to be imported. Of the three countries we have to deal with, Burma, Siam and Indo-China, we may be able to do nothing with the first so long as it remains a province of India. Moreover, Burma has from a long time been meeting our deficits in rice production. In the case of Siam and Indo-China, however, steps should be taken to completely prohibit the imports. If total prohibition is not feasible, a suitable import duty on rice and paddy

should be imposed. Elimination of Siam and Indo-China will leave Burma as the main importing country and the full demand of Madras would, therefore, help to increase the price of Burma rice. With an improvement of the price of Burma rice, the price of local rice should also automatically improve.

Objections might be raised against restricting imports from Siam for the following reasons :—

(1) The Siam rice is of a particular grade and quality, mainly broken rice, and is consumed by the poorer classes of people, and any stoppage of the import would affect their economic life.

(2) This imported broken rice does not compete with any of the indigenous rice.

(3) There is no dumping of rice by Siam, and any action taken against Siam will not only upset India's exports to that country but will create more serious repercussions.

Let us examine these reasons individually—

(1) Obviously in this question the interests of two sets of people are concerned (i) the man who owns the land, the cultivator and (ii) the ordinary labourer. Of the labourer there are two sets, one connected with agriculture and the other connected with the industries. The latter is mainly confined to the urban and industrial centres and in an essentially agricultural province like Madras, requires comparatively small consideration. Between the small land-owner and the agricultural labourer what will suit one will not suit the other, but in the general interest of the country, it is the position of the former that must be improved even at the risk of jeopardising the interest of the labourer. It must be remembered that even in these days of depression, the labourer is comparatively better off than the small cultivator as the fall in his wages has been proportionately less than the fall in the price of primary commodities. If the objection is valid it means that the labourer is allowed to buy foreign rice because of its cheapness in preference to local rice, to the production of which he has himself been an active contributor. This, it must be accepted, is not a sound policy so long as there is no outside market for the local produce. Moreover, if the stopping of the foreign imports results in improving the price level of the local produce, the position of the cultivator must improve and with it the position of the labourer as well.

(2) As regards objection No. 2, though the actual import consists only of broken rice, the price of the whole rice has to come down relatively, as has been explained already. With the increase in the imports of broken rice and the consequent increase in its consumption we will be gradually reducing the consumption of the local produce which is certainly not to the good of the country. Moreover, Burma has been supplying Madras with a similar quality of cheap broken rice previously and she should be able to supply all our requirements in that line, if need be. There is no reason why another competitor to Burma should be let in to exploit our markets and cause a fall in price. It must also be remembered that while in the beginning the imports from Siam consisted only of broken rice, recently raw and parboiled rice have also begun to arrive.

(3) Though the import of Siam rice into Madras may not be called dumping in the strict sense of the word, the effect it has produced is more or less the same as dumping. The chief commodities of export to Siam from India are jute and opium which she will have to buy in any case whether we take in her rice or not. What the repercussions might be if Madras prohibits Siam rice we cannot say. In these days of economic depression practically every country in the world, even highly developed industrial countries included, is putting up restrictions on foreign imports of agricultural produce to safeguard her agriculture and it will be none too soon if a move in this direction is taken by India. The only alternative to checking of foreign imports will be for the Government to establish a price fixing machinery which is none too easy for our conditions.

It is often asked how these importing countries manage to produce and sell the rice so cheap in our markets after meeting transport charges. It must be remembered that in these countries rice is a commercial product found in the form of a huge exportable surplus and has to be disposed of somehow. In the case of Siam it is stated that the general agrarian distress and the currency difficulties have helped the exodus of rice from the country. The mere fact that the rice from these countries sells cheaper in our markets need not necessarily mean that the rice production there is more economical than in Madras. So far as acre yield is concerned we are in a more favourable position than any of them.

It may be remarked that so long as there is no definite over production of rice in the province there is no necessity to restrict the imports. But in normal years, Madras requires only a comparatively small quantity of rice to supplement her production and this, she can always get from Burma. It is the butting in of Siam in recent years with her enormous imports of cheap rice into the Province that has been the chief cause of the serious disturbance in price levels and there is thus a definite case made out to stop this import. Though the import from Indo-China is not so serious at present there is no knowing when it will get serious and any action to be taken now will have to apply both against Siam and Indo-China.

If even after either completely prohibiting or levying an import duty on rice from Siam and Indo-China things do not improve, the question, whether even the Burma imports cannot be regulated by the imposition of a quota or by a system of licensing, might have to be considered. If for any special reasons, neither prohibiting nor levying a duty on Siam and Indo-China rice is possible the question of licensing importers of rice from Siam and Indo-China may have to be examined.

86. *Adjustment of railway freights to increase inland movement.* It has been shown already that the freight charges play an important part in determining the sale price of rice in the markets. At present the railway

freights for the movement of rice within the province, from the producing to the consuming centres, form a disproportionately high proportion of the cost price of the product. Because of the high rates, the price obtained by the cultivator is uneconomical. If the price of rice in the producing area is to be raised to such a level as to make cultivation of rice pay for itself, it is imperative that the railway freights for the inland movements of rice should be reduced to the minimum. The large import by sea is accelerated by the cheap steamer freights. The steamers are really the competitors for the railways. The railway companies have given concession rates wherever there is direct competition with steamer and canal transport. But on account of the cheaper foreign rice finding a way into the interior up to about 80 to 100 miles from the ports, the advantages of the concession given cannot be availed of. The traffic by railways will increase only if the concessions are extended to all the centres. There is no question of the railway companies losing their revenue by extending the concession, as the increase in the volume of traffic will surely make up for the reduction in rates, which is what has actually happened in some of the instances mentioned in the report. In addition to extending the concession rates to all the important markets, the railways must see that the maximum rates are charged for the transport of rice and paddy arriving in ports from foreign countries into the interior of the province.

87. *Facilities for foreign export.* Under the present conditions of the world rice trade, it is very doubtful if Madras can sell her coarse rice in her foreign markets of Ceylon and Federated Malay States, in competition with rice from Burma, Indo-China and Siam which have better and cheaper transport facilities than what Madras can command. Her exports to foreign places are confined to certain special quality rice from Tanjore and every effort must be taken to maintain the present volume of exports and even expand it which is possible only if the railway freights from Tanjore and South Arcot to Ceylon are reduced. In view of Ceylon coconuts coming into the Madras Presidency with a preferential duty, the Ceylon Government may be induced to afford cheaper railway freights in Ceylon for rice sent from Madras.

In this connection it may be worth while to investigate the possibilities of finding any foreign markets for the better quality Madras rice. There is a certain amount of rice import into Great Britain from Non-Empire countries like Italy, Spain and America. Samples of these rices which have been examined do not appear to be any better than some of the better class Madras rice. The only requirements of the Great Britain market would appear to be an attractive appearance and great uniformity, the actual size of the grain being no important consideration. With a little more care in milling and polishing, any of our rice which is now produced on a commercial scale, such as *sirumani* of Tanjore, G.E.B. 24 of Coimbatore and *molagulukulu* of Nellore should prove even superior to the Spanish and Italian rice. The preference to be shown to the Empire goods as a result of the Ottawa pact could be exploited in this connection. It will not be enough if only samples are sent with quotations. Since rice from other countries has already been in the markets there for some years, and the trade is well organized, a certain amount of propaganda on

behalf of the Madras rice might be necessary. Even small colonies like British Guiana have started doing this, and there is no reason why we should not also try and get a share of the rice market of Great Britain.

88. *Fixing grades and standards ; purchase and sale by weight.* One of the contributing causes for the reduction in the demand of the rice from the Kistna and Godavari deltas in the adjoining states of Mysore and Hyderabad is that the grades and qualities of the samples are not maintained uniformly. Indiscriminate mixing of new with old, and inferior with superior rice practised by the mill-owners is partly responsible for this decline in demand. If the mill owners at the exporting centres can combine and take joint action in carrying on trade with rice of definite qualities and grades, and stop adulteration, it will go a great way to improve matters. The rice millers' association at Nellore is trying to bring about improvements in the trade on the lines indicated above and it will be worth the while of the mill-owners at other centres to copy this example. Such associations can also try and bring about reforms in the direction of introducing standards and common unit of weight for adoption in the trade throughout the province. Complete elimination of the practice of buying and selling by measure will be a move in the right direction, as then, the cultivator or the merchant can be sure of getting the full value of the goods he deals in.

Apart from the deliberate adulteration practised by the merchants and mill-owners, the cultivators still continuing to grow rice crops with impure and mixed seed, is another difficulty against fixing standards. The spread of strains evolved by the Department is no doubt gradually removing this difficulty. The increased activity of the Department in hastening the spread of the strains during the last year or two by running a large number of seed-farms in various parts of the country is a step in the right direction. It may be worth while in this connexion to gather the experience obtained in running the seed farms and see whether any improvements may be introduced in the methods so that the spread of strains can be further accelerated.

89. *Financial help to cultivators.* Big landlords and merchants who have their own granaries or go-downs generally store their paddy for sometime, and then release it when better price prevails. They can also, if necessary, raise loans from banks by pledging the stocks. In the case of the much larger number of smaller landowners and cultivators no such facilities are available, and they are forced to offer for sale their produce immediately after harvests when the price is always low. Co-operative purchase and sale societies with suitable warehousing arrangement in all the important producing areas might be organized to help these small cultivators. The societies can take the produce from the cultivators, stock it in their warehouses and release it when price rises. They can also advance small loans to the cultivators on the security of the produce so stored. A beginning might be made immediately to start a few such societies at some typical centres in the delta tracts.

90. *Commercial uses.* The commercial possibilities of starting small-scale industries like the manufacture of beaten rice and pop rice for sale in neat packets or tins in the big cities of the country and, if feasible, at

outside centres also may be investigated. The industrial possibilities of the manufacture of beer, pure starch, etc., may also be examined.

SUMMARY.

The rice area and rice production have been generally on the increase during the last decade in almost all the rice producing Countries of the east, particularly in Burma, Siam and Indo-China who on account of their huge exportable surplus, figure prominently in the international rice trade. Among the provinces of India, Madras occupies the fourth place as regards rice acreage and the third place as regards total production. The area under rice in Madras is about 11·4 million acres which form about 30 per cent of the area under cultivation. Of the 11·4 million acres, 8·2 millions are under irrigation while the balance is entirely dependent on rain. The net quantity of 5,036,322 tons of clean rice and 3,638,833 tons of millets produced annually in the province allows a consumption of 5 cwt. of cereals per year per adult head of the population which has been estimated to be 75 per cent of the total population. This quantity should be almost enough for the requirements of the Province, but since the yields of millets and the rice in the unirrigated areas are entirely dependent on favourable monsoons, there are big fluctuations in the production from year to year. There is usually a deficit of two to three hundred thousand tons of rice which she has to import from other countries and Provinces. Though this deficit was being met almost entirely by Burma previously, recently two other countries, Siam and Indo-China, have come into the field. The imports into Madras from these countries are continuously on the increase, and the import from Siam in particular is getting abnormally high since the beginning of 1934.

The entire import of Siam consists of broken rice, a bye-product in the preparation of raw rice for the international markets and is therefore very cheap. This cheapness combined with low transport charges by steamers is an inducement for the importers to bring it into the province in large quantities. Although its consumption is mainly confined to the poorer classes, its price makes the price of the local produce come down relatively. There is no doubt that apart from the general economic depression gripping practically every country of the world, it is this huge import of the foreign rice into Madras that is responsible for disturbing the price levels of the local product. It so happens that the imports arrive at ports situated in the tracts which used to be the chief markets for the surplus product of the deltaic tracts in the province. In addition this imported rice is even sent to the centres in the interior up to distances of 80 to 100 miles from the ports where it competes with local rice. The rise or fall in price of the local rice follows more or less that of the imported rice. The price of rice in Madras at present is almost the same as that during the period 1904–08, i.e., it has come down by over 50 per cent since the depression began.

The railways are the chief means of transport of the local rice from place to place and the railway freight rates which had increased from 30 to 80 per cent during the last 15 years continue to-day at that level with certain exceptions, in spite of the fact that the value of the produce has come down considerably. Though the railway companies have allowed

concession rates for the internal movement of the local produce wherever they come in competition with other means of transport, the advantages of such concessions cannot be fully availed of on account of the arrival of the cheap foreign rice at the ports and its distribution in the neighbourhood. Examination of the various agencies employed and the charges paid from the time the local produce is bought, up to the time it is offered to the consumer as a finished product gives no scope for a reduction in any of the items except the railway freights. Because of the high railway freights the movement of the produce within the province is getting more and more restricted and the foreign rice is gradually replacing it with the result that the condition of the rice grower is getting to be increasingly serious. The cost of production of rice was only 50 per cent of the market value of the produce before 1930, but now it has gone up to 70 to 80 per cent of the value, leaving the cultivator a much smaller margin to meet his other expenses from.

Besides the huge foreign imports, there is a certain amount of rice imported into the province from Bombay, Bengal, Central Provinces and it is not of much concern except probably the import from Central Provinces into the Vizagapatam district.

As regards foreign export from Madras, it amounted to only 75,504 tons in 1933–34 or roughly 1·5 per cent of the production. The exports are for Ceylon, Federated Malaya States and Strait Settlements. While the export from Godavari to Ceylon has considerably declined, that from Tanjore is being maintained and there is even a slight improvement since last year after the reduction in railway freights. The exports from Tanjore to Federated Malaya States and Strait Settlements are, however, again on the decline. The inland supply of rice from Madras, to the total extent of 2,402 (thousand maunds) in 1933–34 is for the markets of Mysore, Hyderabad and Bombay Deccan. This supply fluctuates with the production in these places. The long distance and the high transport charge by railways act as a deterrent against a larger movement than at present.

Examining the inland movement of rice within the province, the areas chiefly concerned in it are the districts of Godavari, Kistna, Nellore and Tanjore. The despatches from Northern Circars and Nellore are mainly in the form of raw rice though East and West Godavari districts send out some parboiled rice as well. In the Southern and Central districts, the movement is mainly confined to parboiled rice and paddy.

Machine milling of rice has made the hand pounding method obsolete in the rural areas. While rice is consumed as raw rice throughout the Circars and Ceded districts, in the South, Central and West Coast districts, it is mainly consumed as parboiled rice. The method of preparing parboiled rice varies according to the tracts and according to the size of the plant used in the manufacture. The movement of grain as paddy is confined mostly to places where the machine made parboiled rice is not popular. There is no doubt that it is the railway freight that stands in the way of greater internal movement of rice. Wherever the railway companies allowed concession rates the traffic has definitely increased.

Rice millers do not generally adopt any grade or standard for the produce they deal in. They mill rice according to the requirements of

each market. A certain amount of adulteration between old and new, and superior and inferior rice, is always practised, particularly in the trade of raw rice. Good polishing and the elimination of broken rice are practised only in the case of milling fine rice as it does not pay to adopt them in the case of coarse rice. In the trade there is no common unit followed. The produce is dealt, both in measure and in weight and the units of measure and weight vary from place to place often leading to confusion. The merit of the Departmental strains is appreciated by millers and merchants who pay a premium of two annas per bag of paddy for the produce obtained from them. It will be necessary to maintain their purity by the supply of pure stocks of seed from seed farms run in the different areas under Departmental supervision.

While the big landlords may be able to store their produce for some time after harvest, releasing it when price improves and even borrow money on the security of such stored produce, the large number of small cultivators have no such facilities, as they are obliged to sell off their produce immediately after harvest when price is low.

The following are some of the directions in which improvements may be introduced :—

(i) Prohibition of the import of foreign rice and paddy or the imposition of a duty on such imports.

(ii) Reducing the railway freights to the minimum for transporting rice and paddy from all the producing centres in the Province to the different consuming centres and retaining the maximum freight rates for transport of foreign imports arriving in the ports to inland centres,

(iii) Forming associations of millers and merchants and using such associations to fix grades of produce, to control adulteration, and to introduce the system of purchase and sale by a standard unit of weight,

(iv) Publishing regularly in the vernacular dailies of the Province, the market rates for rice and paddy at all the important centres of the Province,

(v) Organization of co-operative purchase and sale societies with warehousing arrangements to help the small cultivators, and

(vi) Hastening the spread of improved strains in all the rice tracts and intensifying the propaganda about better cultivation and manuring of the fields, so that the acre yields will be improved and the cost of production proportionately reduced.

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APPENDICES

APPENDIX 1 (*a*).—*Percentage of areas under Rice, Millets and Non-food crops to the total area sown in the Madras Presidency during* 1932–33.

District.	Paddy.	Other cereals.	Cereals.	Non-food crops.	Pulses and other food crops.	Population per mille.
Ganjam	60	13	73	7	20	428
Vizagapatam ..	36	34	70	16	14	534
Godavari, East ..	49	16	65	16	19	660
Godavari, West ..	68	9	77	12	16	518
Kistna	47	23	70	19	11	354
Guntur	17	41	58	33	9	354
Kurnool	..	56	56	37	7	135
Bellary	..	58	58	33	9	170
Anantapur	..	54	54	27	19	156
Cuddapah	7	55	62	30	8	160
Nellore	24	55	79	9	12	187
Chingleput	74	12	86	10	4	535
South Arcot ..	41	28	69	26	5	583
Chittoor	23	48	71	17	12	245
North Arcot ..	37	26	63	27	10	488
Salem	10	45	55	16	29	345
Coimbatore	5	51	56	28	16	345
Trichinopoly ..	22	53	75	15	10	443
Tanjore	73	7	80	10	10	638
Madura	25	42	67	21	12	447
Ramnad	32	36	68	27	5	382
Tinnevelly	24	31	55	33	12	474
Malabar	49	..	51	27	22	610
South Kanara ..	78	..	79	10	11	341
Nilgiris	6	..	20	65	15	172

APPENDIX 1 (*b*).—*Percentage of area under Rice to total area sown in the Presidency during the period* 1922–23 *to* 1932–33.

District.	1922–23.	1923–24.	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.	1929–30.	1930–31.	1931–32.	1932–33.
Ganjam ..	63	55	60	63	63	63	63	62	62	58	60
Vizagapatam.	26	36	38	38	38	38	38	37	35	36	36
Godavari, East.	47	43	46	48	50	49	49	47	46	51	49
Godavari, West.	..	..	65	67	72	70	68	67	68	69	68
Kistna ..	54	52	43	44	46	44	45	46	46	46	47
Guntur ..	16	15	15	16	18	17	16	17	16	17	17
Kurnool ..	..	..	..	..	..	..	..	..	..	..	..
Bellary ..	..	..	..	..	..	..	..	..	..	..	..
Anantapur ..	5	..	..	..	..	..	..	..	..	..	..
Cuddapah ..	9	7	9	11	8	7	8	9	12	10	7
Nellore ..	29	29	28	32	27	27	25	26	31	28	24
Chingleput ..	73	72	69	69	70	67	69	72	73	76	74
South Arcot ..	37	36	34	35	36	33	35	36	37	40	41
Chittoor ..	25	19	22	21	21	21	21	22	32	30	23
North Arcot.	35	29	28	31	29	26	30	29	36	40	37
Salem ..	11	7	6	5	5	6	5	6	9	8	10
Coimbatore ..	5	5	5	5	5	5	4	4	5	5	5
Trichinopoly.	22	21	18	17	18	18	17	18	21	21	22
Tanjore ..	76	77	74	76	76	75	74	71	72	73	73
Madura ..	24	22	21	21	22	21	21	22	24	24	25
Ramnad ..	29	28	28	28	24	23	24	28	30	30	32
Tinnevelly ..	25	24	25	23	24	26	25	26	27	25	24
Malabar ..	52	52	52	52	52	51	51	50	59	50	49
South Kanara.	78	78	78	78	78	78	77	78	78	77	78
Nilgiris ..	..	..	..	..	7	7	7	7	7	6	6
Average ..	**30**	**29**	**29**	**29**	**29**	**28**	**28**	**29**	**30**	**30**	**29**

Blanks denote areas below 1 per cent.

APPENDIX 2.—*Area in acres under Rice (irrigated and unirrigated) from* 1918–33.

Units—Thousands.

District.	Irrigated.															Unirrigated.														
	1918-19.	1919-20.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1918-19.	1919-20.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.
Ganjam	742	805	722	724	709	733	709	657	654	680	634	660	667	646	632	1,070	1,156	1,027	1,075	1,055	1,060	602	497	508	514	527	537	539	541	538	554
Vizagapatam ..	508	564	364	444	381	524	600	745	576	586	604	595	559	538	520	313	310	313	319	328	314	326	326	323	332	335	343	339	340	348	344
Godavari, East ..	505	545	404	488	427	464	494	522	550	543	549	522	523	581	590	56	69	43	60	50	50	46	57	47	60	51	53	37	48	59	48
Godavari, West ..	..	..	..	..	..	..	..	602	616	627	653	618	613	612	644	34	42	32	39	31	25	26	27	24	24	25	28	25	25	25	34
Kistna	1,070	1,156	1,027	1,075	1,055	1,060	497	508	514	527	537	539	541	538	554	87	161	64	110	75	83	69	118	90	88	83	88	72	110	133	102
Guntur	313	310	313	319	328	314	326	323	334	335	343	339	340	348	344	86	125	98	130	97	69	98	156	332	378	357	381	374	394	437	394
Kurnool	56	69	43	60	50	50	46	57	47	60	51	53	59	59	71	402	460	566	389	382	345	376	520	606	492	441	567	574	603	517	588
Bellary	34	42	32	39	31	25	26	27	24	24	89	72	110	101	109	496	604	494	520	608	499	456	445	480	442	437	505	508	517	504	519
Anantapur	87	161	64	110	75	35	83	69	82	89	72	110	133	139	180	386	477	200	126	170	177	120	150	151	139	153	153	176	283	233	180
Cuddapah	86	125	98	130	97	69	98	118	90	83	88	88	133	139	147	118	200	126	170	177	120	150	139	142	324	345	411	382	483	539	488
Nellore	402	460	381	389	382	345	376	456	332	378	441	437	381	437	394	496	604	477	494	473	499	456	520	606	442	437	567	574	603	517	595
Chingleput	496	604	566	520	608	500	520	606	492	441	567	574	603	517	595	386	477	494	473	499	456	445	480	442	139	151	505	508	517	504	519
South Arcot	386	477	494	473	499	456	445	480	442	437	505	508	517	504	519	118	200	126	170	177	120	150	151	139	324	345	153	176	283	233	180
Chittoor	118	200	126	170	177	120	150	151	139	324	345	345	283	233	180	290	457	481	421	257	294	337	422	324	345	411	382	483	539	488	488
North Arcot	290	457	481	421	257	294	337	422	324	345	411	382	483	539	488	119	181	194	210	201	116	112	85	87	97	88	110	167	140	182	182
Salem	119	181	194	210	201	116	112	85	87	97	88	110	167	140	182	88	107	105	108	108	101	103	98	99	99	95	99	116	104	115	115
Coimbatore	88	107	105	108	108	101	103	98	99	99	95	99	116	104	115	228	289	300	279	287	231	202	203	206	214	218	235	264	251	278	278
Trichinopoly	228	289	300	279	287	231	202	203	206	214	218	235	264	251	278	877	1,016	1,014	1,005	1,026	1,010	961	1,014	1,011	1,000	993	1,023	1,005	973	989	989
Tanjore	877	1,016	1,014	1,005	1,026	1,010	961	1,014	1,011	1,000	993	1,023	1,005	973	989	306	333	364	351	361	385	288	297	310	300	300	323	338	326	352	352
Madura	306	333	364	351	361	385	288	297	310	300	300	323	338	326	352	305	325	283	260	276	256	247	240	203	196	202	284	311	311	303	303
Ramnad	305	325	283	260	276	256	247	240	203	196	202	284	311	311	303	316	343	352	328	351	348	346	357	320	353	335	382	363	337	332	332
Tinnevelly	316	343	352	328	351	348	346	357	320	353	335	382	363	337	332	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malabar	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Kanara ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nilgiris	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	7,333	8,571	7,820	8,027	7,993	7,359	7,570	8,061	7,462	7,642	7,745	8,025	8,477	8,267	8,205															

APPENDIX 2.—*Area in acres under Rice (irrigated and unirrigated) from* 1918–33—*cont.*

Units—Thousands—*cont.*

Unirrigated.

District.	1918-19.	1919-20.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.
Ganjam	441	400	363	376	377	371	514	582	497	501	507	451	439	367	426
Vizagapatam	541	525	523	519	534	557	543	415	579	580	583	569	558	590	596
Godavari, East	71	62	36	53	53	50	66	81	86	77	88	73	63	85	62
Godavari, West	..	..	..	..	..	..	29	46	54	43	40	53	50	41	47
Kistna	75	45	37	40	53	44	30	23	25	28	26	24	17	32	29
Guntur	80	41	41	62	50	34	43	52	66	51	48	54	54	53	60
Kurnool	18	12	14	11	10	6	7	7	11	7	11	9	17	12	13
Bellary	3	2	2	3	1	..	3	4	4	2	3	2	2	4	4
Anantapur	2	3	1	1	1	..	1	..	1	1	1	1	1	1	1
Cuddapah	4	5	3	2	3	2	1	7	4	2	6	3	2	2	3
Nellore	14	13	13	2	15	10	15	10	18	12	16	15	30	35	18
Chingleput	90	74	126	144	123	142	131	126	146	124	119	135	118	157	137
South Arcot	57	81	102	75	93	86	78	77	97	88	70	89	78	109	108
Chittoor	22	9	50	20	13	17	21	24	29	25	30	20	19	14	10
North Arcot	39	57	44	37	40	48	50	40	54	38	38	40	54	46	40
Salem	8	9	17	12	4	5	3	7	6	7	6	2	4	4	3
Coimbatore	..	1	1	1	1	1	1	2	2	2	2	1	2	2	1
Trichinopoly	29	33	48	48	50	55	47	34	44	37	30	36	41	47	57
Tanjore	106	110	119	104	105	96	91	83	92	90	89	94	93	113	110
Madura	2	1	2	3	..	2	2	1	2	2	3	3	2	2	3
Ramnad	80	120	132	169	155	154	157	152	83	92	96	98	85	86	137
Tinnevelly	1	5	4	4	4	4	6	4	10	9	10	5	5	3	4
Malabar	861	868	889	859	879	882	871	898	884	881	877	879	879	877	869
South Kanara	585	595	596	593	596	582	581	580	579	581	575	577	583	588	587
Nilgiris	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6
Total ..	3,134	3,077	3,277	3,253	3,293	3,157	3,300	3,261	3,380	3,287	3,274	3,238	3,200	3,276	3,328

APPENDIX 3.—*A list of varieties of rice recognized in the markets.*

Classification of varieties.	
Coarse.	Medium and fine.
Ganjam District.	
Borobonko, Panchakolia—Imported from Orissa, "Rasulu"—mixture of varieties.	Rathanachudi, Byyahunda, Macha—imported from Orissa, Gunupur Sannam—class I (grown in the Agency), Gunupur Sannam—class II (grown in the Plains), G.E.B. 24.
Vizagapatam District.	
Ramagada, Mypali	Gunupur Sannam, Navakoti Sannam, Byyahunda, G.E.B. 24.
N.B.—Anakapalle strains of the above varieties are recognized in the markets.	
East Godavari District.	
First crop varieties—Basangi, Rasangi (1) Punasa konamani, Konamani; Second crop varieties—Nallarlu, Garikisannavari.	Krishnakatukullu (Mtu. 5), G.E.B. 24.
N.B.—The Samalkota strains of the above varieties are recognized in the markets.	
West Godavari District.	
First crop varieties—Basangi (1) (Mtu. 3 and 4), Potti Atragada (Mtu. 6), Konamani; Second crop varieties—Garikisannavari, Nallarlu.	Akkullu (Mtu. 1 and 2), Krishnakatukullu (Mtu. 5), G.E.B. 24.
N.B.—The Maruteru strains are all now recognized in the markets.	
Kistna District.	
Kusama (Mtu. 8), Konamani	Pala Akkullu (Mtu. 1), Pedha Atragada, Ramasagaralu, Vankisannam or Delhi Bogham (Mtu. 7), G.E.B. 24.
Guntur District.	
Kusama (Mtu. 8), Konamani	Pala Akkullu (Mtu. 1), Pedha Atragada Ramasagaralu, Vankisannam or Delhi Bogham (Mtu. 7), G.E.B. 24, Molagulukulu.
Nellore District.	
Vadansamba, Redkasari, Nallavadlu ..	Molagalukulu (2) (Adt. 11), G.E.B. 24, Co. 2, Pishanam.
Chingleput District.	
Vadansamba, Kar, Manavari	Sirumani, Chinnasamba, G.E.B. 24, Co. 2.
South Arcot District.	
Vadansamba, Muthusamba, Garudansamba, Mottai kar, Swarnavari (3), Kuruvai (Adt. 3).	Kothamalli samba or White sirumani (Adt. 2), Red sirumani (Adt. 1), Co. 2, Co. 3, G.E.B. 24.
Tanjore District.	
Kuruvai (Adt. 3 and 4), Poonkar (Adt. 9), Vadansamba, Kathuvanam, Kattai sambalai or Korangusamba (Adt. 10), Nellore samba (2) (Adt. 5 and 11), Ottadan (Adt. 6 and 7).	White sirumani (Adt. 1), Red sirumani (Adt. 2).
Trichinopoly District.	
Sarapalli (3), Kuruvai (Adt. 3) and Poonkar.	Sadai samba, Nellore samba (Adt. 11), Co. 1, Co. 2, Co. 3 and G.E.B. 24.

APPENDIX 3.—*A list of varieties of rice recognized in the markets*—cont.

Classification of varieties.	
Coarse.	Medium and fine.
Madura District.	
Mattai Nellu, Vallai Kattai, Vari Garudan-samba, Manavari and Milagi.	Nellore Samba or Arai samba (2) (Adt. 5 and 11), Peria samba, Poovansamba, Sirumanian and G.E.B. 24.
Tinnevelly District.	
Kar samba (Co. 9), Pulithiparati, Kuruvai kalyan, Arikkiravari and Veethivadangan.	Sembali or Nellore samba (Adt. 5 and 11), Karthigaisamba or Erakkusamba Anaikomban (Co. 8), Sendinayagam and Vallai samba.
Ramnad District.	
Manavari, Vallaikattai and Milagi	Karthigai samba or Poonbalai (Co. 2), Anaikomban (Co. 8) and Muthuvalai.
North Arcot District.	
Surnavari (3), Vallakar, Chitrakali, Manavari, Manakattal and Vadansamba.	Chinna samba, G.E.B. 24, Sadai samba Palansamba and Co. 2.
Chittoor District.	
Tellasannavadlu, Pichia sannavadlu (3), Tellakar, Mottaikar for alkaline lands, Manakattai, Nalla vadlu and Bairi vadlu.	Chinna samba, Palan samba and G.E.B. 24.
Anantapur District.	
Sannavadlu, Kasari, Boruguvadlu and Mudugantivadlu.	G.E.B. 24.
Bellary District.	
Sannavadlu—first crop, Mulluvadlu—second crop and Sepoi.	G.E.B. 24 has replaced the local varieties to a great extent in the paddy areas of this district.
Kurnool District.	
Lavuvadlu, Venkalu and Budama	Bangoruthegalu, G.E.B. 24 and Pasapasandalu.
Cuddapah District.	
Kosari, Buddasankalu and Potti nallavadlu.	Nellore Pishana (2) or Molagulukulu (Adt. 11), Pidikedu Pishanam and Pattadi samba.
Salem District.	
Vallaikar (Adt. 3 and 4), Kar and Manavari.	G.E.B. 24, Sadai samba, Chinna samba, Gundan samba, Co. 2, Co. 3 and Pillansamba.
Coimbatore District.	
Vallaikar and Anaikomban (Co. 4)	Nellore samba (Adt. 5 and 11), Sadai samba, Chinna samba, Rangoon samba, Co. 1, Co. 2, Co. 3, Co. 5, Co. 6, Co. 7 and G.E.B. 24.
Malabar District.	
Tokkan cheera, Kayama, Chettani, Aryan and Tavalakannan.	G.E.B. 24 and Anaikomban.
South Kanara District.	
Kayama, Guddu and Athikrayi	Mascati, Jeerasalae, Gangullu sannam, G.E.B. 24, Co. 2 and Co. 3.

N.B.—Co. 1, 2, etc., strains evolved at the Paddy Breeding Station, Coimbatore.
Adt. 1, 2, etc., strains evolved at the Agricultural Research Station, Aduturai.
Mtu. 1 to 6, strains evolved at the Agricultural Research Station, Maruteru.
Nos .1, 2, 3, etc., against the names of the varieties refer to synonyms of the same variety.

APPENDIX 4 (*a*).—*Statement of rice available for consumption in the districts of the Madras Presidency.*

[Units—Thousands of tons.]

Districts.	Rice in the husk.	Quantity required for seed.	Balance.	Paddy converted into rice (not in the husk) available for consumption.
Ganjam	556	28	528	351
Vizagapatam	598	46	552	368
Godavari, East	512	12	500	334
Do. West	581	8	572	381
Kistna	434	5	429	286
Guntur	297	4	293	196
Kurnool	40	2	38	25
Bellary	22	1	21	14
Anantapur	61	3	58	39
Cuddapah	74	2	72	48
Nellore	281	6	275	183
Chingleput	447	20	427	284
South Arcot	450	10	440	293
Chittoor	147	6	141	94
North Arcot	384	18	366	244
Salem	87	4	83	57
Coimbatore	84	3	81	54
Trichinopoly	204	8	196	131
Tanjore	830	24	806	537
Madura	269	8	261	174
Ramnad	230	8	222	148
Tinnevelly	322	10	312	208
Malabar	548	39	509	340
South Kanara	387	22	365	243
The Nilgiris	5	..*	5	3
Total ..	**7,850**	**297**	**7,553**	**5,035**

APPENDIX 4 (*b*).—*Statement of millets available for consumption in each of the districts of Madras Presidency.*

[Units—Thousands of tons.]

Districts.	Production of cereals (unhusked).	Quantity required for seed.	Balance (unhusked).	Husked grain available for consumption.
Ganjam	87	..*	87	79
Vizagapatam	322	3	319	283
Godavari, East	65	1	64	56
Do. West	33	..*	33	28
Kistna	106	1	105	92
Guntur	276	3	273	244
Kurnool	289	5	284	238
Bellary	262	6	256	217
Anantapur	238	5	233	195
Cuddapah	211	3	208	183
Nellore	281	4	277	238
Chingleput	60	..*	60	51
South Arcot	218	2	216	167
Chittoor	163	1	162	146
North Arcot	180	2	178	150
Salem	331	5	326	284
Coimbatore	385	5	380	333

* Less than 1,000 tons.

APPENDIX 4 (*b*).—*Statement of millets available for consumption in each of the districts of Madras Presidency*—cont.

Districts.	Production of cereals (unhusked).	Quantity required for seed.	Balance (unhusked).	Husked grain available for consumption.
Trichinopoly	259	4	255	202
Tanjore	52	3	49	36
Madura	211	3	208	168
Ramnad	157	2	155	127
Tinnevelly	124	6	118	103
Malabar	13	..*	13	11
South Kanara	3	..*	3	3
The Nilgiris	2	..*	2	2
Total ..	4,518	64	4,454	3,636

APPENDIX 4 (*c*).—*Statement showing total cereals (rice and millets)—clean produce—available for consumption.*

[Units—Thousands of tons.]

Districts.	Cereals. Production of millets not in the husk.	Cereals. Production of clean rice not in the husk.	Total cereals.	Population.	*Per capita* (Unit—tons).
Ganjam	79	351	430	2,053,381	0·209
Vizagapatam ..	283	368	651	3,607,948	0·180
Godavari, East ..	56	334	390	1,920,582	0·203
Do. West ..	28	381	409	1,223,056	0·334
Kistna	92	286	378	1,254,208	0·302
Guntur	244	196	440	2,035,660	0·216
Kurnool	238	25	263	1,024,961	0·257
Bellary	217	14	231	969,774	0·238
Anantapur	195	39	234	1,050,411	0·223
Cuddapah	183	48	231	949,397	0·243
Nellore	238	183	421	1,486,222	0·213
Chingleput	51	284	335	1,655,115	0·203
South Arcot ..	167	293	460	2,454,487	0·187
Chittoor	146	94	240	1,447,103	0·166
North Arcot ..	150	244	394	2,266,989	0·174
Salem	284	57	341	2,433,972	0·139
Coimbatore	333	54	387	2,445,064	0·158
Trichinopoly ..	202	131	333	1,913,245	0·174
Tanjore	36	537	573	2,385,920	0·240
Madura	168	174	342	2,195,747	0·156
Ramnad	127	148	275	1,838,955	0·149
Tinnevelly	103	208	311	2,046,907	0·152
Malabar	11	340	351	3,533,944	0·099
South Kanara ..	3	243	246	1,372,241	0·179
The Nilgiris	2	3	5	169,330	0·027
Total ..	3,636	5,035	8,671	46,381,849	..

* Less than 1,000 tons.

APPENDIX 5.—*Statement showing the quantity of rice (clean produce) required for the adult population of each district at 4 cwt. per head per year.*

[Unit—Thousands of tons.]

District.	Adult population.	Quantity of cereals produced (thousand tons).	Number of adults for whom cereals are available.	Excess quantity of cereals available for export (thousand tons).	Balance of population requiring rice.	Quantity of rice required at 4 cwt. per head per year.	Quantity of rice produced (thousand tons.)	Surplus of rice (thousand tons).	Deficit of rice.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Ganjam	1,540	79	396	..	1,144	229	351	122	..
Vizagapatam ..	2,706	283	1,415	..	1,291	258	368	110	..
Godavari, East ..	1,440	56	279	..	1,161	232	334	102	..
Do. West ..	917	28	142	..	775	155	381	226	..
Kistna	941	92	462	..	479	96	286	190	..
Guntur	1,527	244	1,220	..	307	61	196	134	..
Kurnool	769	238	769	84	..	..	25	25	..
Bellary	727	217	727	72	..	..	13	13	..
Anantapur	788	195	788	38	..	..	39	39	..
Cuddapah	712	183	712	41	..	..	48	48	..
Nellore	1,115	238	1,115	15	..	..	183	183	..
Chingleput	1,241	51	257	..	984	197	284	87	..
South Arcot	1,841	167	834	..	1,007	201	293	92	..
Chittoor	1,085	146	730	..	355	71	94	23	..
North Arcot	1,700	150	751	..	949	190	244	55	..
Salem	1,825	284	1,421	..	404	81	58	..	23
Coimbatore	1,834	333	1,667	..	167	33	54	21	..
Trichinopoly	1,435	202	1,011	..	424	85	131	46	..
Tanjore	1,789	36	181	..	1,608	322	537	216	..
Madura	1,647	168	840	..	807	161	174	13	..
Ramnad	1,379	127	637	..	742	148	148	..	*
Tinnevelly	1,535	103	514	..	1,021	204	208	4	..
Malabar	2,650	11	53	..	2,597	519	340	..	180
South Kanara ..	1,029	3	14	..	1,015	203	243	40	..
The Nilgiris	127	2	9	..	118	24	3	..	21
Madras	485	..	..	..	485	97	..	..	97
Total ..	34,784	3,638	16,942	250	17,842	3,567	5,037	1,789	321

* Less than 1,000 tons.

Net surplus of rice .. 1,468 thousand tons.
Do. millet .. 250 do.
Total surplus .. 1,718 do.

APPENDIX 6.—*Statement showing the quantity of rice (cleaned produce) required for the adult population of each district at 5 cwt. per head per year.*

Unit—Thousand tons.

District.	Adult population (thousands).	Quantity of cereals produced.	Number of adults for whom cereals are available.	Excess quantity of cereals available for export.	Balance of population requiring rice.	Quantity of rice required at 5 cwt. per head per year.	Quantity of rice produced.	Surplus (available for export.)	Deficit (quantity still required.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Ganjam	1,540	79	317	..	1,223	306	351	46	..
Vizagapatam	2,706	283	1,132	..	1,574	393	368	..	26
Godavari, East	1,440	55	223	..	1,217	304	334	29	..
Do. West	917	28	114	..	803	201	381	180	..
Kistna	941	92	370	..	571	143	286	143	..
Guntur	1,527	244	976	..	551	138	196	58	..
Kurnool	769	238	769	44	..	..	25	25	..
Bellary	727	217	727	36	..	..	14	14	..
Anantapur	788	195	781	..	7	2	39	37	..
Cuddapah	712	183	712	5	..	..	48	48	..
Nellore	1,115	238	952	..	162	40	183	143	..
Chingleput	1,241	51	206	..	1,035	259	284	25	..
South Arcot	1,841	167	667	..	1,174	293	293	.	..
Chittoor	1,085	146	584	..	502	125	94	..	32
North Arcot	1,709	150	601	..	1,099	275	244	..	31
Salem	1,825	284	1,137	..	688	172	58	..	114
Coimbatore	1,834	333	1,334	..	500	125	54	..	71
Trichinopoly	1,435	202	809	..	626	156	131	..	25
Tanjore	1,789	36	147	..	1,642	411	537	127	..
Madura	1,647	168	672	..	975	244	174	..	69
Ramnad	1,379	127	510	..	869	217	148	..	69
Tinnevelly	1,535	103	411	..	1,124	281	208	..	73
Malabar	2,650	11	42	..	2,608	652	339	..	312
South Kanara	1,029	3	11	..	1,018	255	243	..	12
The Nilgiris	127	2	7	..	120	30	3	..	27
Madras	485	..	..	..	485	121	..	..	121
Total ..	34,784	8,638	14,208	85	20,576	5,144	5,036	876	983
								Net deficit	107

APPENDIX 7.—*Statement showing the quantity of rice (cleaned produce) required for the adult population at a regulated quantity the surplus and deficit of each district.*

Unit—Thousand tons.

District.	Total population.	Adult population 75 per cent of the total.	Population for whom cereals are available at 1⅝ lb. per day.	Balance of population requiring rice.	Quantity of rice required.	Quantity of rice produced.	Surplus.	Deficit.	Rate of consumption of rice per head used in the calculation.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
									CWT.
Ganjam	2,053	1,540	299	1,241	328	351	23	..	5·3
Vizagapatam	3,608	2,706	1,068	1,638	434	368	..	66	..
Godavari, East	1,921	1,440	210	1,230	274	334	60	..	5·3
Do. West	1,223	917	107	810	214	381	167	..	5·3
Kistna	1,254	941	349	592	157	286	129	..	5·3
Guntur	2,036	1,527	921	606	163	196	33	..	5·3
Kurnool	1,025	769	649 *	120	30	25	..	4	5·0
Bellary	970	727	593 *	134	34	14	..	20	5·0
Anantapur	1,050	788	533 *	255	64	39	..	25	5·0
Cuddapah	949	712	499 *	213	53	48	..	5	5·0
Nellore	1,486	1,115	730 †	384	102	183	81	..	5·3
Chingleput	1,655	1,241	194	1,047	262	284	22	..	5·0
South Arcot	2,454	1,841	630	1,211	272	293	21	..	4·5
Chittoor	1,447	1,085	551	534	107	94	..	13	4·0
North Arcot	2,267	1,700	568	1,132	226	244	18	..	4·0
Salem	2,434	1,825	1,073	752	150	58	..	92	4·0
Coimbatore	2,445	1,834	1,264	570	142	54	..	88	5·0
Trichinopoly	1,913	1,435	764	671	134	131	..	3	4·0
Tanjore	2,386	1,789	137	1,652	413	537	124	..	5·0
Madura	2,196	1,647	635	1,012	202	174	..	28	4·0
Ramnad	1,839	1,379	480	899	180	148	..	32	4·0
Tinnevelly	2,047	1,535	388	1,147	229	208	..	21	4·0
Malabar	3,534	2,650	43	2,607	587	340	..	247	4·5
South Kanara	1,372	1,029	11	1,018	254	243	..	11	5·0
The Nilgiris	169	127	7	120	24	3	..	21	4·0
Madras	647	485	..	485	109	..	..	109	4·5
Total ..	46,380	34,784	12,704	22,080	5,144	5,035	678	785	..

* At 2¼ lb. per head per day. † At 2 lb. per head per day.

APPENDIX 8.—*Total import of rice (not in the husk) from foreign countries—in tons.*

Countries.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	1932-33.	1933-34.
Siam	4,355	6,416	..	101	2,292	14,683	53,259
Indo-China	10,303	101,023	4,892	3,484	14,905	20,610	24,148
Total ..	**14,658**	**107,439**	**4,892**	**3,585**	**17,197**	**35,293**	**77,407**

Details for the foreign imports of rice and paddy.

(*a*) From Siam.

Ports of arrival.	1929-30. Rice.	1930-31. Rice.	1931-32. Rice.	1932-33. Rice.	1933-34. Paddy.	1933-34. Rice.
Madras	..	..	627	4,104	1,301	11,443
Cuddalore	..	..	1,165	3,823	..	4,358
Negapatam	..	..	..	..	..	288
Porto Novo	..	..	..	100	..	..
Tuticorin	..	..	..	854	..	..
Calicut	..	..	500	4,614	..	10,880
Tellicherry	..	..	..	..	..	590
Cannanore	..	..	..	..	..	288
Badagara	..	..	..	..	..	173
Total, Madras Presidency.	..	..	2,292	13,495	1,301	28,020
Cochin	..	101	..	1,188	1,800	25,239
Total, Madras Ports including Cochin.	..	101	2,292	14,683	3,101	53,259

(*b*) From Indo-China.

Ports of arrival ..	1929-30. Paddy.	1929-30. Rice.	1930-31. Paddy.	1930-31. Rice.	1931-32. Paddy.	1931-32. Rice.	1932-33. Paddy.	1932-33. Rice.	1933-34. Paddy.	1933-34. Rice.
Madras	698	4,892	..	2,216	..	8,879	..	10,540	..	19,597
Negapatam ..	..	..	..	..	2,648	..	..	..	..	..
Tuticorin ..	..	..	..	..	1,446	..	..	..	..	..
Calicut	..	..	..	..	..	2,778	..	2,784	120	2,121
Badagara ..	..	..	..	..	..	..	..	124	..	99
Cannanore ..	..	..	..	..	..	..	..	238	..	150
Tellicherry ..	..	..	..	..	..	..	..	826	..	148
Total, Madras Presidency.	**698**	**4,892**	..	**2,216**	**4,094**	**11,657**	..	**14,512**	**120**	**22,115**
Cochin	**1**	..	**1,551**	**1,266**	**4,936**	**3,248**	..	**6,098**	**1,158**	**2,033**
Total, Madras ports including Cochin.	**699**	**4,892**	**1,551**	**3,482**	**9,030**	**14,905**	..	**20,610**	**1,278**	**24,148**

APPENDIX 9.—*Details of imports into Madras Presidency from Siam and Indo-China from December 1933 to 15th July 1934.*

From Siam.

Ports of arrival.	December 1933.	January 1934.	February 1934.	15th March 1934.	31st March 1934.	14th April 1934.	30th April 1934.	15th May 1934.	31st May 1934.	15th June 1934.	30th June 1934.	15th July 1934.
(i) Broken Rice.												
Madras	1,401	4,019	1,413	1,856	3	1,151	2,727	..	1,051	70	3,107	2,211
Cochin	1,760	3,401	6,521	6,387	1,171	4,251	9,864	4,224	1,188	5,474	503	5,897
Cuddalore	900	2,037	979	..	100	1,001	1,032	..	1,976	..	2,402	..
Negapatam	..	..	77	38	..	..	..	..	..	..	..	..
Calicut	1,036	1,711	..	251	3,953	4,437	3,240	1,367	1,266	17	..	..
Tellicherry	..	..	..	388	202	..	425	200	393	43	..	..
Badagara	..	..	..	123	50	..	195	141	408	120	..	..
Cannanore	..	..	..	288	..	250	368	195	97	..	..	..
Total ..	**5,097**	**11,188**	**8,990**	**9,331**	**5,479**	**11,090**	**17,851**	**6,127**	**6,379**	**5,734**	**6,012**	**8,108**
(ii) Paddy.												
Madras	..	..	..	..	..	..	..	..	200	300	300	..
Cuddalore	..	..	..	..	..	..	..	..	282	..	175	..
Negapatam	..	..	..	..	..	..	..	..	..	..	..	..
Cochin	..	..	1,800	..	..	750	300	936	811	2,484	1,050	2,903
Calicut	..	1,301	..	..	..	..	231	..	714	513	..	..
Tellicherry	..	..	..	..	..	..	..	..	88	64	..	..
Badagara	..	..	..	..	..	..	105	199	209	865	..	..
Cannanore	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	**1,301**	**1,800**	..	..	**750**	**636**	**1,135**	**2,304**	**4,226**	**1,525**	**2,903**
(iii) Par-boiled Rice.												
Cochin	..	..	..	..	..	..	..	..	1,099	..	..	..
Calicut	..	..	..	191	..	..	..	700	1,204	405	..	100
Cuddalore	..	..	..	..	..	..	..	..	40	..	..	..
Badagara	..	..	..	..	..	..	..	..	..	105	..	..
Total ..	..	..	..	**191**	..	..	..	**700**	**2,204**	**510**	..	**100**
(iv) Raw Rice.												
Cochin	..	..	..	..	..	..	450	250	..	100	..	900
Calicut	..	..	..	..	..	..	50	..	..	..	..	..
Total ..	..	..	..	..	..	..	**500**	**250**	..	**100**	..	**900**

APPENDIX 9.—*Details of imports into Madras Presidency from Siam and Indo-China from December 1933 to 15th July 1934*—cont.

From Indo-China.

Ports of arrival.	December, 1933.	January 1934.	February 1934.	15th March 1934.	31st March 1934.	14th April 1934.	30th April 1934.	15th May 1934.	31st May 1934.	15th June 1934.	30th June 1934.	15th July 1934.
(i) Broken Rice.												
Madras	300	7,588	..	2,850	..	300	..	3	1,051	..	100	197
Cochin	100	..	2,033	..	50	..	1,868	..	..	472	..	..
Calicut	..	..	820	..	..	..	..	..	..	..	..	..
Cuddalore ..	..	..	..	..	..	..	..	512	..	..	..	..
Total ..	400	7,588	2,853	2,850	50	300	1,868	515	1,051	472	100	197
(ii) Paddy.												
Madras	..	..	..	..	..	..	..	100	..	..	506	..
Cochin	..	..	1,158	..	..	..	1,663	..	..	..	9,627	..
Calicut	..	..	..	..	..	..	..	200	..	..	..	..
Cuddalore ..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	1,158	..	..	..	1,663	300	..	..	10,133	..
(iii) Raw Rice.												
Cuddalore ..	..	..	..	..	..	..	..	39	..	..	..	..

APPENDIX 10 (*a*).—*Details of imports from Burma into Madras Presidency.*

[Quantities in tons.]

Year.	Paddy.	Rice.			
		Raw rice.	Broken.	Parboiled.	Total rice.
1924–25	81,515	36,448	123,299	48,599	208,346
1925–26	99,602	30,689	162,199	139,216	332,104
1926–27	73,648	33,300	88,863	71,210	193,373
1927–28	79,077	31,217	143,641	159,184	334,042
1928–29	97,949	23,203	96,375	187,199	306,777
1929–30	102,942	28,570	110,196	139,482	278,247
1930–31	98,535	Not available.			331,834
1931–32	106,349				446,127
1932–33	61,032				377,141
1933–34	75,493				523,379

APPENDIX 10 (*b*).—*Details of paddy import in tons from Burma according to ports of arrival.*

Ports of arrival.	1929–30.	1930–31.	1931–32.	1932–33.	1933–34.
Madras	..	..	..	..	6,195
Negapatam	613	980	..	..	..
Tuticorin	27,366	17,465	12,759	9,326	16,510
Malabar ports ..	25,816	26,477	33,917	15,819	25,193
Mangalore	..	..	..	..	280
Total, Madras ports.	**53,795**	**44,922**	**46,676**	**25,145**	**48,178**
Cochin	**49,147**	**53,613**	**59,673**	**35,887**	**27,315**
Total from Burma ..	**102,942**	**98,535**	**106,349**	**61,032**	**75,493**

APPENDIX 10 (*c*).—*Details of rice imports in tons from Burma according to the ports of arrival.*

Ports of arrival.	1929–30.	1930–31.	1931–32.	1932–33.	1933–34.
Vizagapatam ..	..	..	2,844	87	1,830
Madras	19,976	28,876	19,193	18,843	32,153
Cuddalore	203	906	201	532	35
Negapatam	1,250	1,655	3,189	1,562	1,214
Tuticorin	56,113	60,932	75,399	59,873	71,369
All West Coast ports.	87,207	89,045	109,316	90,366	139,929
Total, Madras ports.	**164,749**	**181,414**	**210,142**	**171,263**	**246,530**
Cochin	**113,498**	**150,424**	**235,985**	**205,878**	**276,849**
Total from Burma ..	**278,247**	**331,838**	**446,127**	**377,141**	**523,379**

APPENDIX 11.—*Statement of the quantities of rice despatched from ports in the Presidency to different districts—in imperial maunds.*

District to which sent.	Madras (South Indian Railway).		Madras (Madras and Southern Mahratta Railway).		Cuddalore.	
	1932-33.	1933-34.	1932-33.	1933-34.	1932-33.	1933-34.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nellore	..	..	Figures not available.	40,961	..	..
Cuddapah	..	..		183,056	..	..
Anantapur	..	..		3,057	..	..
Chittoor	..	..		276,694	..	..
North Arcot	144	5,203		110,777	..	2,255
Chingleput	123	17,725		11,352	..	..
South Arcot	2,084	53,720		..	2,253	18,286
Pondicherry	734	22,525		..	..	..
Tanjore	1,405	3,121		..	6,338	6,564
Trichinopoly	2,811	10,967		..	1,326	5,100
Salem	7,224	8,568		24,698	52,629	51,785
Coimbatore	..	..		374	..	..
Nilgiris	..	..		..	..	..
Malabar	..	..		..	..	..
South Kanara	..	..		..	..	..
Tinnevelly	643	450		..	..	..
Ramnad	90	417		..	..	..
Madura	2,022	4,123		..	..	..
Pondicherry	..	..		..	..	..
Bangalore and Orgaum	..	..		227,935	..	..
Total	17,280	126,819	..	878,007	62,546	83,790

District to which sent.	Cochin.		Calicut.		Azhikkal.	
	1932-33.	1933-34.	1932-33.	1933-34.	1932-33.	1933-34.
	(8)	(9)	(10)	(11)	(12)	(13)
Nellore	..	..	..	..	..	..
Cuddapah	..	..	..	..	..	..
Anantapur	..	..	..	..	..	..
Chittoor	..	..	..	..	..	..
North Arcot	..	..	..	..	..	..
Chingleput	..	..	..	..	..	..
South Arcot	..	..	..	..	..	..
Pondicherry	..	..	..	..	..	..
Tanjore	..	..	..	..	..	..
Trichinopoly	..	..	..	..	..	..
Salem	18,886	26,151	1,768	20,664	..	..
Coimbatore	580,142	810,362	150,132	193,841	..	..
Nilgiris	80,849	134,505	46,178	10,984	..	..
Malabar	16,688	19,484	110,749	86,153	..	1,293
South Kanara	..	3,715	2,952	23,110	3,669	9,466
Tinnevelly	..	..	..	..	..	..
Ramnad	..	..	..	..	..	..
Madura	3,192	2,933	..	..	..	..
Pondicherry	..	..	..	..	..	..
Bangalore and Orgaum	..	..	..	..	..	..
Total	700,257	997,155	312,079	331,772	3,669	10,699

District to which sent.	Tellicherry.		Cannanore.		Tuticorin.	
	1932-33.	1933-34.	1932-33.	1933-34.	1932-33.	1933-34.
	(14)	(15)	(16)	(17)	(18)	(19)
Nellore	..	..	..	..	..	..
Cuddapah	..	..	..	..	..	..
Anantapur	..	..	..	..	..	..
Chittoor	..	..	..	..	..	..
North Arcot	..	..	..	..	..	..
Chingleput	..	..	..	..	..	1,725
South Arcot	..	..	..	..	..	..
Pondicherry	..	..	..	..	..	..
Tanjore	..	..	..	..	6,185	1,399
Trichinopoly	..	..	..	..	8,203	3,152
Salem	..	..	..	..	1,747	288
Coimbatore	8,339	..	4,490	..	28,412	17,116
Nilgiris	..	..	..	..	..	..
Malabar	3,013	988	847	1,988	..	..
South Kanara	3,228	15,226	16,644	65,728	..	..
Tinnevelly	..	..	..	..	120,017	123,577
Ramnad	..	..	..	..	282,647	301,432
Madura	..	..	..	..	182,876	192,698
Pondicherry	..	..	..	..	..	..
Bangalore and Orgaum	..	..	..	..	..	..
Total	14,580	16,214	21,981	67,716	631,287	641,387

APPENDIX 12.—*Statement of the quantities in imperial maunds of paddy received by each district by rail and canal from other districts or provinces, 1933-34.*

Province or district into which received.	Despatched from												
	Godavari, East.	Godavari, West.	Kistna.	Guntur.	Nellore.	Madras.	Chingleput.	South Arcot.	Tanjore.	Trichinopoly.	Madura.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Ganjam	..	..	..	..	..	..	..	..	..	..	..
Vizagapatam	12,548	..	..	..	..	..	..	..	..	..	..
Godavari, East	..	132,827	..	..	..	..	..	..	..	..	..
Godavari, West	203,582	..	49,875	..	..	..	..	..	..	..	..
Kistna	5,017	1,044,472	22,075	381	..	982	..	..	..	..	..
Guntur	..	2,919	3,963	6,711	4,410	..	..	..	..	..	..
Hyderabad	..	..	..	..	..	..	..	..	..	..	..
Mysore	..	..	..	..	..	..	..	..	..	..	..
Bombay Presidency	..	..	..	..	..	..	..	..	..	..	..
Kurnool	..	..	..	..	..	..	..	..	..	..	..
Bellary	..	..	..	..	..	..	..	..	..	..	..
Anantapur	..	..	..	..	..	..	142	..	..	..	..
Cuddapah	..	..	..	..	..	..	1,723	..	..	..	..
Chittoor	..	..	..	..	885	4,693	10,561	..	..	..	..
North Arcot	..	..	..	..	1,426	3,778	..	3,752	126,764	..	534
Nellore	..	471	282	2,275	4,923	..	..	..	..	..	..
Chingleput	..	219	306	2,419	..	15,414	..	5,626	144,290	..	..
South Arcot	..	..	..	..	..	115	..	47,772	21,360	..	..
Tanjore	..	..	..	..	..	..	..	2,658	82,264	..	463
Trichinopoly	..	..	..	..	..	114	1,007	384	344,110	13,534	854
Madura	..	..	..	..	..	..	..	..	238,269	2,217	2,777
Tinnevelly	..	..	..	..	..	..	..	..	11,592	..	13,072
Ramnad	..	..	..	..	..	..	96	2,010	48,869	392	1,173
Coimbatore	..	..	..	..	..	438	1,244	4,110	1,823,402	8,695	..
Malabar	..	..	..	..	..	..	..	..	..	..	..
South Kanara	..	6,946	..	..	..	..	..	..	..	..	..
Nilgiris	..	..	..	..	..	..	..	..	20,634	..	892
Cochin (Trichur)	..	..	..	..	..	..	..	..	283	..	..
Travancore	..	..	..	..	..	..	193	..	3,030	..	..
Pondicherry	..	..	..	..	..	..	..	..	5,979	..	..
Pudukkottai	..	..	..	..	..	..	654	189	218,801	177	..
Salem	8,854	2,040	..	..	47,745	..	36,235	91,488	11,577	4,901	..
Madras	..	..	..	..	..	..	..	5,343	..	..	..
Total despatched	230,101	1,188,803	53,727	5,885	54,466	25,432	51,785	117,575	3,013,197	16,332	19,511

NOTE.—As the figures in italics represent the movements within the district or province, they are left out of the totals.

APPENDIX 12.—*Statement of the quantities in imperial maunds of paddy received by each district by rail and canal from other districts or provinces,* 1933–34—cont.

Province or district into which received.	Despatched from											Total receipts.
	Tinnevelly.	Ramnad.	Salem.	North Arcot.	Chittoor.	Anantapur.	Bellary.	Cochin.	Malabar.	South Kanara.	Mysore.	
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Ganjam	..	..	..	..	..	..	..	..	..	..	..	..
Vizagapatam	..	..	..	..	..	..	..	..	..	..	..	12,548
Godavari, East	..	..	..	..	..	..	..	..	..	..	..	132,027
Godavari, West	..	..	..	..	..	..	..	..	..	..	..	253,457
Kistna	..	..	..	..	..	..	..	..	..	..	..	1,050,852
Guntur	..	..	..	..	..	..	..	..	..	..	..	10,392
Hyderabad	..	..	..	..	..	..	..	..	..	..	..	..
Mysore	..	..	..	..	..	..	..	..	..	..	..	6,196
Bombay Presidency	..	..	..	..	2,004	..	4,192	..	..	..	..	15,328
Kurnool	..	..	..	..	..	..	..	15,328	..	..	..	..
Bellary	..	..	..	..	..	..	..	..	..	..	..	..
Anantapur	..	..	..	..	..	..	..	*3,051*	..	..	..	..
Cuddapah	..	..	..	..	..	..	..	..	..	..	..	343
Chittoor	..	..	..	..	..	..	..	..	..	..	..	8,021
North Arcot	..	..	..	..	*831*	..	..	..	..	..	..	190,797
Nellore	..	..	..	441	*14,568*	2,643	7,142	..	..	..	37,244	2,944
Chingleput	..	..	..	..	..	..	..	..	..	..	..	171,214
South Arcot	..	..	..	..	124	..	..	..	..	..	..	22,462
Tanjore	..	..	..	..	787	..	..	..	..	..	..	2,658
Trichinopoly	..	..	..	..	..	..	..	..	..	..	..	351,672
Madura	..	..	..	..	..	..	..	..	..	..	..	247,660
Tinnevelly	..	..	..	..	..	..	..	..	..	..	..	14,369
Ramnad	..	..	..	..	..	..	..	..	..	..	..	100,082
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	1,985,599
Malabar	..	..	..	..	..	..	..	..	..	..	..	5,838
South Kanara	..	..	..	..	..	..	..	..	..	..	..	65,880
Nilgiris	..	..	..	..	..	..	..	..	..	..	..	..
Cochin (Trichur)	..	..	..	..	..	..	..	..	..	..	..	25,584
Travancore	..	..	..	..	..	..	..	..	..	..	..	7,015
Pondicherry	..	..	..	..	..	..	..	..	..	..	..	3,739
Pudukkottai	..	..	..	..	..	..	..	..	..	..	..	6,345
Salem	..	..	..	..	..	..	..	..	..	..	..	336,592
Madras	..	..	..	..	..	..	..	..	..	..	..	114,634
	24,955	..	..	..	..	..	..	..	..	..	..	..
	34,684	20,601	..	362	..	..	..	..	..	..	12,178	1,985,599
	..	1,101	31,033	9,441	..	785	..	12,452	72,892	..	..	5,838
	..	..	..	..	..	..	..	..	*6,658*	5,838	..	65,880
	..	..	..	..	..	..	..	..	65,880	*17,058*	..	..
	..	..	..	..	..	..	..	..	..	..	..	25,584
	..	..	..	..	..	..	..	..	5,550	..	..	7,015
	5,840	..	..	..	..	..	..	..	..	..	..	3,739
	..	..	..	..	..	..	..	..	..	..	..	6,345
	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	70,016	360	..	10,004	..	..	..	..	10,384	336,592
	..	..	..	2,731	..	..	..	..	..	..	..	114,634
Total despatched	40,896	16,346	31,683	15,947	2,643	22,123	15,328	12,452	144,322	5,838	59,806	5,144,248

NOTE.—As the figures in italics represent the movements within the district or province, they are left out of the totals.

APPENDIX 13.—*Statement of the quantities of rice in maunds received by each district by rail and canal from other districts and provinces during the year* 1933–34.

Province or district into which received.	Received from												
	Ganjam.	Godavari, East.	Godavari, West.	Kistna.	Guntur.	Nellore.	Anantapur.	North Arcot.	Salem.	Coimbatore.	Chingleput.	South Arcot.	Tanjore.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ganjam	..	11,216	..	..	..	..	..	..	..	..	..	..	..
Vizagapatam	239,610	509,749	280,841	664	..	262	..	..	..	..	..	..	..
Godavari, East	..	..	326,107	882	..	..	..	..	..	..	..	..	..
Godavari, West	..	29,175	..	13,130	..	..	..	..	..	..	..	..	..
Kistna	..	390	123,551	*7,591*	88,935	..	..	..	..	..	..	..	..
Guntur	..	2,552	257,078	257,730	*197,788*	2,248	..	..	..	..	..	..	..
Hyderabad	..	..	5,064	596,334	49,602	..	..	403	..	..	..	..	..
Mysore	..	911	217,654	417,497	17,241	36,644	8,352	112,069	..	..	..	..	88,138
Bombay Presidency	..	..	12,548	573,925	39,949	..	..	..	..	..	..	..	..
Kurnool	..	..	104,985	394,192	158,443	..	260	..	..	..	..	..	..
Bellary	..	..	77,626	307,169	52,898	..	3,324	..	..	..	..	..	..
Anantapur	..	..	36,080	146,687	62,114	3,972	*3,475*	..	..	..	..	..	..
Cuddapah	..	..	27,186	82,573	70,813	54,425	2,389	1,275	..	..	6,811	196	4,698
Chittoor	..	..	19,729	11,122	61,267	75,484	10,476	2,914	..	..	32,351	645	..
North Arcot	..	..	9,474	4,770	2,074	18,721	..	*7,297*	356	..	813	4,778	18,095
Nellore	..	..	20,170	28,743	89,471	*19,468*	..	..	..	..	..	..	..
Madras	..	59,820	1,060,360	85,766	13,670	431,201	..	11,948	..	..	31,129	13,543	114,168
Chingleput	..	..	..	1,549	..	3,996	..	246	..	..	*70,978*	16,583	49,470
South Arcot	..	..	524	..	512	103	..	2,342	715	..	..	*35,910*	70,368
Tanjore	..	480	1,616	..	..	2,120	..	..	..	..	..	27,930	*190,132*
Trichinopoly	..	..	..	2,195	..	8,362	..	473	470	..	..	10,241	72,950
Madura	..	..	..	..	..	45,356	..	..	634	391	1,105	7,307	15,335
Ramnad	..	..	..	..	..	29,561	..	..	..	590	..	3,216	84,769
Tinnevelly	..	..	..	..	..	10,276	..	297	..	..	..	3,457	55,030
Travancore	..	..	..	..	..	..	..	178	..	..	..	..	829
Cochin	..	..	..	..	..	..	..	595	..	..	..	..	..
Salem	..	..	3,991	11,577	..	43,655	..	179	*30,030*	..	..	73,443	10,725
Coimbatore	..	24,312	47,923	4,890	27,984	86,181	..	17,781	6,519	*27,824*	..	7,982	198,355
Nilgiris	..	..	..	948	..	1,620	..	5,914	306	10,972	..	..	17,469
Malabar	..	98,395	127,210	7,536	818	1,958	..	464	..	1,458	3,021	..	..
South Kanara	..	..	..	..	..	..	..	..	..	..	..	..	..
Pondicherry	..	..	..	..	..	..	..	1,399	..	..	..	14,170	65,612
Pudukkottai	..	..	..	..	..	..	..	..	..	..	..	2,722	1,590
Ceylon	..	..	..	..	..	..	..	..	..	..	..	257,262	1,217,425
Total despatched	239,610	737,000	2,759,717	2,949,879	735,791	856,145	24,801	157,577	9,000	13,420	75,230	443,475	2,085,046

NOTE.—As the figures in italics represent the movements within the district or province, they are left out of the totals.

APPENDIX 13.—*Statement of the quantities of rice in maunds received by each district by rail and canal from other districts and provinces during the year* 1933–34—cont.

Province or district into which received.	Received from												
	Trichinopoly. (15)	Madura. (16)	Tinnevelly. (17)	Ramnad. (18)	South Kanara. (19)	Malabar. (20)	Cochin. (21)	Madras. (22)	Central Provinces. (23)	The Punjab. (24)	Calcutta. (25)	Total receipts. (26)
Ganjam									95,596			106,812
Vizagapatam									264,920			1,296,046
Godavari, East												326,989
Godavari, West												42,305
Kistna												212,876
Guntur								173				519,781
Hyderabad								1,684				653,087
Mysore								227,035				1,125,541
Bombay Presidency										30,525	336,614	626,422
Kurnool												657,880
Bellary								325				441,342
Anantapur								3,057				251,910
Cuddapah								183,056				433,422
Chittoor								276,694				490,682
North Arcot								115,980				175,961
Nellore								40,964				179,348
Madras										30,525	336,614	2,189,144
Chingleput		400						29,077				100,921
South Arcot								55,520				131,647
Tanjore	1,698		1,725					3,121				38,026
Trichinopoly	1,178	182	1,399					10,967				108,810
Madura	*16,429*		3,152	1,188			2,938	4,123				426,815
Ramnad	155,538	3,072	192,880	*34,913*				417				455,471
Tinnevelly	11,126	20,976	304,807	2,132				450				89,107
Travancore	1,178	16,347	*127,852*	2,712								55,072
Cochin	1,467	21,923	27,963			21,976	26,151	33,206				595
Salem	703		288			225,547	821,353	457			9,032	225,954
Coimbatore	206,800	1,166	17,116			10,946	134,505					1,703,458
Nilgiris	176		450			*176,639*	29,637					182,406
Malabar			259		12,926	113,952	17,095	22,525				283,682
South Kanara		98			*72,819*							131,047
Pondicherry	1,925	778	612									103,804
Pudukkottai												7,027
Ceylon												1,475,387
Total despatched ..	381,789	62,540	550,851	6,032	12,926	372,421	1,081,879	10,07,091	360,516	30,525	345,646	15,248,507

NOTE.—As the figures in *italics* represent the movements within the district or province, they are left out of the totals.

APPENDIX 14.—*List of the important centres which despatch and import rice and paddy.*

Despatching centres.	Importing centres.
1 *Ganjam*—Rambha, Berhampur, Tilaru, Chicacole Road, Pundi, Kota Bommali.	*Vizagapatam*—Chipurupalle, Kothavalasa, Vizianagram, Ponduru, Vizagapatam, Anakapalle.
2 *Godavari, East*—Samalkota, Dwarapudi, Biccavol, Ramachandrapuram, Rajahmundry, Tuni.	*Ganjam*—Ganjam, Chicacole, Tilaru, Kota Bommali. *Vizagapatam*—Vizagapatam, Anakapalle. *Madras*—Madras, Rayapuram, Salt Cotaurs, Mill siding. *Malabar*—Calicut, Cannanore, Badagara.
3 *Godavari, West*—Tadepalligudem, Ellore, Nidadavolu, Pulla, Kaikaram, Chebrol, Athili, Palakol, Bhimavaram, Tanuku.	*Vizagapatam*—Vizagapatam, Anakapalle. *Madras*—Madras, Rayapuram, Salt Cotaurs, Mill siding. *Malabar*—Calicut, Cannanore, Badagara. *Coimbatore*—Coimbatore, Tiruppur, Pollachi. *Salem*—Krishnagiri, Salem market. *Guntur*—Ongole, Vinukonda, Narasavapet. *Nellore*—Kavali, Singarayakonda. *Kurnool*—Kurnool town all stations from Donakonda to Maddikera. *Cuddapah*—Razampetta, Yerraguntla, Muddanuru. *Chittoor*—Madanapalle Road, Thirupati. *Anantapur*—Guntakal, Gooty, Tadpatri, Anantapur, Kadiri. *Bellary*—Bellary, Adoni, Kosgi, Hospet. *Hyderabad*—Hyderabad, Secunderabad and other minor stations. *Mysore*—Bangalore, Bowringpet, Mallur, Kolar, Chikballapur. *Bombay*—Gadag, Hubli. *North Arcot*—Ranipet, Gudiyattam. *Kistna*—Bezwada. *Godavari, East*—Tuni.
4 *Kistna*—Bezwada, Gudivada, Nuzvid, Masulipatam, Dosapadu, Gudavalleru, Pedana.	*Madras*—Madras, Rayapuram, Salt Cotaurs, Mill siding. *Malabar*—Calicut, Cannanore, Tellicherry. *Coimbatore*—Coimbatore, Tiruppur, Erode. *Salem*—Krishnagiri, Salem market. *Guntur*—All the stations on the line from Guntur to Macherla, Ongole, Chinnaganjam. *Nellore*—Kavali, Singarayakonda, Ulavapadu. *Kurnool*—Kurnool town all stations from Donakonda to Maddikera. *Cuddapah*—Kodur, Muddanuru, Yerraguntla, Razampeta, Kondapuram. *Chittoor*—Madanapalle, Pulicherla. *Anantapur*—Guntakal, Gooty, Tadpatri, Anantapur, Kadiri, Hindupur. *Bellary*—Bellary, Adoni, Kosgi, Hospet, Rayadrug, Kottur. *Hyderabad*—Hyderabad, Secunderabad and other minor stations. *Mysore*—Bangalore, Bowringpet, Mallur, Kolar, Chikballapur, Dodballapur. *Bombay*—All places in the metre gauge line of the Madras and Southern Mahratta Railway situated in the Bombay Presidency about 30 stations. *North Arcot*—Katpadi. *Trichinopoly*—Trichinopoly.
5 *Guntur*—Nidadavolu, Tenali, Bhattiprolu, Repalle, Bapatla, Chirala, Vetapalemu.	*Madras*—Madras. *Coimbatore*—Coimbatore, Tiruppur. *Guntur*—Ongole, Tangutur, Ammanabrolu, Uppugundur, Narasaraopet, Macherla and other minor stations in the Guntur-Macherla-Gurzala line. *Nellore*—Kavali, Gudur, Nellore, Padugapathu, Singarayakonda, Ulavapadu. *Kurnool*—Kurnool town all stations from Donakonda to Maddikera. *Cuddapah*—Kodur, Muddanuru, Yerraguntla, Razampetta, Kondapuram, Cuddapah. *Chittoor*—Madanapalle, Pulicherla, Tirupati, Chendragiri. *Anantapur*—Guntakal, Gooty, Tadpatri, Anantapur, Kadiri, Hindupur. *Bellary*—Bellary, Adoni, Kosgi, Toranagallu, Hospet. *Mysore*—Bangalore, Bowringpet, Oorgaum.
6 *Nellore*—Nellore, Kodavaluru, Padugapathu, Venkatachallam, Kavali, Nayudupet.	*Madras*—Madras, Chingleput, Tiruvallur, Ponneri. *Malabar*—Palghat, Calicut. *Coimbatore*—Tiruppur, Erode, Coimbatore, Mettupalaiyam, Udumalpet, Pollachi. *Salem*—Salem market. *Guntur*—Ongole only. *Nellore*—Venkatagiri, Singarayakonda, Sulurpet. *Cuddapah*—All stations from Regadipalli to Kodur. *Chittoor*—Chittoor, Tirupati, Chendragiri, Pulicherla, Pakala, Madanapalle, Puttur, Renigunta. *Anantapur*—Tadpatri, Gooty, Kadiri. *Mysore*—Bangalore, Bowringpet, Oorgaum. *North Arcot*—Vellore, Tiruvannamalai, Arkonam, Polur,

APPENDIX 14.—*List of the important centres which despatch and import rice and paddy—cont.*

Despatching centres.	Importing centres.
	Ranipet, Wallaja Road, Gudiyattam. *Trichinopoly*—Trichinopoly, Golden Rock, Karur, Lalgudi, Kulittalai. *Tinnevelly*—Tinnevelly. *Madura*—Madura, Dindigul, Palni. *Ramnad*—Karaikudi.
7 *Tanjore*—All the chief railway stations in the district.	*Coimbatore*—Coimbatore, Erode, Tiruppur, Mettupalaiyam, Karamadai, Pollachi, Somanur, Udumalpet, Uttukuli, Vanjipalaiyam. *Salem*—Salem market, Mc'Donald's choultry, Sankaridrug. *Mysore*—Bangalore, Bowringpet, Oorgaum. *North Arcot*—Vellore, Tiruvannamalai, Arkonam, Polur. *Trichinopoly*—Trichinopoly, Golden Rock, Karur, Lalgudi. *Tinnevelly*—Tinnevelly, Kadambur, Sankarankoil. *Madura*—Kanakampatti, Odan Chatram, Bodinayakkanur. *Ramnad*—Satur, Virudunagar, Karaikudi, Ramnad, Paramakudi, Mandapam, Sivakasi and six minor stations. *Tanjore*—Tanjore, Adiramapatnam, Pattukkottai. *Nilgiris*—Coonoor, Ootacamund. *Chingleput*—Saidapet, St. Thomas Mount, Conjeeveram, Wallajabad, Acharapakkam.
8 *Madras*	*Salem*—Krishnagiri, Salem market. *Nellore*—Sulurpet, Nayudupet, Gudur, Venkatagiri. *Cuddapah*—Kodur, Muddanuru, Yerraguntla, Razempetta, Kondapuram, Cuddapah. *Chittoor*—Madanapalle, Pulicherla, Tirupati, Chandragiri. *Anantapur*—Kadiri. *Mysore*—Bangalore, Bowringpet, Oorgaum. *North Arcot*—Vellore, Tiruvannamalai, Arkonam, Polur. *Chingleput*—Saidapet, St. Thomas Mount, Conjeeveram, Wallajabad, Acharapakkam. *South Arcot*—Porto Novo, Cuddalore, Panruti, Villupuram.

APPENDIX 15.—*Statement showing the average harvest prices of rice in annas per Imperial maund (82⅔ lb.) in the different districts of the Madras Presidency from* 1904 *to* 1933.

	1904-05.	1905-06.	1906-07.	1907-08.	1908-09.	1909-10.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.
Ganjam	45	60	76	84	88	65	69	78	85	81	78	83	80	73	125
Vizagapatam	48	66	66	79	82	67	62	68	79	81	78	83	93	81	128
Godavari	52	64	73	77	85	56	57	80	82	72	64	72	73	73	110
Kistna	58	68	84	79	86	67	63	83	79	73	71	80	83	78	83
Guntur	58	66	77	84	90	66	61	77	82	67	66	74	77	70	100
Kurnool	61	65	69	80	85	71	67	87	93	82	78	75	83	84	142
Bellary	62	75	75	97	94	78	77	88	97	91	88	85	85	96	133
Anantapur	62	67	73	81	103	77	60	83	89	80	78	80	74	73	116
Cuddapah	59	75	72	85	108	78	68	81	100	94	84	91	86	86	145
Nellore	55	54	65	65	83	64	53	69	78	68	66	69	78	68	119
Chingleput	63	65	70	80	74	71	63	77	79	88	70	79	78	68	131
South Arcot	62	67	69	85	83	69	69	70	87	90	73	76	84	78	85
Chittoor	62			69	70	55	76	85	85	72	66	69	68	64	102
North Arcot	57	57	75	74	79	70	55	80	85	89	73	73	69	73	159
Salem	64	82	78	82	111	76	78	88	107	92	80	84	83	81	160
Coimbatore	62	72	77	82	86	82	82	89	92	90	85	86	88	91	131
Trichinopoly	58	72	70	79	84	70	64	85	97	95	86	87	85	86	114
Tanjore	57	61	71	80	92	68	65	80	90	89	90	88	83	90	116
Madura	62	70	69	82	78	70	64	79	90	89	80	79	83	88	132
Ramnad	..	..	..	..	..	67	70	89	97	97	91	92	94	82	128
Tinnevelly	58	71	68	69	86	70	71	74	83	83	73	78	81	85	116
Malabar	50	63	77	83	85	77	72	80	86	83	76	76	78	81	116
South Kanara ..	51	59	65	73	83	56	60	71	77	73	74	79	80	85	100
Nilgiris	75	82	91	96	103	88	80	94	91	90	91	88	91	97	136
Total ..	1,341	1,481	1,610	1,850	2,017	1,693	1,591	1,926	2,110	1,939	1,860	1,919	1,957	1,931	2,927
Average ..	58	67	70	80	88	71	66	80	92	84	77	80	82	81	122

Appendix 15.—*Statement showing the average harvest prices of rice in annas per Imperial maund (82 6/7 lb.) in the different districts of the Madras Presidency from* 1904 *to* 1933—cont.

	1919–20.	1920–21.	1921–22.	1922–23.	1923–24.	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.	1929–30.	1930–31.	1931–32.	1932–33.
Ganjam	164	130	112	84	100	112	100	104	97	94	94	84	69	58
Vizagapatam	142	132	121	100	100	100	100	109	107	102	108	77	76	72
Godavari, East .. .. }	116	119	103	92	102	109	101	112	112	101	97	65	52	46
" West .. .. }						112	101	110	108	100	94	52	62	50
Kistna	98	109	110	96	100	118	101	118	109	97	90	67	68	59
Guntur	125	126	116	102	105	107	107	114	109	94	92	61	56	56
Kurnool	132	129	114	107	125	123	114	118	115	111	105	86	73	70
Bellary	183	137	116	116	121	128	117	128	125	114	113	85	81	70
Anantapur	156	137	128	116	121	125	100	117	115	111	104	78	69	62
Cuddapah	142	132	133	123	146	160	133	125	133	119	111	90	72	75
Nellore	125	102	102	89	97	107	100	112	112	115	103	51	52	64
Chingleput	116	116	114	97	112	125	99	117	128	95	87	60	57	53
South Arcot	132	101	114	99	97	116	104	123	131	118	102	72	65	46
Chittoor	133	120	108	93	105	112	104	114	119	110	102	70	60	62
North Arcot	152	101	116	119	110	133	120	118	122	115	84	57	50	54
Salem	200	126	136	121	128	133	133	133	136	140	112	84	68	62
Coimbatore	188	119	123	120	112	128	116	128	129	121	115	86	69	66
Trichinopoly	168	138	123	125	121	152	136	131	129	132	111	92	67	61
Tanjore	145	136	125	125	103	142	123	112	131	123	109	94	69	58
Madura	156	125	125	116	107	136	120	117	115	100	90	71	68	51
Ramnad	133	106	100	112	114	157	128	128	115	108	82	69	61	51
Tinnevelly	145	100	114	112	100	120	117	114	117	103	81	79	62	56
Malabar	142	116	116	112	112	116	114	112	112	108	96	80	64	58
South Kanara	136	100	105	107	100	112	117	100	110	95	88	86	62	58
Nilgiris	121	123	136	128	133	146	142	128	126	123	117	89	74	70
Total ..	**3,450**	**2,880**	**2,810**	**2,611**	**2,671**	**3,097**	**2,847**	**2,942**	**2,960**	**2,749**	**2,535**	**1,885**	**1,666**	**1,488**
Average ..	**144**	**120**	**117**	**109**	**111**	**125**	**114**	**118**	**119**	**110**	**99**	**75**	**67**	**60**

Fig. 1

Area under Paddy (irrigated and unirrigated) in Madras Presidency. 1918–19 to 1932-33.

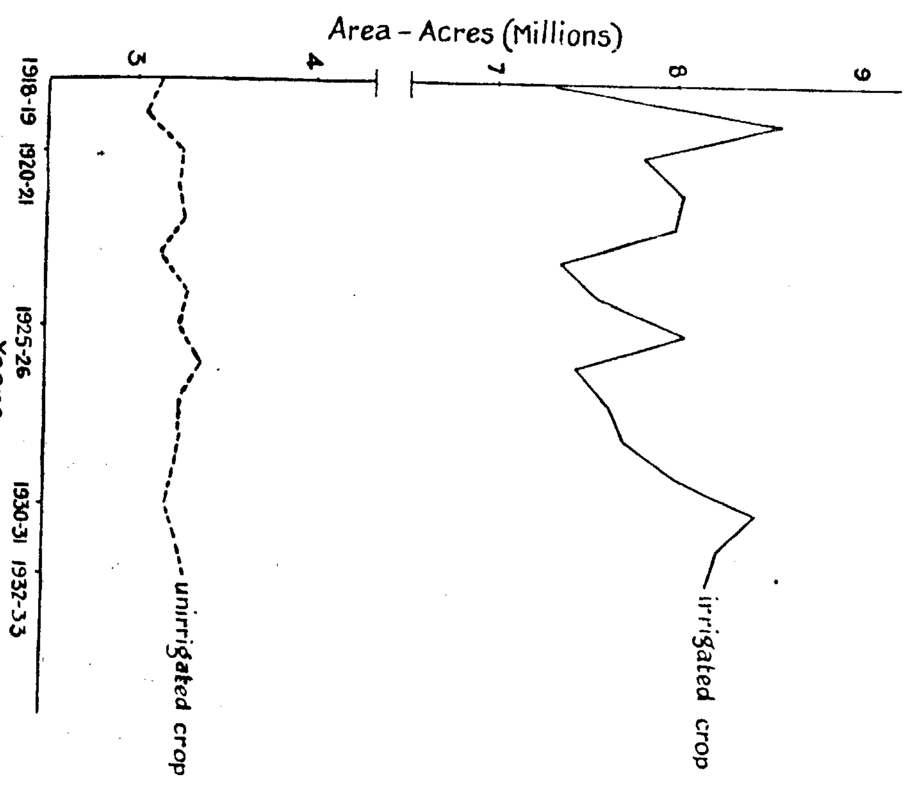


Fig. II

Production of Paddy in the Madras Presidency

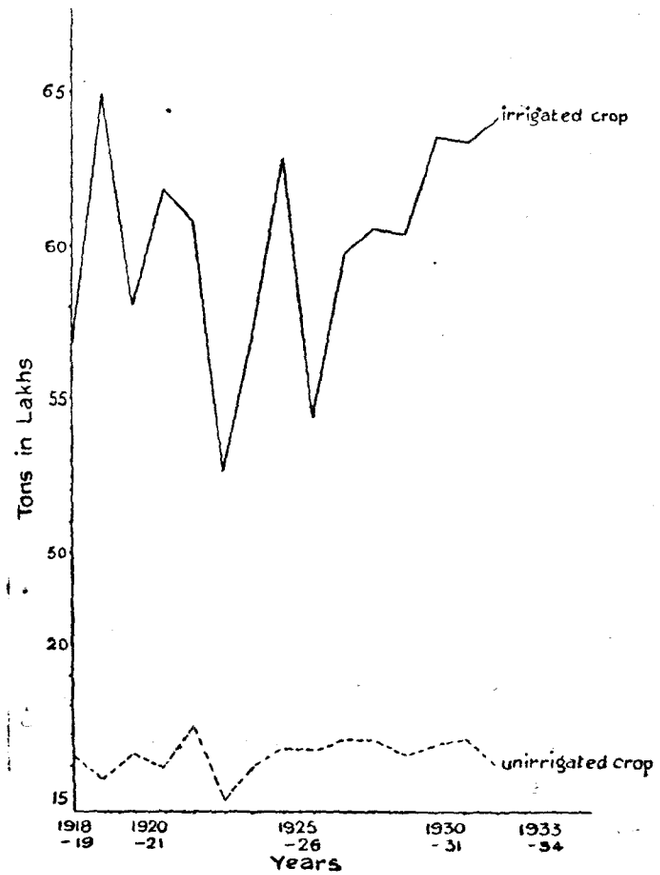


Fig III

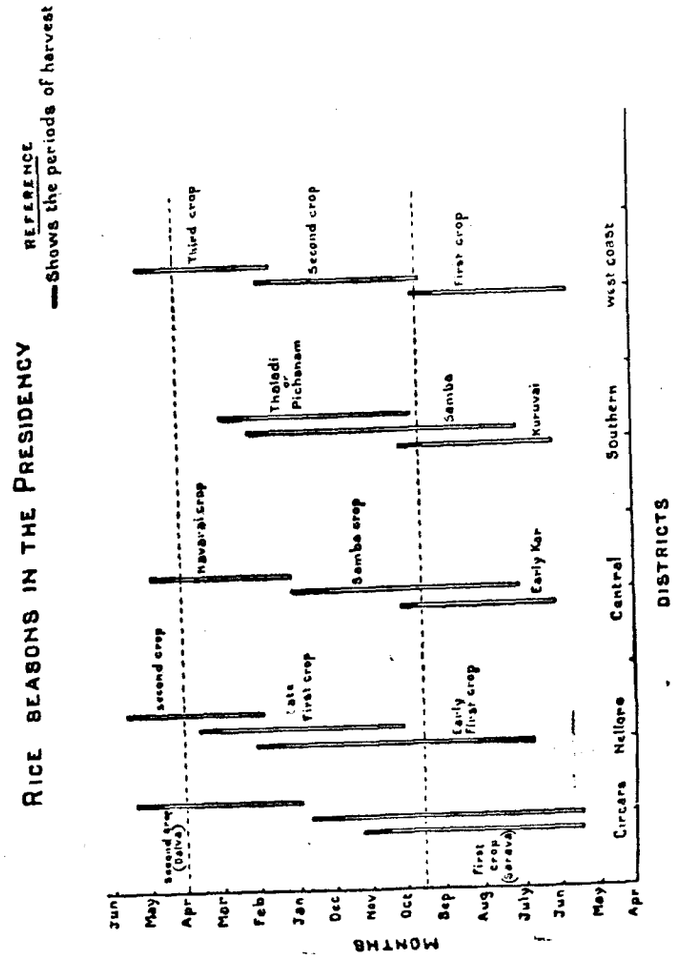


FIG. IV *a*

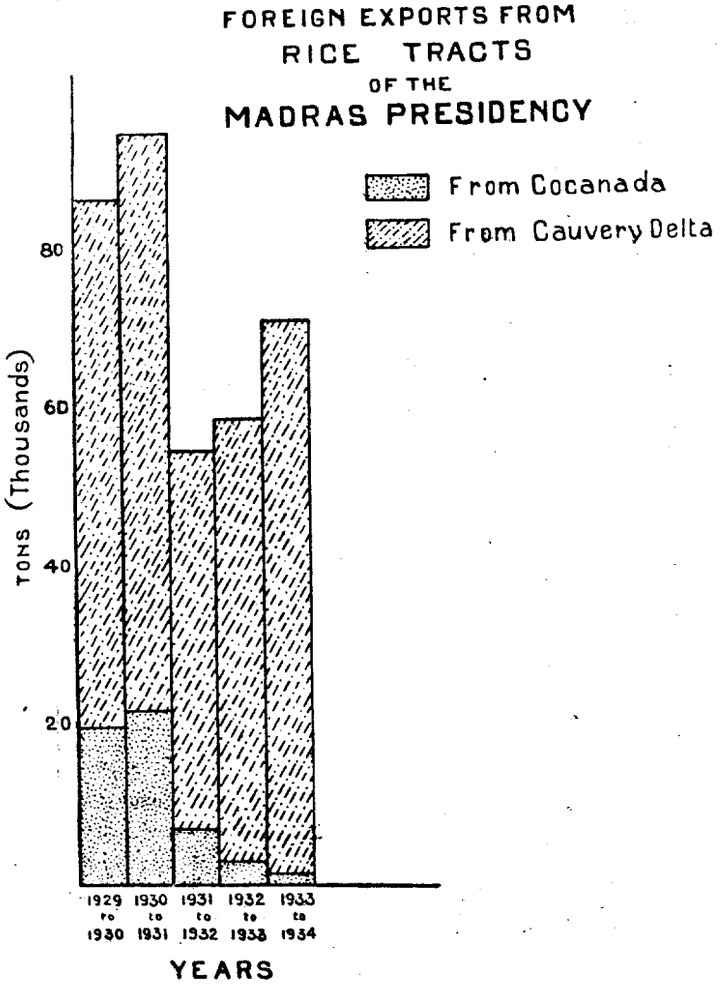


Fig IV b

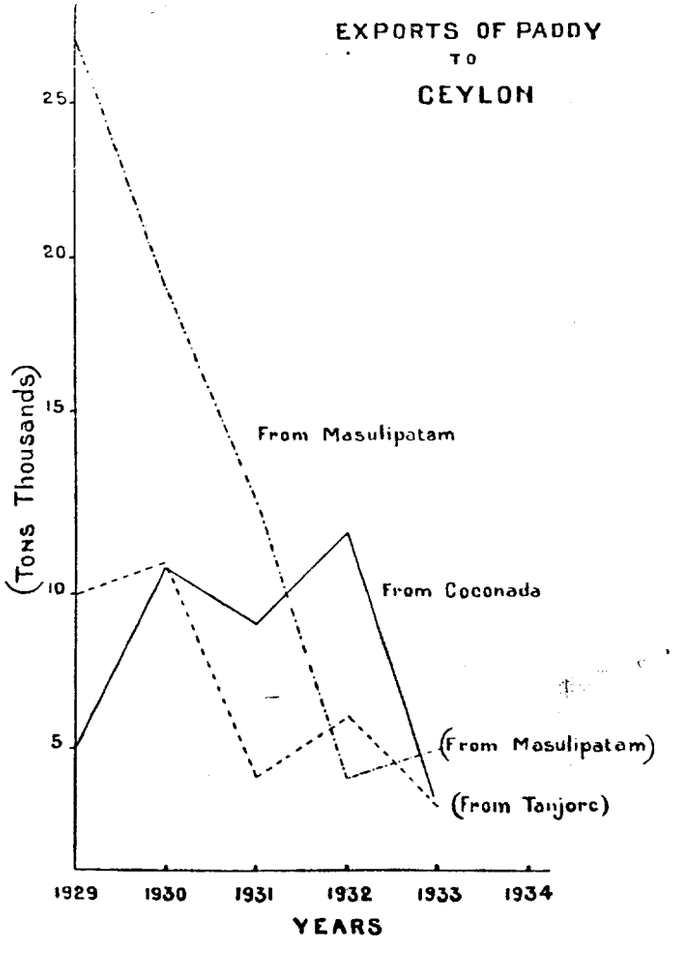


FIG. V

IMPORTS OF RICE FROM MADRAS PRESIDENCY
Via Bezwada into Nizam's Dominions
1921 to 1933

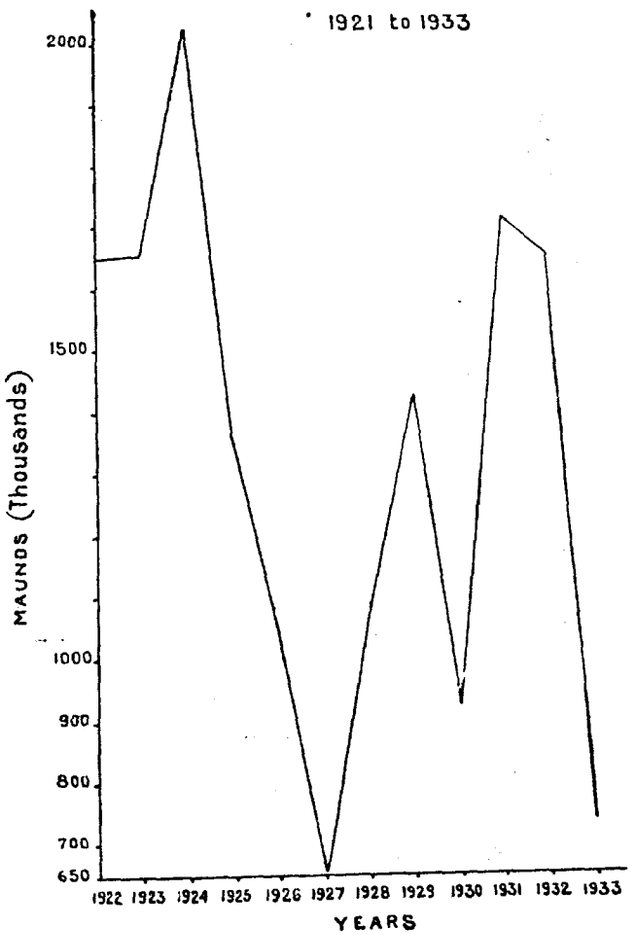


FIG VI

FLUCTUATIONS IN QUANTITIES OF RICE IMPORTED
FROM DIFFERENT SOURCES INTO THE
CITIES OF HYDERABAD AND SEC'ABAD
1926-27 to 1932-33

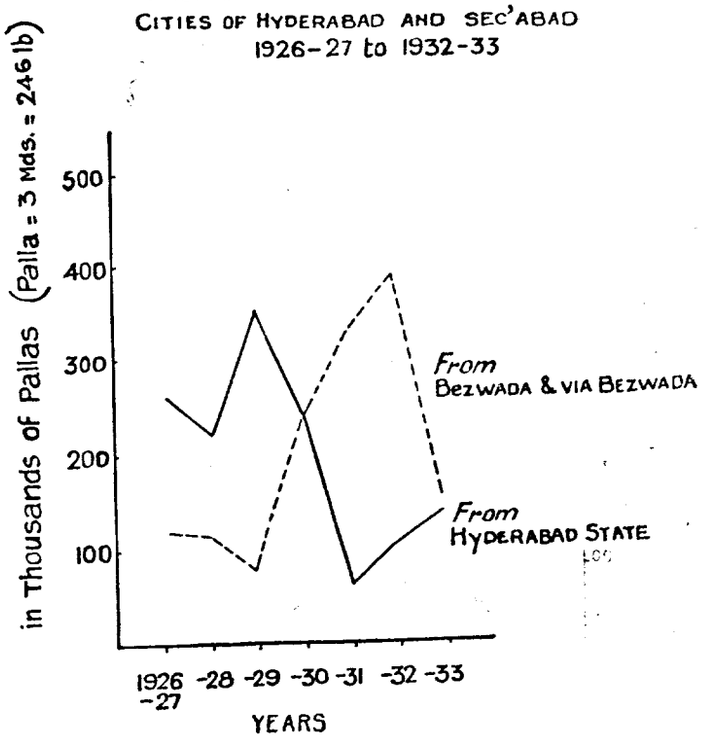


Fig VII

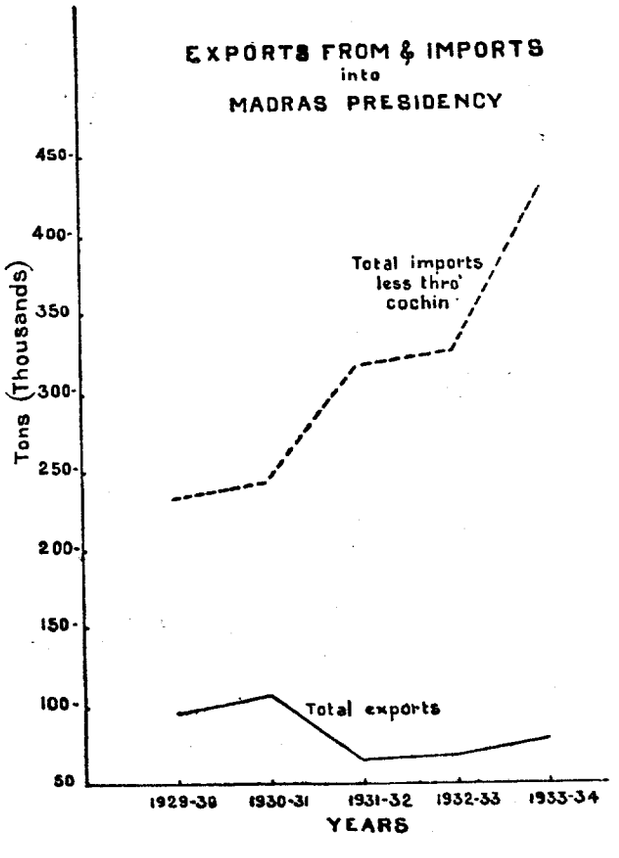


FIG. VIII

MONTHLY IMPORTS FROM SIAM AND INDO-CHINA
Dec. 1933 to July. 1934

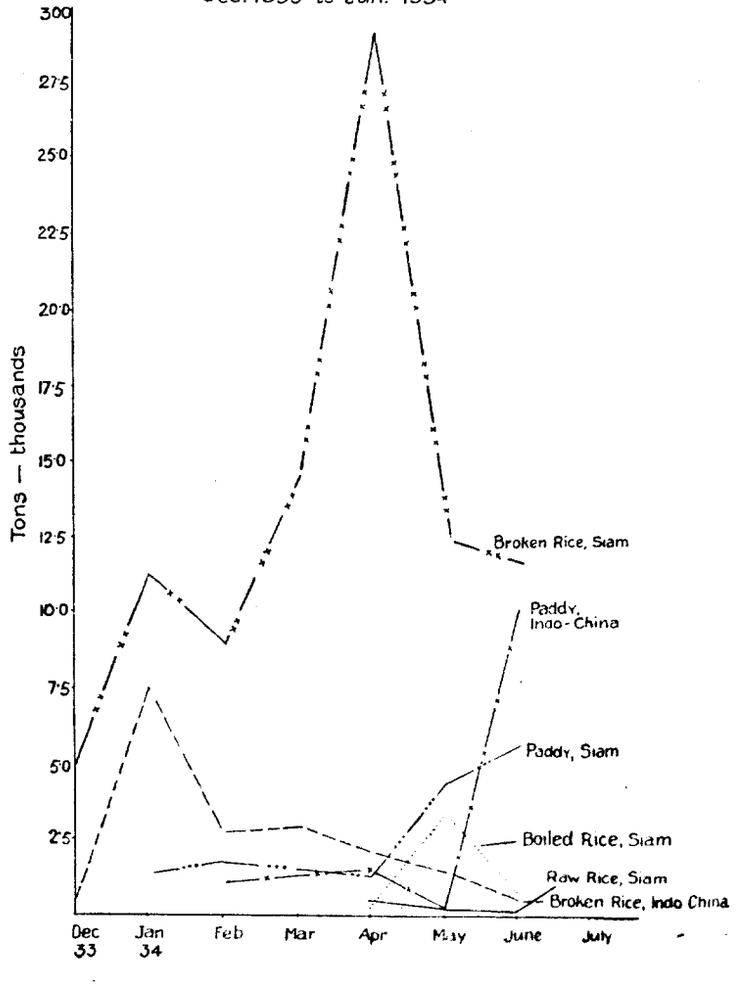
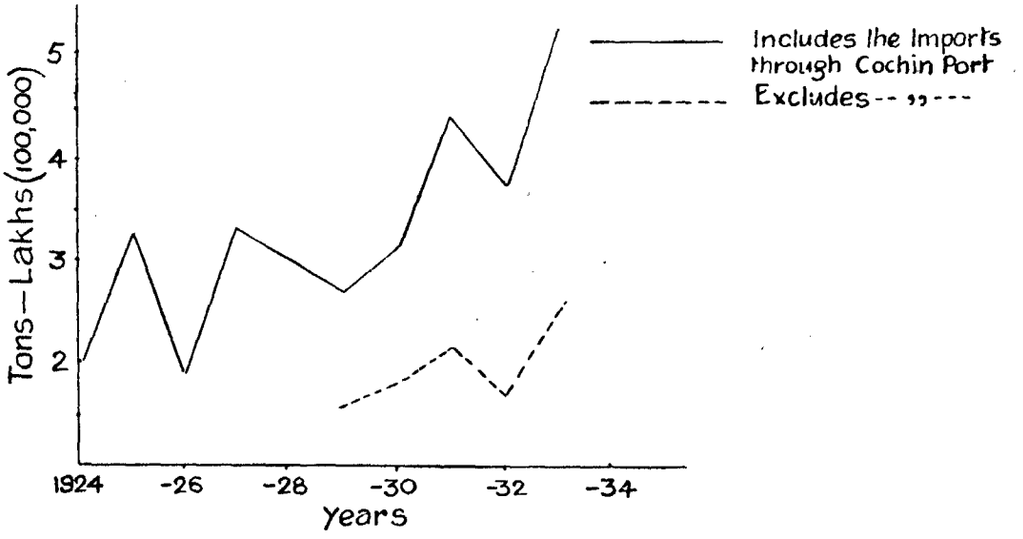


FIG. IX

ANNUAL IMPORTS OF RICE OF ALL KINDS FROM BURMA
1924 – 1933



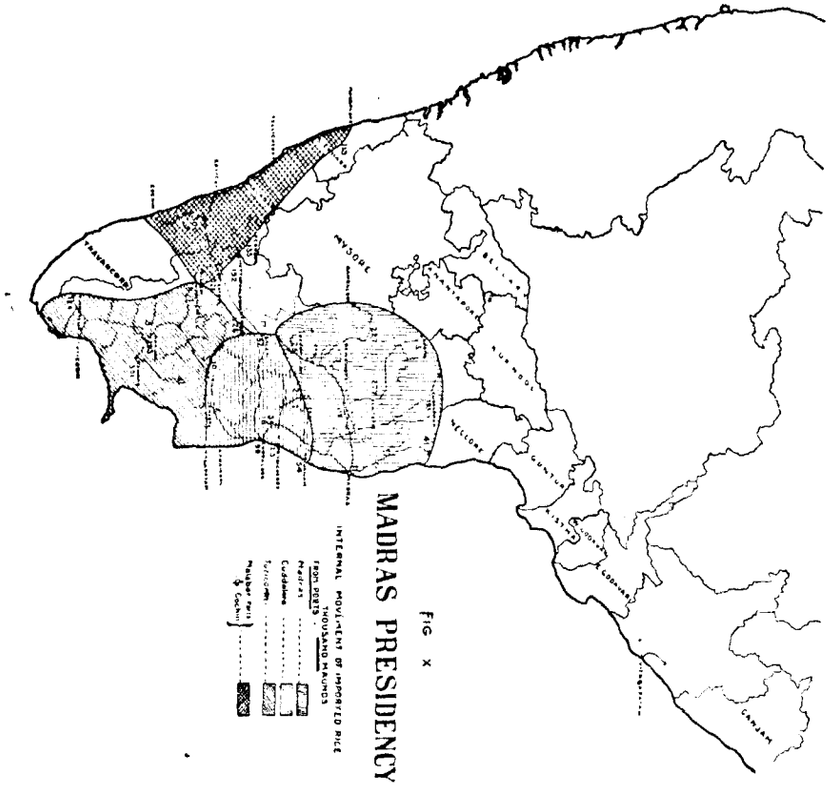


FIG X

FIG. XI (*a*)

PRICES OF IMPORTED RICE IN MADRAS CITY MARKET

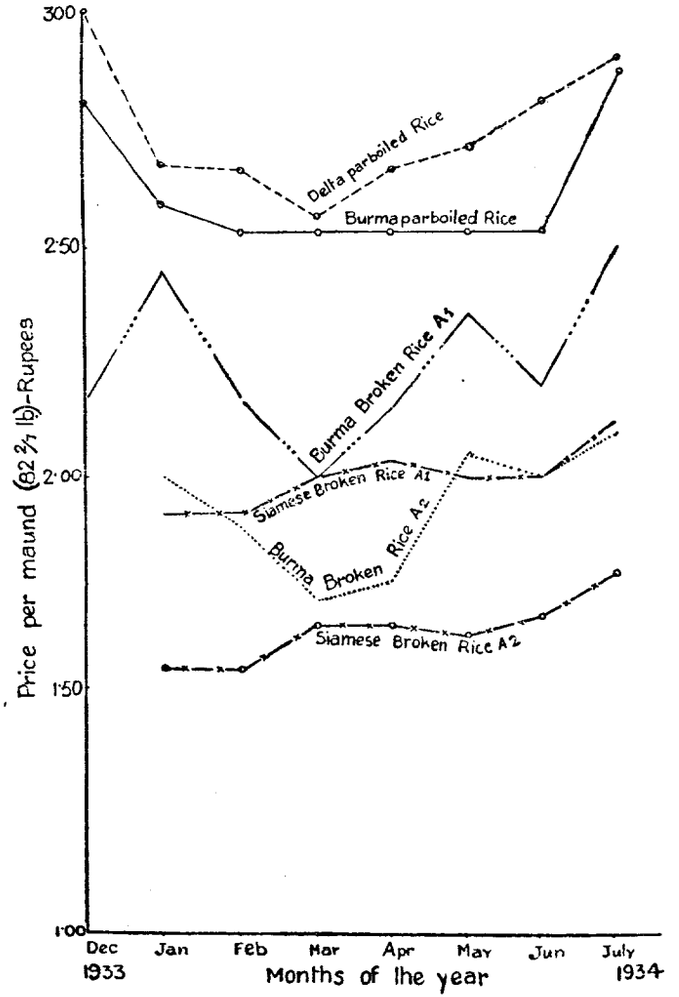
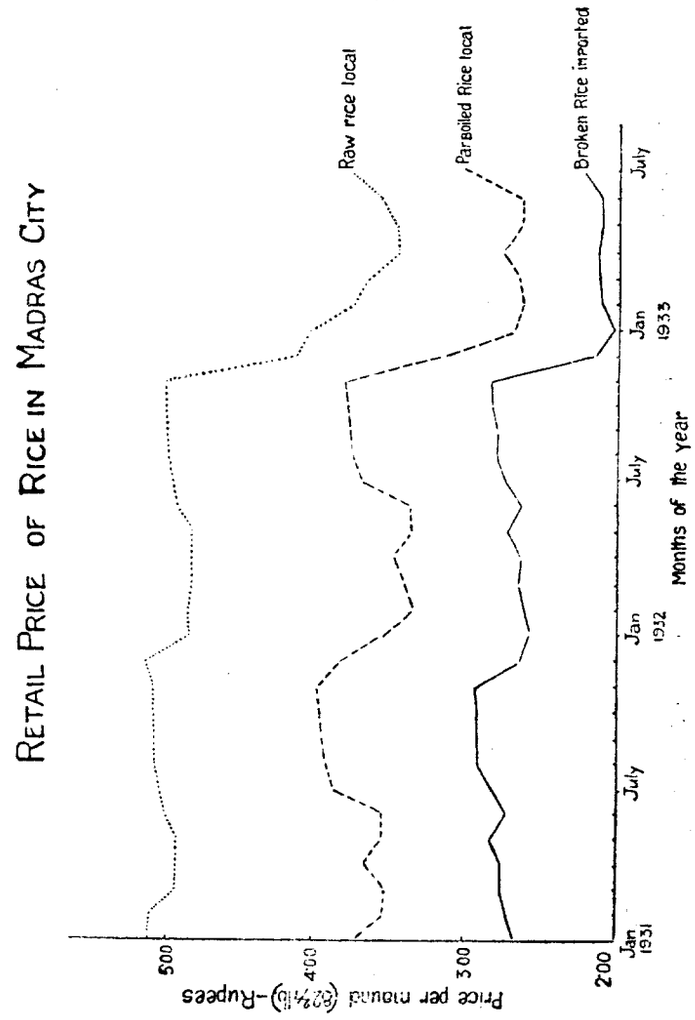


FIG. XI (*b*).



COMPARISON OF THE PRICE OF BROKEN RICE WITH MAJOR MILLETS

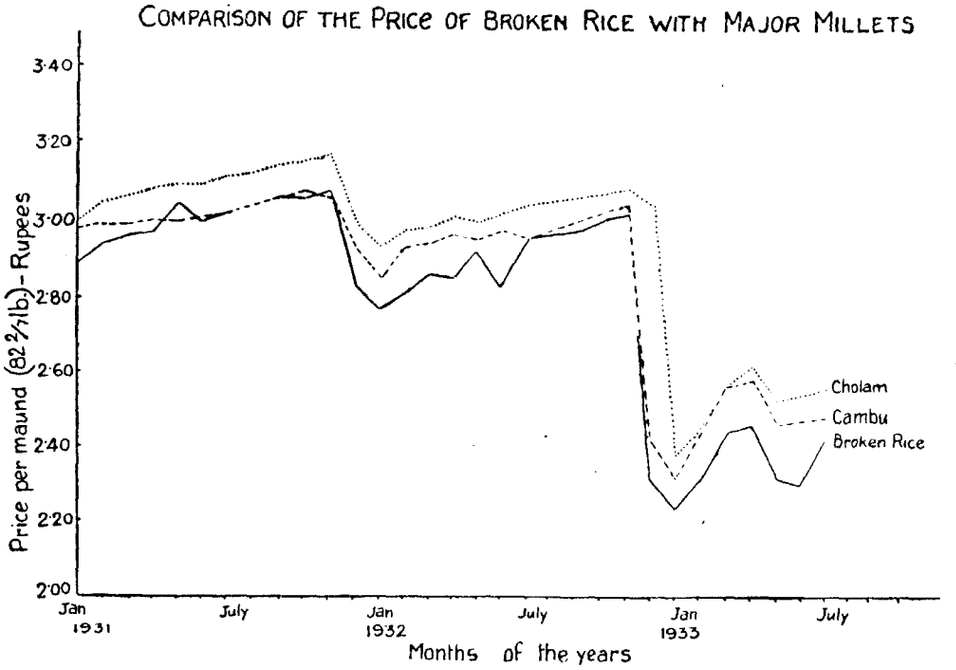


FIG. XI (c).

FIG. XII

VARIATION IN THE AVERAGE HARVEST PRICE OF RICE FOR THE PRESIDENCY 1904 to 1933

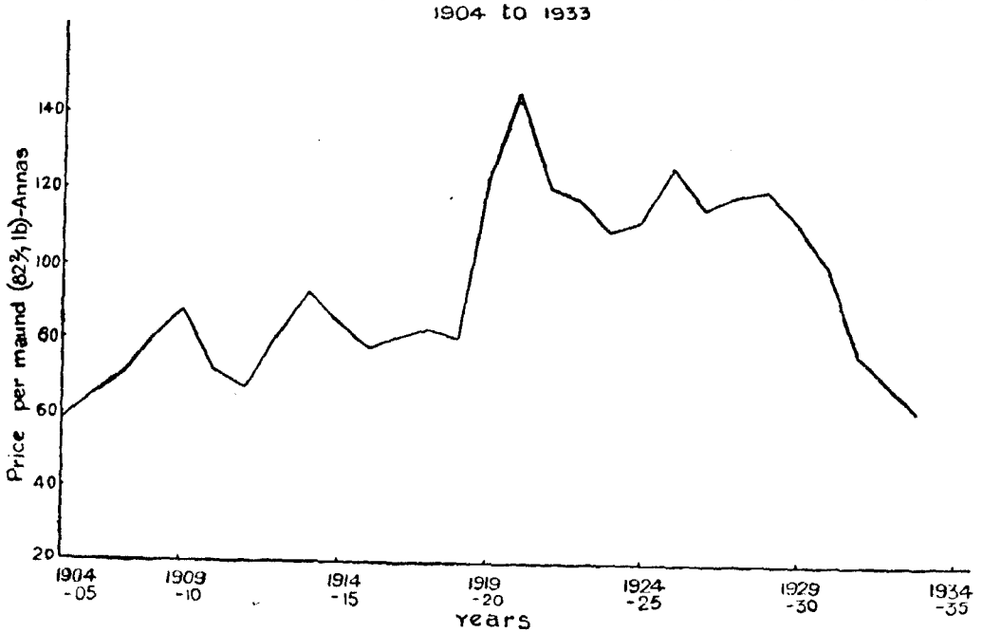


FIG. XIII

MONTHLY VARIATION IN THE PRICE OF
RANGOON RICE (*Big Mill Special*) AND COCANADA RAW RICE
1929–1934

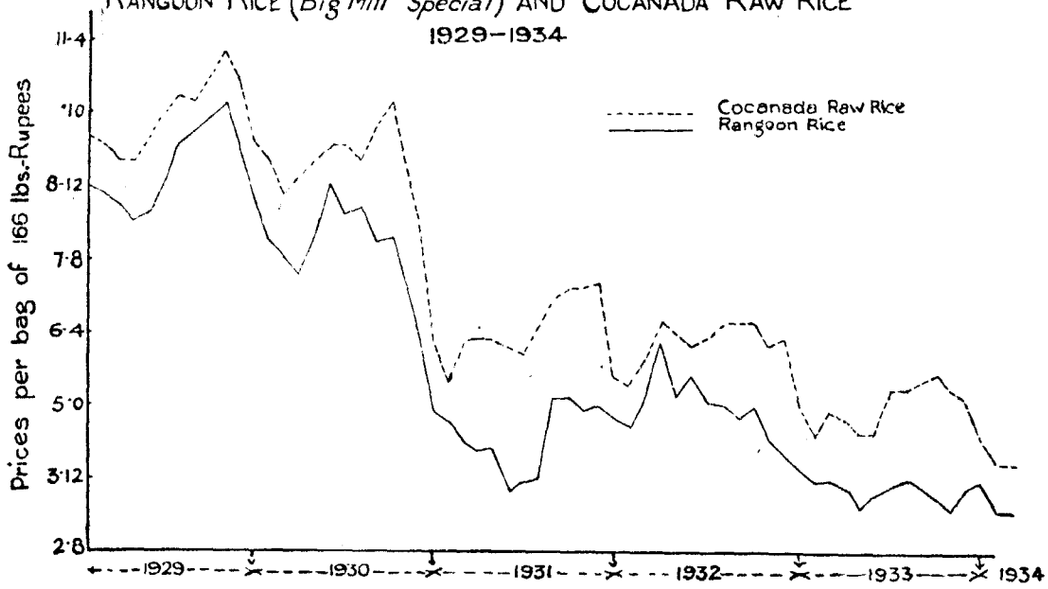


FIG XIV

ANNUAL VARIATION IN PRICES OF TANJORE PADDY VARIETIES AT KUTTALAM
1914–1933

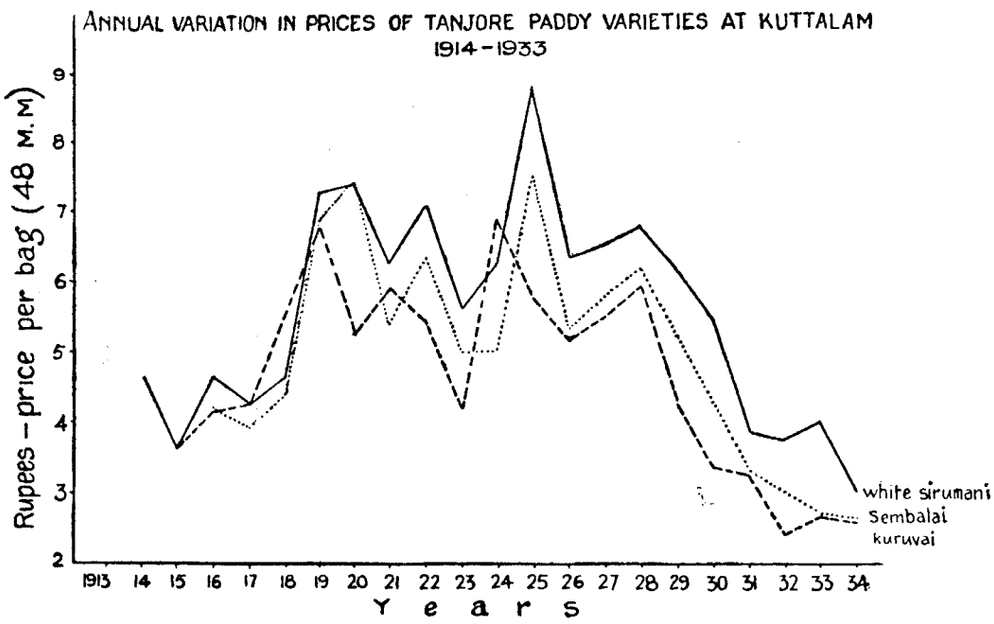


Fig. xv

MONTHLY VARIATION IN PRICE OF RAW RICE PARBOILED RICE & PADDY AT THE COCANADA MARKET FOR YEARS 1930-33.

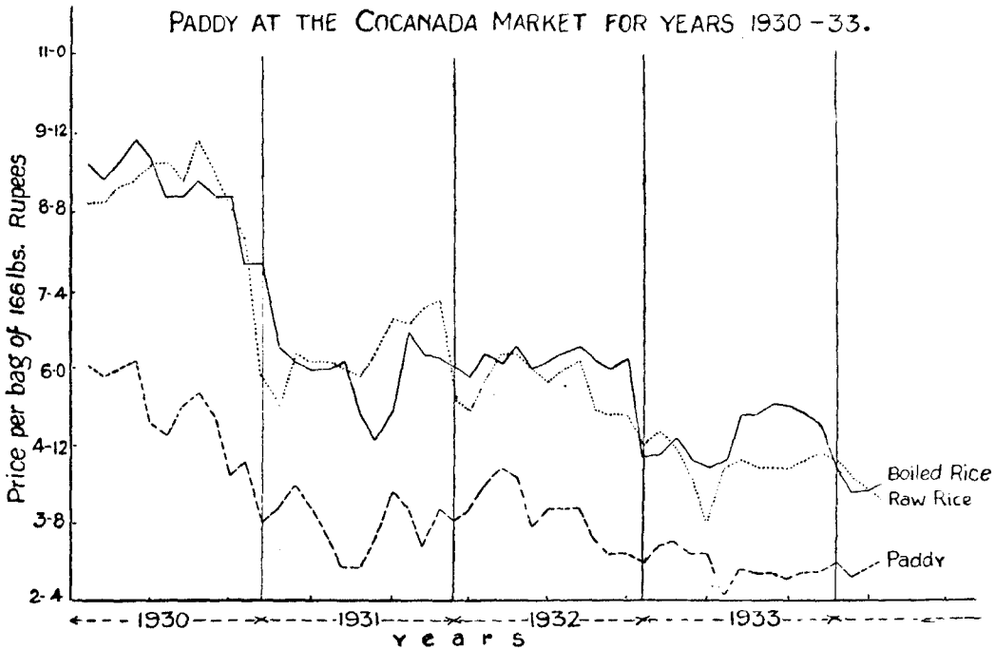


Fig. xvi

VARIATION IN THE MONTHLY PRICE OF RICE AND PADDY AT THE COCANADA MARKET 1927-28 (Predepression)

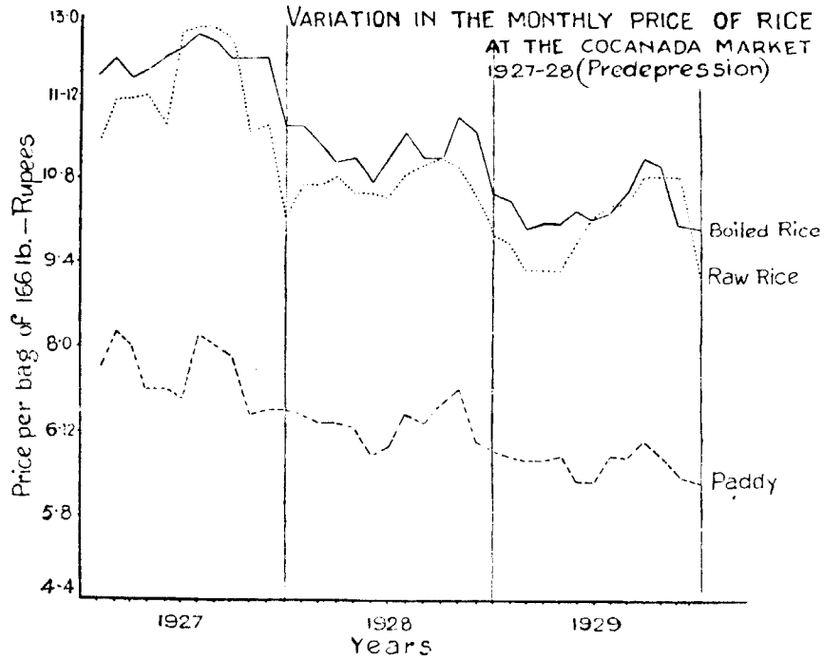


FIG. XVII.

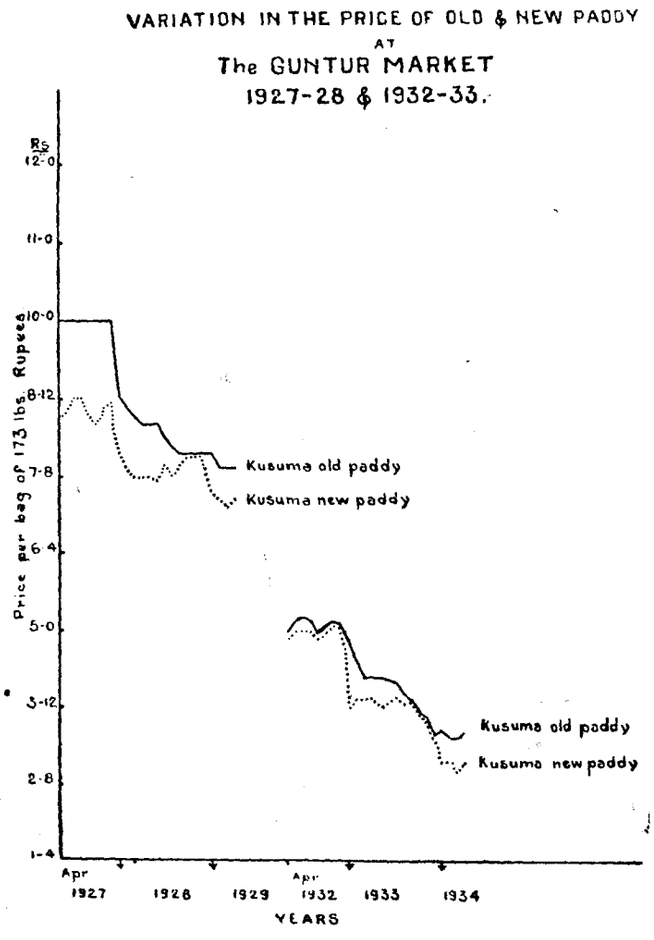


FIG. XVIII (*a*).

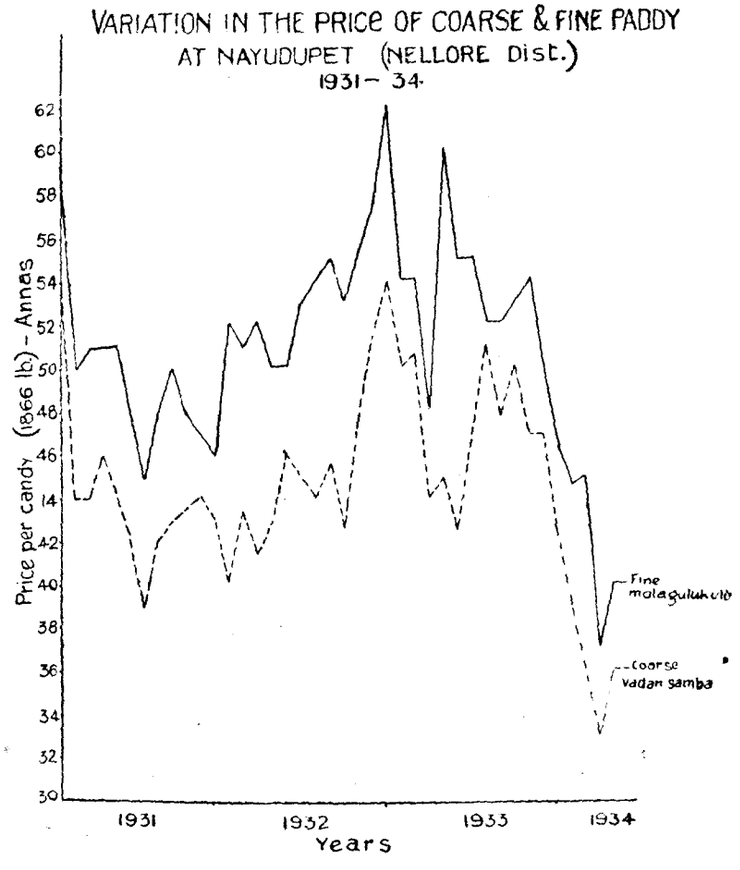


FIG. XVIII (*b*).

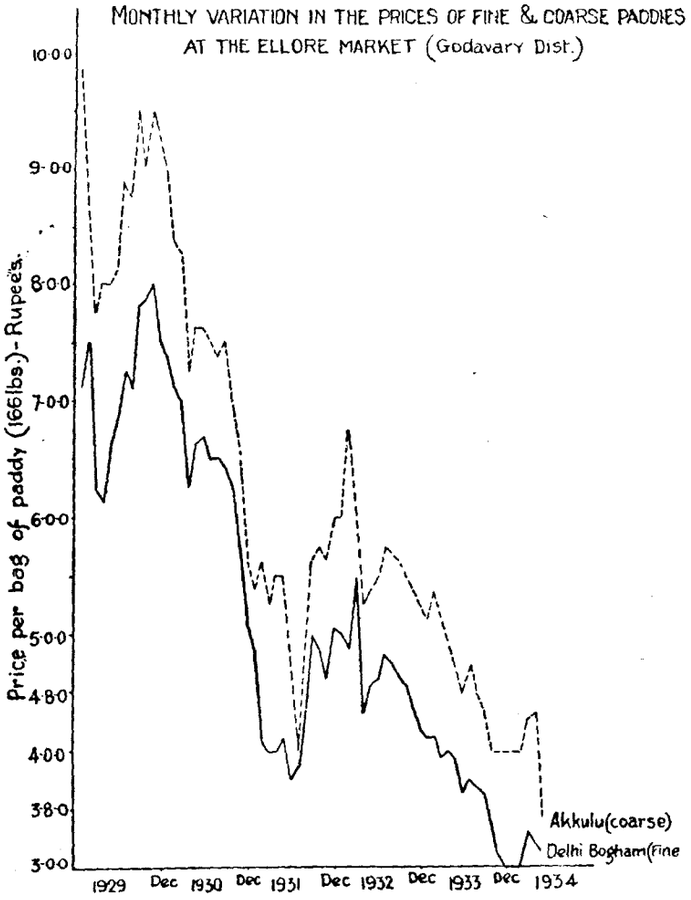
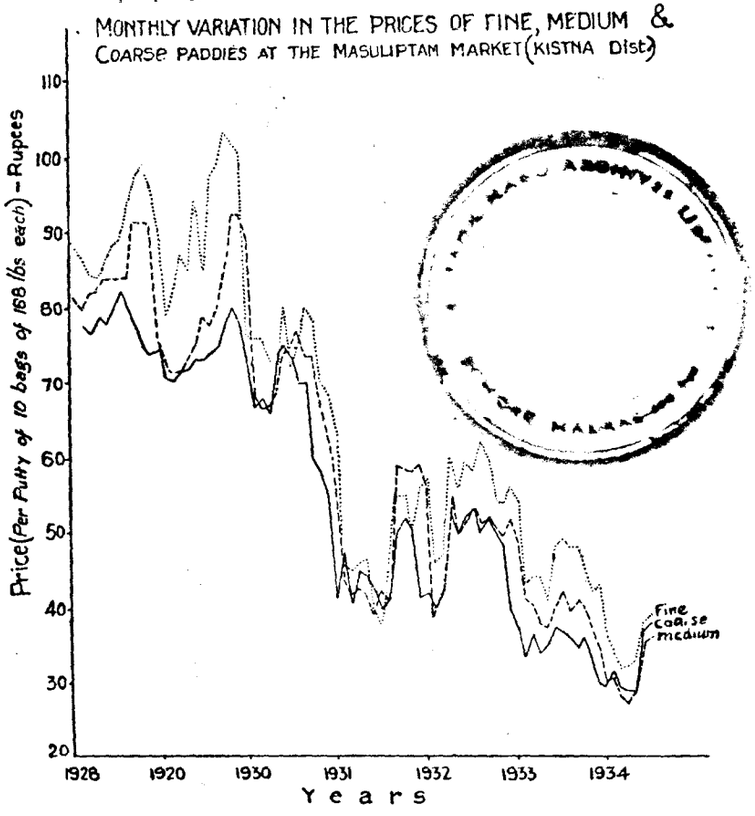


FIG. XVIII. C



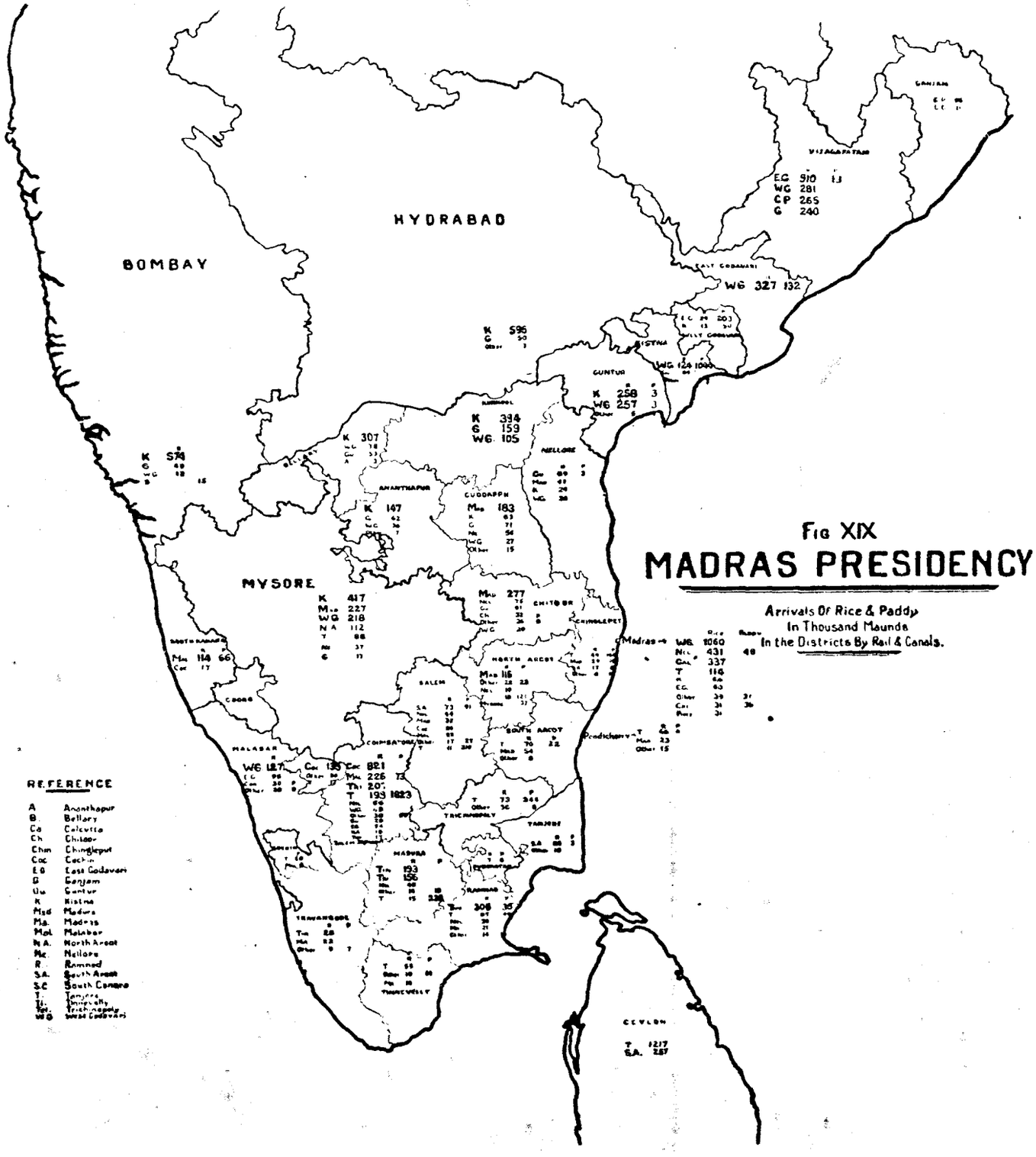


Fig XIX

MADRAS PRESIDENCY

Arrivals Of Rice & Paddy
In Thousand Maunds
In the Districts By Rail & Canals.